Id	Title	Date	Participants	Description	Research groups	Journal	DOI
35171127	The effect of slime accumulated in a long-term operating UASB using crude glycerol to treat S-rich wastewater	1/1/2024	Zhou, Xudong;Fernández Palacios, Eva;Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David	An up-flow anaerobic sludge blanket (UASB) reactor targeting sulfate reduction was operated under a constant TOC/S-SO42- ratio of 1.5 ± 0.3 g C/g S for 639 days using crude glycerol as carbon source. A filamentous and fluffy flocculant material, namely slime-like substances (SLS), was gradually accumulated in the bioreactor after the cease of methanogenic activity. The accumulation of SLS was followed by a decrease in the removal efficiencies and a deterioration in the performance. Selected characteristics of SLS were investigated to explore the causes of its formation and the effect of SLS on the UASB performance. Results showed that glycerol fermentation and sulfate reduction processes taking place in the reactor were mainly accomplished in the bottom part of the UASB reactor, as the sludge concentration in the bottom was higher. The accumulation of SLS in the UASB reactor caused sludge flotation that further led to biomass washout, which	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of Environmental Sciences	10.1016/j.jes.2022.11.011
37748351	A high productivity bioprocess for obtaining metallic copper from printed circuit boards (PCBs)	1/1/2024	Iglesias González, Nieves;Dorado Castaño, Antonio David;Ramírez del Amo, Pablo;Mazuelos Rojas, Alfonso	PCBs constitute a residue rich in metals, among which copper stands out due to its majority content, much higher than that found in natural deposits, so that it is a potential secondary resource. Many attempts have been made to recover copper via biohydrometallurgy because it is an environmentally friendly route, however, one of its main drawbacks is the low productivity achieved. A global process based on circularity for obtaining copper cathodes from PCBs is proposed. First, PCBs from end-of-life mobile phones are shred to sizes between 800 and 2000 µm. Copper is leached from these pieces in a continuous stirred tank reactor (CSTR) at high ferric concentration, at a moderate temperature of 60 °C reaching dissolution rate higher than 1 g/L·h and a yield of 99 %. The solution that leaves the CSTR with concentrations of up to 10 g/L of Cu is passed through a high-performance bioreactor for the regeneration of Fe(III). A biooxidation rate of 1.3 g/L·h was achieved, and no	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals engineering	10.1016/j.mineng.2023.108459
37847815	Super-regenerative receiver wake-up radio solution for 5G new radio communications	14/12/2023	Moncunill Geniz, Francisco Javier;del Águila López, Francisco;Demirkol, Ilker Seyfettin;Bonet Dalmau, Jordi;Palà Schönwälder, Pere	Wake-up radio is a promising solution to reduce the energy wasted by mobile devices during an idle state. In this paper, we propose a new wake-up radio solution for 5G mobile devices based on a super-regenerative receiver characterized by its low cost and low power consumption and investigate how to build on the orthogonal frequency-division multiplexing (OFDM) modulation capability at the base station to generate optimal wake-up signals. After presenting the relevant features and limitations of super-regenerative receivers operating in different 5G New Radio (NR) frequency bands, we evaluate how the numerology, the number of resource blocks, and the quadrature amplitude modulation (QAM) scheme used affect the sensitivity of the super-regenerative wake-up receiver. The results show that a 256-QAM modulation scheme, together with the highest numerology values, achieves optimal receiver sensitivity with a minimal number of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Electronics (Switzerland)	https://doi.org/10.3390/electronics12245011
37828105	Microflow injection analysis based on modular 3D platforms and colorimetric detection for Fe(III) monitoring in a wide concentration range	2/12/2023	Ricart Fort, David;Dorado Castaño, Antonio David;Lao Luque, Concepcion;Baeza Labat, Mireia	A modular microflow injection analysis (microFIA) system for the determination of Fe(III) in a bioleaching reactor has been designed, developed and validated. The different modules of the analyzer (mixer, diluter, disperser and detector) were 3D-printed. Fe(III) quantification is due by measuring the color intensity of the chelate formed between Fe(III) and salicylic acid at 525 nm. The device has been designed to dilute, disperse and detect high Fe(III) concentrations in the form of an inexpensive multi-step photometric flow cell that uses an light-emitting diode (LED) as a light source and an light-dependent resistor (LDR) as a light intensity detector. This microFIA system has been shown to be suitable for automatic and continuous determination of Fe(III) in the operation of a bioreactor for the oxidation of Fe(II). The device has a good repeatability (less than 5% of coefficient of variation in the whole range of concentrations) and accuracy of around 100%.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mikrochimica acta (1966)	10.1007/s00604-023-06029-x

37783400	Metallogenic model of the Eocene Santa María and Antares Zn-Pb(-Ag) skarn deposits, Velardeña Mining District, Durango, Mexico	3/11/2023	Cano, Néstor Alfredo;Camprubí Cano, Antoni;González Partida, Eduardo;González-Ambrocio, Ana Karen;Alfonso Abella, María Pura;Miggins, Daniel;Fuentes Guzmán, Edith;Cienfuegos Alvarado, Edith;Iriondo, Alexander	The Santa María and Antares Zn-Pb(-Ag) skarn deposits in the Velardeña Mining District are located in central?NW Mexico. They lie 470 m apart along the contact between Oligocene felsic intrusions and Cretaceous limestones, and were developed during prograde, retrograde, post-ore (Santa María), and late stages. Firstly, the prograde stage was formed by fluids at¿~¿600 °C and 15 wt% NaCl equiv., and consists of garnet¿+¿wollastonite¿±¿clinopyroxene and biotite¿±¿K-feldspar assemblages. Secondly, the retrograde/ore stage was formed by fluids at 300?500 °C with salinities of 20?30 wt% CaCl2 (Santa María) and¿>¿40 wt% NaCl equiv. (Antares). It comprises assemblages of chlorite, amphibole, epidote, calcite, scapolite, quartz, sericite, adularia, fluorite, and muscovite associated with sphalerite, pyrite, galena, pyrrhotite, arsenopyrite, chalcopyrite, and Pb-Bi-Sb sulfosalts. Thirdly, the post-ore stage was formed	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralium deposita	10.1007/s00126-023-01225-4
37748988	Viability of bauxite deposits from Catalonia (Spain) for ceramic applications	4/10/2023	Martínez Alcalá, Arnau;Garcia Valles, Maite;Alfonso Abella, María Pura	This study provides a characterization of materials from wastes and outcrops of two inactive bauxite mines located close to Sant Joan de Mediona and Peramola, Spain. Mineralogy was determined via powder X-ray diffraction (XRD) and Fourier transform infrared spectroscopy (FTIR). Thermal properties were measured via differential thermal analysis?thermogravimetry (DTA-TG) and gresification tests. The crystalline phases are medium-high crystalline kaolinite and variable amounts of illite, quartz, calcite, boehmite, hematite and rutile/anatase. DTA show two endothermic peaks produced by the dehydroxylation of minerals: the first peak, at 530?538 °C, belongs to boehmite; the second peak, at 535?568 °C, corresponds to kaolinite. An exothermic peak at 950?978 °C is associated with mullite crystallization. The optimal sintering temperatures obtained from the gresification curves (firing shrinkage and water absorption) were 970 °C for carbonate-poor, illite-rich	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min13101294
37160502	Mass transfer vectors for nitric oxide removal through biological treatments	2/10/2023	Cubides Paez, David Fernando;Guimera Villalba, Xavier;Abasolo Zabalo, Nerea;Torrell Galceran, Helena;Jubany Güell, Irene;Gamisans Noguera, Xavier	The reduction of nitric oxide (NO) emissions to atmosphere has been recently addressed using biological technologies. However, NO removal through bioprocesses is quite challenging due to the low solubility of NO in water. Therefore, the abatement of NO emissions might be improved by adding a chelating agent or a mass transfer vector (MTV) to increase the solubility of this pollutant into the aqueous phase where the bioprocess takes place. This research seeks to assess the performance of different non-aqueous phase liquids (NAPs): n-hexadecane (HEX), diethyl sebacate (DSE), 1,1,1,3,5,5,5-heptamethyl-trisiloxane (HTX), 2,2,4,4,6,8,8-heptamethylnonane (HNO), and high temperature silicone oil (SO) in chemical absorption?biological reduction (CABR) integrated systems. The results showed that HNO and HTX had the maximum gas-liquid mass transfer capacity, being 0.32 mol NO/kmol NAP and 0.29 mol NO/kmol NAP, respectively. When an aqueous phase was	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental science and pollution research international	10.1007/s11356-023-30009-6
36977487	Aquatic ecosystem risk assessment generated by accidental silver nanoparticle spills in groundwater	3/8/2023	Ramirez Garrido, Rosember;Marti Gregorio, Vicenç;Darbra Roman, Rosa Maria	This paper aims to create a new model for assessing the ecosystem risk in rivers and wetlands that are linked to accidental spills of silver nanoparticles (AgNPs) in soil/groundwater. Due to the uncertainty of the modeling inputs, a combination of two well-known risk assessment methodologies (Monte Carlo and fuzzy logic) were used. To test the new model, two hypothetical, accidental AgNP soil spill case studies were evaluated; both of which were located at the end of the Llobregat River basin within the metropolitan area of Barcelona (NE Spain). In both cases, the soil spill reached groundwater. In the first case, it was discharged into a river, and in the second case, it recharged a wetland. Concerning the results, in the first case study, a medium-risk assessment was achieved for most cases (83%), with just 10% of them falling below the future legal threshold concentration value. In the second case study, a high-risk assessment was obtained for most cases (84%),	R2EM - Resource Recovery and Environmental Management	Toxics	10.3390/toxics11080671

36781329	Reclamation of urban pollution impacted groundwater by advanced treatment processes: Effect of prechlorination on the removal of metals, ammonium and NOM at pilot scale	1/8/2023	Abenza Martínez, Misael;Lopez Rodriguez, Julio;Fernandez de Labastida Ventura, Marcos;De Pablo Ribas, Joan;Cortina Pallas, Jose Luis;Marti Gregorio, Vicenç;Gibert Agullo, Oriol	The need for new water resources in water scarcity regions has driven the exploration of water reclamation through a variety of treatment technologies. The present study aims at reclaiming impacted urban groundwater through two different treatment routes: one based on adsorption and ion-exchange processes on consecutive pyrolusite, granular activated carbon, zeolite and Fe(oxy)hydroxide filters (route L1) and a second one relying on sorption (on pyrolusite) and RO-membrane filtration (route L2). Both routes were operated without and with prechlorination to ascertain whether NaClO, beyond inactivating undesired pathogens, affected the removal of target parameters (Mn, As, NH4+, DOC) and the formation of trihalomethanes (THMs). Results showed that route L1 was successful at removing Mn, As, pathogens and THMs at levels below those stipulated by the legislation on reuse and drinking water. Only NH4+ failed to decrease	R2EM - Resource Recovery and Environmental Management	Journal of water process engineering	10.1016/j.jwpe.2023.103973
36850257	Arduino-based low-cost device for the measurement of detonation times in blasting caps	19/7/2023	Camara Zapata, Eduardo;Arumi Casanovas, Arnau;Bonet Dalmau, Jordi;Bascompta Massanes, Marc;Sanmiquel Pera, Lluis	The use of equipment such as oscilloscopes, high-speed cameras or acoustic sensors is quite common to measure detonation times from surface connectors and detonators. However, these solutions are expensive and, sometimes, not adequate to use in field conditions, such as mining or civil works. In this regard, a low-cost portable device is designed and tested using the Arduino platform, achieving a simple, robust and precise system to carry out field measurements. This study describes the characteristics and working principles of the designed device, as well as the verifications carried out to check the accuracy of the Arduino ceramic oscillator. Additionally, a field test was carried out using 100 actual detonators and surface connectors to verify the correct operation of the designed equipment. We have designed a device, and a methodology, to measure detonation instants with a minimum accuracy of 0.1 ms, being sufficient to carry out subsequent studies of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sensors (Basel)	10.3390/s23146534
36808505	Differentiation between copal and amber by their structure and thermal behaviour	1/7/2023	García-Vallès, Maite;Di Mariano Simoncini, Alessandra;Alfonso Abella, María Pura;Noguès, Joaquim;Martinez, Salvador	The relationships between the polymerization related to structure and the composition of different types of natural resins were determined. Analyses were carried out by Fourier transform infrared spectroscopy (FTIR), differential thermal analysis?thermogravimetry (DTA-TG) and hot stage microscopy (HSM). Copal specimens were collected from the Mai-Ndombe Lake, Democratic Republic of Congo, and amber pieces that came from Bitterfeld, Germany, and from Kaliningrad, Russia. FTIR spectra of copal show a vibrational band at 1643 cm-1 (C=O stretching) attributed to communic acids, while amber shows a band at 1735 cm-1 associated with ester-group vibrations and a shoulder at about 3340 cm-1, suggesting partial oxidization. DTA shows the main exothermic peak, related to the combustion, at 546?552 °C in amber and at 518 °C in copal. The derivative thermogravimetry (DTG) peaks vary in the different resin types; in amber, they occur at 333?335,	GGMM - Group of Geotechnics and Mechanics of Materials	Journal of thermal analysis and calorimetry	10.1007/s10973-023-12333-8
36634899	Quantification of van der Waals forces in bimodal and trimodal AFM	28/5/2023	Santos, Sergio;Gadelrab, Karim Raafat;Elsherbiny, Lamiaa;Drexler, Xavier;Olukan, Tuza;Font Teixido, Jose;Barcons Xixons, Victor;Chiesa, Matteo	The multifrequency formalism is generalized and exploited to quantify attractive forces, i.e., van der Waals interactions, with small amplitudes or gentle forces in bimodal and trimodal atomic force microscopy (AFM). The multifrequency force spectroscopy formalism with higher modes, including trimodal AFM, can outperform bimodal AFM for material property quantification. Bimodal AFM with the second mode is valid when the drive amplitude of the first mode is approximately an order of magnitude larger than that of the second mode. The error increases in the second mode but decreases in the third mode with a decreasing drive amplitude ratio. Externally driving with higher modes provides a means to extract information from higher force derivatives while enhancing the range of parameter space where the multifrequency formalism holds. Thus, the present approach is compatible with robustly quantifying weak long range forces while extending	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	The Journal of chemical physics	10.1063/5.0154196

36002616	A comparison of the fuel consumption and truck models in different production scenarios	7/5/2023	Vera Burau, Maria Alejandra;Álvarez Ramírez, Daniel;Sanmiquel Pera, Lluis;Bascompta Massanes, Marc	Mine planning and mine design are crucial stages of a project in the mining industry. This study aimed to determine the impact of different constraints on the design and planning of a mine. Some of the deposit characteristics and parameters that influence the economic feasibility of a project were studied. Using economic criteria such as NPV, scenarios were established based on the best conditions to obtain higher profitability. Production was identified as the most relevant variable. Subsequently, the mining design was evaluated through technical parameters such as slope gradients and ramp widths, and it was identified that they have lower sensitivity in the final design and higher sensitivity in terms of economic feasibility, performance, and environmental implications. Using operational production, the performance of the loading and haulage equipment fleets was evaluated for each of the techno-economic scenarios. Additionally, the environmental cost was compared	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied sciences (Basel)	10.3390/app13095769
35733693	Design of a RGB-Arduino device for monitoring copper recovery from PCBs	24/4/2023	Morell Llorens, Joan;Escobet Canal, Antoni;Dorado Castaño, Antonio David;Escobet Canal, Teresa	The mobile phone industry, one of the fastest advancing sectors in production over the last few decades, has been associated with a high e-waste generation rate. Simultaneously, a high demand for the production of new electronic equipment has led to the scarcity of certain metals. In this context, many recent studies have focused on recovering certain metals from e-waste through the use of bioprocesses. Such recovery processes are based on the action of microorganisms that produce Fe(III) as an oxidant, in order to leach the copper contained in printed circuit boards. During the oxidation-reduction reaction between Fe(III) and metallic Cu, the color of the solution evolves from an initial reddish color, due to Fe(III), to a bluish-green color, due to the oxidized Cu. In this work, a hardware-software prototype is developed, through which the concentrations of the key analytes?Fe(III) and Cu(II)?can be determined in real time by monitoring the color of the solution.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Processes	10.3390/pr11051319
36024190	Mineralogy and mineral chemistry of the Au-Ag-Te-(Bi-Se) San Luis Alta deposit, Mid-South Peru	18/4/2023	Alfonso Abella, María Pura;Ccolqque, Elsa;García-Vallès, Maite;Martínez Alcalá, Arnau;Yubero De Mateo, Maria Teresa;Anticoi Sudzuki, Hernan Francisco;Sidki Rius, Nor	A mineralogical and mineral chemistry study was carried out in the San Luis Alta telluride-rich gold deposit, mid-south Peru, to contribute towards determining its formation and improving the ore processing. The San Luis mineralization is considered an intrusion-related gold deposit located in the Arequipa segment of the Coastal Batholith. The mineralization occurs in quartz veins hosted in diorites and granodiorites from the Tiabaya Super-Unit. These veins are sulfide-rich in the deep areas and contain abundant iron oxides. Sulfides are mainly pyrite with minor chalcopyrite and galena. Native gold and telluride minerals are abundant. Mineral chemistry was determined using an electron microprobe. The mineralogy of veins was classified into four stages. Gold occurs in the three last stages either in large grains, visible to the naked eye, or, more frequently, in grains of less than 10 µm. Gold appears as grains encapsulated in pyrite, Fe oxides, quartz and filling fractures. The first	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min13040568
35612723	Functionalization of screen-printed electrodes with grape stalk waste extract-assisted synthesized silver and gold nanoparticles: perspectives of electrocatalytically enhanced determination of uranyl ion and other heavy metals ions	15/3/2023	Torres Rivero Andrade, Karina Victoria Alejandra;Florido Pérez, Antonio;Marti Gregorio, Vicenç;Bastos-Arrieta, Julio	Recently, nanotechnology and nanoparticles (NPs) such as AgNPs and AuNPs have become important in analytical chemistry due to their great potential to improve the performance of electrochemical sensors. In this work, Ag and Au nanoparticles have been synthesized using a green route in which a grape stalk waste extract is used as a reducing agent to obtain metallic nanoparticles. These NPs were used to customize the surface of commercial screen-printed electrodes (SPCNFEs). The spin-coating method was used to modify commercial SPCNFEs under a nitrogen atmosphere. The resulting electrodes were used in a determination study of Cd(II), Pb(II), and U(VI) with differential pulse anodic stripping voltammetry (DPASV). The customized green AgNPs and AuNPs electrodes presented higher sensitivity and electroanalytical performance than the non-modified SPCNFE. The results showed that the best analytical parameters were obtained with the green,	R2EM - Resource Recovery and Environmental Management	Nanomaterials	10.3390/nano13061055

34983780	The expression of late Cenomanian?Coniacian episodes of accelerated global change in the sedimentary record of the Mexican Interior Basin	1/3/2023	Colín Rodriguez, Azucena;Núñez Useche, Fernando;Adatte, Thierry;Spangenberg, Jorge E.;Omaña Pulido, Lourdes;Alfonso Abella, María Pura;Pi Puig, Teresa;Correa Metrio, Alexander;Barragán, Ricardo;Martínez Yáñez, Mario;Enciso Cárdenas, Juan Josúe	Climate and oceanographic changes during the Oceanic Anoxic Event 2 (OAE 2) and the Late Turonian?Coniacian Event (LTCE) are reported from a succession deposited in the central part of the Mexican Interior Basin, based on sedimentological, microfacies, mineralogical, and geochemical analysis. Typical d13C positive excursions that characterize both the OAE 2 and the LTCE were identified. Organic-rich sediments during the initial stage of OAE 2 (before and around peak ?A?, late Cenomanian) and the middle stage of LTCE (around the Hitchwood event) accumulated under increasingly warm and humid conditions, as evidenced by high chemical index of alteration values. Elevated concentrations of detrital proxies coupled with high phosphorus mass-accumulation rates suggest that this scenario led to a rise in detrital and nutrients fluxes that induced eutrophication and anoxic/dysoxic bottom waters. Eutrophic-anoxic/dysoxic marine conditions are further supported by	GREMS - Sustainable Mining Research Group	Cretaceous Research	10.1016/j.cretres.2022.105380
35255371	Corporate social responsibility and economic growth in the mining industry	1/3/2023	Yousefian, Mohammad;Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla	This research provides insight into the effects of implementing Corporate Social Responsibility initiatives in the mining industry in the European context. In many cases, the strategy is not coincident for shareholders and stakeholders, and as a result, the mining activity could be jeopardized. Achieving socially responsible goals can be a challenging task to conduct. This study aims to examine the relationship between Corporate Social Responsibility (CSR) performance and the economic growth of European mining companies using fixed effects regression models in addition to content analysis. Data from 45 medium- and large-sized mining companies is analyzed from 2018 to 2021. The models were created to assess the relationship between the companies' economic and social responsibility performances. The findings of this paper confirm that Corporate Social Responsibility positively affects the economic growth of companies, including	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Extractive Industries and Society-An International Journal	10.1016/j.exis.2023.101226
35576727	Probing power laws in multifrequency AFM	17/2/2023	Santos, Sergio;Gadelrab, Karim Raafat;Olukan, Tuza;Font Teixido, Jose;Barcons Xixons, Victor;Chiesa, Matteo	Quantification of conservative forces in multifrequency atomic force microscopy requires solving the general equations of the theory expressed in terms of the virials of interaction. Power law expressions are commonly utilized when dealing with electrostatic, ferroelectric, magnetic, or long range (van der Waals) forces. Here, we discuss long range forces modeled in terms of power laws (n), where the exponent n covers the range n ¼ 2?5, and employ the multifrequency theory to explore the relevant parameter space. Numerical integration of the equations of motion suggest that only a narrow range of operational parameters are available when imaging where the approximations are valid. Albeit these conditions exist, and the corresponding errors can be as low as 10% throughout for all exponents explored. Quantification of conservative forces in multifrequency atomic force	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied physics letters	10.1063/5.0141741
35119745	Child?robot interactions using educational robots: an ethical and inclusive perspective	3/2/2023	Tarres Puertas, Marta Isabel;Costa, Vicent;Pedreira Álvarez, Montserrat;Lemkow Tovias, Gabriel;Rossell Garriga, Josep Maria;Dorado Castaño, Antonio David	The Qui-Bot H2O project involves developing four educational sustainable robots and their associated software. Robots are equipped with HRI features such as voice recognition and color sensing, and they possess a humanoid appearance. The project highlights the social and ethical aspects of robotics applied to chemistry and industry 4.0 at an early age. Here, we report the results of an interactive study that involved 212 students aged within the range of 3?18. Our educational robots were used to measure the backgrounds, impact, and interest of students, as well as their satisfaction after interacting with them. Additionally, we provide an ethical study of the use of these robots in the classroom and a comparison of the interactions of humanoid versus non-humanoid educational robots observed in early childhood learning. Our findings demonstrate that these robots are useful in teaching technical and scientific concepts in a playful and intuitive manner, as	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sensors (Basel)	10.3390/s23031675

35112944	The Tatatila?Las Minas IOCG skarn (Veracruz, Mexico): Mineralogical, fluid inclusion and stable isotope constraints	1/2/2023	Fuentes Guzmán, Edith;Camprubí Cano, Antoni;González Partida, Eduardo;Hernández Avilés, Geovanny;Alfonso Abella, María Pura;Cienfuegos Alvarado, Edith;Mesino Hernández, Juan Carlos;Ortega Obregón, Carlos;Otero Trujano, Francisco Javier;Vázquez Ramírez, Juan Tomás	The Miocene skarn deposits at Tatatila?Las Minas are found in central-eastern Veracruz state, east Mexico, near the Palma Sola massif. These deposits are geologically associated with the early stages of the Trans-Mexican Volcanic Belt (TMVB) intruded Mesozoic carbonate rocks of the Sierra Madre Oriental. Skarn associations are distributed in the classic evolution from prograde to retrograde mineralization stage. Prograde associations consist mainly of grossular- andradite, clinopyroxene, quartz, wollastonite, clinopyroxene, potassium feldspar, quartz, epidote, chromian muscovite, and are rich in magnetite, whereas retrograde associations are richer in hematite than magnetite, chlorite, fuchsite, hornblende and additionally contain chalcopyrite, pyrite, bornite, and native gold. The systematic study of fluid inclusions shows a broad variety of petrographic and microthermometric features. Fluid inclusion associations in early prograde	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of south american Earth sciences	10.1016/j.jsames.2022.104112
35589390	Influence of igneous intrusions on coal flotation feasibility: the case of Moatize Mine, Mozambique	21/1/2023	Maraschin Zancan, Pedro;Schadach de Brum, Irineu Antônio;Ambrós, Weslei Monteiro;Hoffmann Sampaio, Carlos;Oliva Moncunill, Josep	In this study, the influence on the properties of coal caused by proximity with an igneous intrusion in the Moatize mine was evaluated, together with the possibility of beneficiating such coal in the flotation circuit of the plant. For this purpose, extensive characterizations of samples collected at different distances from the intrusion were carried out, followed by a lab-scale replication and analysis of the flotation conditions used in the Moatize plant. The results showed that coal was negatively affected by the closeness to the dyke, with it being unfeasible to beneficiate coal at a distance of 2 m from the geological contact. However, for a 20 m distance, it proved possible to achieve yields higher than 77% with ash contents below 10%, depending on the reagent system used. In this study, the influence on the properties of coal caused by proximity with an igneous intrusion in the Moatize mine was evaluated, together with the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min13020161
34901758	A review: biological technologies for nitrogen monoxide abatement	5/1/2023	Cubides Paez, David Fernando;Guimera Villalba, Xavier;Jubany Güell, Irene;Gamisans Noguera, Xavier	Nitrogen oxides (NOx), including nitrogen monoxide (NO) and nitrogen dioxide (NO2), are among the most important global atmospheric pollutants because they have a negative impact on human respiratory health, animals, and the environment through the greenhouse effect and ozone layer destruction. NOx compounds are predominantly generated by anthropogenic activities, which involve combustion processes such as energy production, transportation, and industrial activities. The most widely used alternatives for NOx abatement on an industrial scale are selective catalytic and non-catalytic reductions; however, these alternatives have high costs when treating large air flows with low pollutant concentrations, and most of these methods generate residues that require further treatment. Therefore, biotechnologies that are normally used for wastewater treatment (based on nitrification, denitrification, anammox, microalgae, and combinations of these) are being	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2022.137147
34987681	Albitization and oxidation of Variscan granitoid rocks related to the post-Variscan paleosurface in the Sudetes (Bohemian Massif, SW Poland)	13/12/2022	Thiry, Médard;Franke, Christine;Yao, Kouakou F. E.;Szuszkiewicz, Adam;Fàbrega Alsina, Carles;Jelenska, Maria;Kadzialko-Hofmokl, Magdalena;Gurenko, Andrey;Parcerisa Duocastella, David;Sobczyk, Artur;Turniak, Krzysztof;Aleksandrowski, Pawel	The reddened granitoid facies in the basement of the Polish Sudetes exhibits two categories of alteration spatially arranged with respect to fractures: (1) saussuritization and sericitization within light-colored facies in the interior of fracture-bounded blocks and (2) albitization and hematization in reddened facies occurring adjacent to fracture walls. These alterations are associated with the chloritization of primary ferromagnesian minerals and the development of secondary minerals such as quartz, K-feldspar, apatite, prehnite, calcite, and titanite. We link these parageneses and the observed zonation to a unique alteration event consisting of an interplay of chemical reactions of variable spatial extent. The complete albitization of the feldspars (plagioclase and K-feldspar) adjacent to fractures points to a significant supply of Na for albite neoformation and the availability of oxygen to form the associated hematite. The dating of the iron oxides by paleomagnetism	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of earth sciences	10.1007/s00531-022-02274-2

34851997	Estudio de la accidentabilidad de la minería española en el período 2010-2019	26/10/2022	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Freijo Alvarez, Modesto;Vintro Sanchez, Carla;Felipe Blanch, Jose Juan de	En esta investigación se lleva a cabo el estudio de la siniestralidad laboral del sector minero español en el período 2010-2019, a partir de la base de datos de accidentes anual cedida por el Ministerio de Trabajo y Economía Social. Se va a poner especial atención en las variables o ítems de la base de datos indicada que pueden poner mayor relieve en la realización de una prevención poco sostenible por parte de las empresas mineras en las que ha acaecido un accidente. En este sentido, el estudio se va a centrar especialmente en variables relativas a la persona accidentada tales como: Edad, Experiencia en el puesto de trabajo, Tipo de contratación, Hora de trabajo, Trabajo habitual o no, Desviación y Tipo de accidente (especialmente relacionados con sobreesfuerzo físico, exposición a radiaciones, ruido, luz o presión y trauma psíquico); y Duración de la baja. También en variables relativas a la empresa y el lugar de trabajo tales como: Plantilla del centro de trabajo, Contrata o	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	ORP Journal	
34313709	Corporate Social Responsibility Index for Mine Sites	20/10/2022	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla;Yousefian, Mohammad	A new quantitative index to analyse the corporate social responsibility (CSR) level of mine sites was developed, providing an easy and friendly tool to analyse and apply a continuous improvement approach to CSR levels, being able to involve all the potential stakeholders. The index can be used in any type of project and stage: prospecting and exploration, development, mining, processing, closure and rehabilitation. The system consists of two dimensions, environment and socioeconomic, formed by 30 elements that analyse potential positive and negative impacts. Moreover, it can be adapted to the specific characteristics of any mining activity, including new elements if necessary. The system proposed can help to improve the positive implications of the mining industry Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sustainability (Switzerland)	10.3390/su142013570
34317120	Novel N,P,S co-doped graphenic SiC layers (g-SiC) in visible-light photodegradation of antibiotics and inactivating the bacteria	1/10/2022	Afsharpour, Maryam;Behtooei, HamidReza;Shakiba, Marzieh;Marti Gregorio, Vicenç;Parizi, Shahriar Salemi	In this work, the green synthesis of N, P, S-doped graphenic silicon carbide (g-SiCs) and their potential application as the high performance photocatalysts for the removal of antibiotics (Tetracycline (TCL), ciprofloxacin (CIP), and Amoxicillin (AMX)) and bacteria (S. aureus and E. coli) was investigated under visible light. Synthesized g-SiCs show excellent potential in the removal of organic pollutants compared to commercial SiC. These results are obtained due to the graphenic structure of synthesized g-SiC which increases the electron transfer and reduces the rate of electron-hole recombination. Also, the positive charged Si atoms in the g-SiC structure enhance the adsorption of oxygen molecules to produce the oxygenated radicals which are active species in the degradation of organic pollutants. To improve the photocatalytic activity, nitrogen, phosphor, and sulfur were doped onto the g-SiC structure. The resulting doped catalysts the enhanced photocatalytic	R2EM - Resource Recovery and Environmental Management	Process safety and environmental protection	10.1016/j.psep.2022.08.064
34167065	LCA analysis and comparison in quarrying: Drill and blast vs mechanical extraction	1/10/2022	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Gangolells Solanellas, Marta;Sidki Rius, Nor	The production of mineral resources from quarrying is vital and irreplaceable for providing raw materials for a wide range of economic sectors. Additionally, today's society demands a supply of mineral resources that is as sustainable as possible. This paper presents a comprehensive LCA study comparing two commonly used techniques to extract mineral resources for quarrying, using the cradle-to-gate approach. The global warming potential (GWP) is used as the main indicator, although all the other potential emissions from the extraction process are also calculated. The results obtained reveal that blasting techniques have a lower impact on global warming (-28%) and generate less fuel metal emissions (-75%) than mechanical extraction. However, the emissions of PM2.5, PM10 and TSP are 2?3 times higher. Hence, the most optimal type of quarrying, regarding the environmental constraints, depends on the impacts in each specific case. In	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of cleaner production	10.1016/j.jclepro.2022.133042

34229531	Subsidence management and prediction system: a case study in potash mining	13/9/2022	Sidki Rius, Nor;Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Parcerisa Duocastella, David	Subsidence is an important environmental and safety issue in the mining sector, yet there remain voids in knowledge in terms of management and prediction. This study aims to improve knowledge on the impact of mining operations on the surface, reducing their effect on the environment, increasing the safety of mining operations, monitoring stress behavior and predicting rock mass. Therefore, an analysis was carried out to process and analyze the measured subsidence data and, subsequently, create a numerical model to predict the surface subsidence of a case study mine. The model was developed based on a finite element method (FEM). It was achieved by considering the geological characteristics of the area, the design features of the mine, the surface subsidence measured over twelve years and the time-dependent behavior of the geological layers. The correlation obtained between the measured subsidence and the modelling results was very	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12091155
34333479	Optimization of Water Leaching of Chlorides from Aluminum Salt Slag	9/9/2022	Teixeira, Artur Bressanelli;Ambrós, Weslei Monteiro;Hoffmann Sampaio, Carlos;Raposo, Fortunato Lucas Quembo;Schadach de Brum, Irineu Antônio;Oliva Moncunill, Josep	Aluminum recycling generates large amounts of hazardous wastes, known as salt slags, consisting mainly of oxides, metallic aluminum, and salt fluxes. Water leaching is a common technique used for salt removal, being a decisive operation due to water usage and the need to achieve sufficient salt recovery. In this study, water leaching tests under varied operational conditions (water type, slag particle size, solid content, and leaching time) were carried out in salt slag samples obtained from a Brazilian aluminum scrap melting company. Leaching efficiency was assessed by the % chlorine leached. The optimal leaching condition, defined as the one that resulted in the highest chloride removal from the slag together with appropriate operational conditions (larger viable slag size, lower leaching time, etc.), was identified for a slag size below 2.8 mm, 30 wt% of solids in pulp, and a leaching time of 90 min. The results showed that it was possible to recover	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12091141
34208671	Generating 3D geothermal maps in Catalonia, Spain using a hybrid adaptive multitask deep learning procedure	1/7/2022	Mirfallah Lialestani, Seyed Poorya;Parcerisa Duocastella, David;Himi, Mahjoub;Shahri, Abbas Abbaszadeh	Mapping the subsurface temperatures can efficiently lead to identifying the geothermal distribution heat flow and potential hot spots at different depths. In this paper, an advanced adaptive multitask deep learning procedure for 3D spatial mapping of the subsurface temperature was proposed. As a result, predictive 3D spatial subsurface temperatures at different depths were successfully generated using geolocation of 494 exploratory boreholes data in Catalonia (Spain). To increase the accuracy of the achieved results, hybridization with a new modified firefly algorithm was carried out. Subsequently, uncertainty analysis using a novel automated ensemble deep learning approach for the predicted temperatures and generated spatial 3D maps were executed. Comparing the accuracy performances in terms of correct classification rate (CCR) and the area under the precision?recall curves for validation and whole datasets with at least 4.93% and 2.76%	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Energies	10.3390/en15134602
34214819	Environmental risk assessment of silver nanoparticles in aquatic ecosystems using fuzzy logic	11/6/2022	Ramirez Garrido, Rosember;Marti Gregorio, Vicenç;Darbra Roman, Rosa Maria	The rapid development of nanotechnology has stimulated the use of silver nanoparticles (AgNPs) in various fields that leads to their presence in different ecosystem compartments, in particular aquatic ecosystems. Several studies have shown that a variety of living organisms are affected by AgNPs. Therefore, a methodology to assess the risk of AgNPs for aquatic ecosystems was developed. The methodology is based on fuzzy logic, a proven method for dealing with variables with an associated uncertainty, as is the case with many variables related to AgNPs. After a careful literature search, a selection of relevant variables was carried out and the fuzzy model was designed. From inputs such as AgNPs? size, shape, and coating, it is possible to determine their level of toxicity which, together with their level of concentration, are sufficient to create a risk assessment. Two case studies to assess this methodology are presented, one involving continuous effluent from a	R2EM - Resource Recovery and Environmental Management	Water (Basel)	10.3390/w14121885

33796773	Environmental risk assessment of silver nanoparticles in 2 aquatic ecosystems using fuzzy logic	11/6/2022	Ramirez Garrido, Rosember;Marti Gregorio, Vicenç;Darbra Roman, Rosa Maria	The rapid development of nanotechnology has stimulated the use of silver nanoparticles (AgNPs) in various fields that leads to their presence in different ecosystem compartments, in particular aquatic ecosystems. Several studies have shown that a variety of living organisms are affected by AgNPs. Therefore, a methodology to assess the risk of AgNPs for aquatic ecosystems was developed. The methodology is based on fuzzy logic, a proven method for dealing with variables with an associated uncertainty, as is the case with many variables related to AgNPs. After a careful literature search, a selection of relevant variables was carried out and the fuzzy model was designed. From inputs such as AgNPs? size, shape, and coating, it is possible to determine their level of toxicity which, together with their level of concentration, are sufficient to create a risk assessment. Two case studies to assess this methodology are presented, one involving continuous effluent from a	R2EM - Resource Recovery and Environmental Management	Water (Basel)	
33966075	Studying forests in an open schooling project	7/6/2022	Mulero Jiménez, Lorena;Cunill Solà, Jordi;Grau Vilalta, Maria Dolors;Mancho Ferreras, Francesc	The objective of this study is to run a pilot test on the application of Open Science Schooling (OSS) methodology in projects with secondary-school students to know the impact it can have on their learning and their perception of it in addition to know how to develop teaching practice. As a study sample, we have selected a series of countries that are participating in an Erasmus+ project; to ensure a more exhaustive study, we are working with one of the participating schools located in Catalonia, near to our research group. In our study, we will consider the application of the Open Science Schooling methods in several secondary-school projects with the goal of comparing them and evaluating the method?s versatility. We used questionnaires designed specifically for this project. The goal of OSS is to encourage schools to promote community well-being in cooperation with other stakeholders. It is very important the interplay of local, regional and	CITES - Sustainability Science and Technology Research Group	Journal of technology and science education	10.3926/jotse.1461
35032780	Mechanistic modeling of glycerol fermenting and sulfate-reducing processes by granular sludge under sulfidogenic conditions	1/6/2022	Zhou, Xudong;Dorado Castaño, Antonio David;Lafuente Sancho, Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David	Glycerol can be converted to ethanol, 1,3-propanediol, formate, acetate, propionate, and inorganic carbon under anaerobic conditions through oxidative and reductive pathways in the absence and presence of sulfate. A structured mathematical model considering multiple pathways of glycerol fermentation combined with sulfate reduction was set up in this work, where three mechanisms were proposed and verified by modeling. Finally a mechanism properly predicting both glycerol fermenting and sulfate-reducing processes was chosen. Concentrations of multiple intermediates measured in batch activity tests were satisfactorily described by the model. The intermediate products of glycerol fermentation included formate, propionate, ethanol, 1,3-propanediol, and 3-hydroxypropionate (3HP). The main pathways of glycerol fermentation were the oxidative pathway to produce ethanol and the reductive pathway to produce 1,3-propanediol. The	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of environmental chemical engineering	10.1016/j.jece.2022.107937
33818593	Computational Fluid Dynamics (CFD) study to optimize the auxiliary ventilation system in an underground mine	1/6/2022	Vives Costa, Jordi;Bascompta Massanes, Marc;Felipe Blanch, Jose Juan de;Sanmiquel Pera, Lluis	Four different scenarios of auxiliary ventilation in an underground mine were studied, validating the results using actual data, and identifying the best ventilation conditions in terms of air velocity and heat load removal. The conditions worsen as the duct is placed further from the face. The best layout of the duct in terms of cross-section, and positioning on the lower or upper side of the drift, cannot be clearly inferred, as it depends on the variables used in the analysis, either temperature, air velocity, or the specific area of the working face. The findings of this study can help develop the most efficient auxiliary ventilation system for use in an underground mine at the working face or in the place of the equipment. Besides this, future scenarios can be also analyzed with the model created, providing a good tool to select the best auxiliary ventilation layout in each different case. Peer Reviewed	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Dyna (Medellín)	10.15446/dyna.v89n221.100297

34240169	Ore processing technologies applied to industrial waste decontamination: a case study	30/5/2022	Anticoi Sudzuki, Hernan Francisco;Oliva Moncunill, Josep;Hoffmann Sampaio, Carlos;Pérez Álvarez, Rubén;Malagón Picón, Beatriz	The correct management of industrial waste, as well as being an environmental obligation, can also be used as an opportunity to reduce costs in terms of energy and raw material consumption. A large amount of waste sand is generated in foundries with a high content of pollutants adhering to its surface structure. In this study, the material utilized consists of a silicic sand that comes from a casting process, with a thin layer of fixed carbon on the surface of the particles. The objective is to remove this contaminant, in order to have clean sands for use in alternative processes, such as in glass raw material, green concrete, or in the recirculation of these in the same process. The mechanical action that is best for eliminating surface attached contaminants is abrasion. In this regard, two specific devices, commonly used in ore processing operations, were utilized to apply energy in a material in order to reach abrasion by attrition, but with different kinetic approaches:	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12060695
33743643	Sparking the interest of girls in computer science via chemical experimentation and robotics: the Qui-Bot H2O case study	13/5/2022	Tarres Puertas, Marta Isabel;Merino Millo, Jose;Vives Pons, Jordi;Rossell Garriga, Josep Maria;Pedreira Álvarez, Montserrat;Lemkow Tovias, Gabriel;Dorado Castaño, Antonio David	We report a new learning approach in science and technology through the Qui-Bot H2O project: a multidisciplinary and interdisciplinary project developed with the main objective of inclusively increasing interest in computer science engineering among children and young people, breaking stereotypes and invisible social and gender barriers. The project highlights the social aspect of robotics applied to chemistry, at early ages. We successfully tested the project activities on girls between 3 to 13 years old. After taking part in the project, the users rated their interest in science and technology to be higher than before. Data collected during experiences included background information on students, measurements of the project?s impact and students? interest in it, and an evaluation of student satisfaction of this STEM activity. The Qui-Bot H2O project is supported by the actions of territorial public administrations towards gender equality and	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sensors (Basel)	10.3390/s22103719
33217186	Production of high-quality coarse recycled aggregates through a two-stage jigging process	25/4/2022	Dos Santos, Viviane L. G.;Tubino, Rejane Maria Candiota;Ambrós, Weslei Monteiro;Miltzarek, Gérson L.;Hoffmann Sampaio, Carlos;Oliva Moncunill, Josep;Cazacliu, Bogdan G.;Dal Molin, Denise C. C.	The use of recycled aggregates (RA) to replace natural aggregates (NA) in new concrete production has been pointed out as one of the main strategies to close the loop of construction materials. However, producing RA with properties similar to those of NA has been challenging, since current recycling methods struggle to remove contaminants like ceramics and mortar, whose presence impairs RA properties. In this study, a processing route consisting of a two-stage separation in hydraulic jig was tested, aiming to produce RA from a representative sample of Brazilian construction and demolition waste. All material streams generated in the tests were characterized in terms of composition, size distribution, density, shape index, and water absorption. The results indicated the possibility to produce a high-quality RA, containing more than 99.5% mass of concrete, with adequate properties to replace NA in new concrete production. Also, a conventional RA with suitable properties	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12050532
33093673	Experimental assessment of an analytical model of the convective heat transfer coefficient in a mine gallery	7/4/2022	Felipe Blanch, Jose Juan de;Vives Costa, Jordi;Niubo Eslava, Maria;Sanmiquel Pera, Lluis	This article evaluates the convective heat transfer coefcient of ventilation air in a potash mine in Catalonia (Spain). Through thermal characterization of ventilation air and rock of a gallery in the selected potash mine, the energy balance is obtained, and the parameters involved in the heat transfer process are calculated. With these parameters as a starting point, diferent models are analyzed to calculate the convective heat transfer coefcient. The results indicate that the optimal models to apply in this mine include the Pethukov?Kirilov, Gnielinski and modifed Dittus?Boelter models. Moreover, the conductivity of the adjacent rock is indirectly studied, and it is deduced that throughout the studied section, the adjacent rock is saturated, and in Sect. 6?5 of the gallery, there occurs upwelling of liquid water. This version of the article has been accepted for publication, after peer review and is subject to Springer Nature?s AM terms of use. The Version of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mining, metallurgy & exploration	10.1007/s42461-022-00593-1

32524690	Glass-ceramic crystallization from tailings of the Morille tungsten deposit, Spain	1/4/2022	Alfonso Abella, María Pura;Tomasa Guix, Oriol;García-Vallès, Maite;Tarragó, Mariona;Martínez Manent, Salvador	The potential of the tailings from the Morille scheelite-bearing calc-silicate deposit as a commercial raw material for inert glass?ceramic was determined. Nucleation and crystal growth temperatures of glass were studied. The temperatures of maximum nucleation rate of the parent glass are 612 °C and 660 °C and crystal growth is at 776 °C and 1047 °C. At 776 °C a glass?ceramic of nepheline, wollastonite and akermanite is formed. In glasses treated at higher temperature nepheline becomes unstable and at 1047 °C a wollastonite-akermanite glass ceramic was obtained. The leaching tests show that the potentially toxic elements are effectively bound in the structure of the glass?ceramic, which can be considered inert. Peer Reviewed Postprint (published version) Objectius de Desenvolupament Sostenible::12 - Producció i Consum	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Materials letters	10.1016/j.matlet.2022.131694
32885254	A novel bioscrubber for the treatment of high loads of ammonia from polluted gas	9/3/2022	Morral Moltó, Eloi;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier	This work presents a novel bioscrubber confguration for the treatment of high ammonia loads at short contact times. The biological reactor was designed to work as a moving-bed bioflm rector (MBBR) increasing biomass retention time. This confguration is still unexplored for the treatment of waste gases. Long-term operation of a lab-scale bioscrubber under diferent inlet concentrations of ammonia (60?570 ppmv) and a gas contact time of 4 s was performed to study the system operational limits during 250 days. The efect of the dissolved oxygen concentration on the nitrifcation rate was also evaluated. Under these conditions, a critical elimination capacity (EC) of 250 NH3·m-3·h-1 and a maximum EC of 300 g NH3·m-3·h-1 were obtained. The maximum nitrifcation rate obtained was 0.5 kg N·m-3·day-1. However, this nitrifcation rate only was possible to be achieved under partial nitrifcation. For complete nitrifcation, the critical nitrifcation rate was 0.3 kg N·m-3·day-1.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental science and pollution research international	10.1007/s11356-022-19065-6
32857244	Thermal behaviour of kaolinitic raw materials from San José (Oruro, Bolivia)	26/2/2022	Alfonso Abella, María Pura;Penedo Pereira, Lucio Amando;García-Vallès, Maite;Martínez Rigol, Sergi;Trujillo Lunario, Juan Elvys;Martínez, Arnau	Kaolin is widespread as a result of the alteration in the San José Sn-Ag deposit located in Oruro, Bolivia. This study presents a chemical, mineralogical and thermal characterization of the San José kaolinitic deposit, which is necessary to determine their optimal applications. Mineral phases of these white silty kaolinitic materials were determined by X-ray diffraction (XRD) and are quartz, kaolinite, K-feldspar, muscovite, illite and minor halloysite, dickite, plagioclase, jarosite, rutile, alunite and gypsum. The fraction<63 µm contains 20?27 mass% of kaolinite. Differential thermal analysis (DTA) shows an endothermic peak at 520 °C associated with the dehydroxylation of kaolinite and an exothermic peak at~980 °C related to the crystallization of mullite. TG curves show a total mass loss up to 1300 °C of about 8 mass%. The dilatometric curves show a shrinkage at about 890 °C produced by the collapse of metakaolinite into a spinel-like structure, and another shrinkage	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of thermal analysis and calorimetry	10.1007/s10973-022-11245-3
32887998	Process mineralogy of the tailings from Llallagua: towards a sustainable activity	7/2/2022	Alfonso Abella, María Pura;Ruiz Orellana, Muguel;Zambrana Martínez, Rubén Néstor;Sendrós Gálvez, Miquel;García-Vallès, Maite;Anticoi Sudzuki, Hernan Francisco;Sidki Rius, Nor;Salas Reyes, Antonio Enrique	There are significant tin reserves in the dumps and tailings from Llallagua. Currently, this waste is being processed using gravity concentration or a combination of gravity concentration with a final stage of froth flotation. A process mineralogy study of the tailings and their products after processing in Llallagua was carried out to determine the failings of the processing system in order to contribute to designing an improved new processing scheme. The mineralogy of the feed tailings, concentrate, and final tailings was determined by X-ray diffraction, scanning electron microscopy, and mineral liberation analysis. The tailings were composed of quartz, tourmaline, illite, K-feldspar, plagioclase, cassiterite, rutile, zircon, and monazite. The concentrate essentially contains cassiterite (57.4 wt.%), tourmaline, quartz, hematite, rutile and rare earth minerals, mainly monazite and minor amounts of xenotime and florencite. The concentrate contained 52?60 wt.% of SnO2 and	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12020214

32778311	Rod mill product control and its relation to energy consumption: a case study	30/1/2022	Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard;Pérez Álvarez, Rubén;de Luis Ruiz, Julio Manuel;Oliva Moncunill, Josep;Hoffmann Sampaio, Carlos	Energy consumption and pollution are current strategic issues that need to be addressed in the mining industry. Both have an economic and environmental impact on production, so their optimization, control, and mitigation are, at the very least, mandatory. Although rod milling has fallen into disuse in recent decades, some companies still use it in their processing plants. This is due to the ability of rod milling to reduce particle size while avoiding overgrinding. In this study, a material that is particularly difficult to characterize was used to study how to control rod-milling particle size distribution product: potash ore, which is deliquescent and soluble under certain conditions. A laboratory-scale tumbling rod mill was designed for this study, and six operative parameters were tested and analyzed in order to detect the main influences on the mill product, attending to material requirements for further processes such as recirculation load or froth	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12020183
32524786	Mineralization and structural controls of the AB-Bid carbonate-hosted Pb-Zn (±Cu) deposit, Tabas-Posht e Badam Metallogenic Belt, Iran	14/1/2022	Rajabi, Abdorrahman;Canet Miquel, Carles;Alfonso Abella, María Pura;Mahmoodi, Pouria;Yarmohammadi, Ali;Sharifi, Shaba;Mahdavi, Amir;Rezaei, Somaye	The Ab-Bid deposit, located in the Tabas-Posht e Badam metallogenic belt (TPMB) in Central Iran, is the largest Pb-Zn (±Cu) deposit in the Behadad-Kuhbanan mining district. Sulfide mineralization in the Ab-Bid deposit formed in Middle Triassic carbonate rocks and contains galena and sphalerite with minor pyrite, chalcopyrite, chalcocite, and barite. Silicification and dolomitization are the main wall-rock alteration styles. Structural and textural observations indicate that the mineralization occurs as fault fills with coarse-textured, brecciated, and replacement sulfides deposited in a bookshelf structure. The Ab-Bid ore minerals precipitated from high temperature (?180?200 °C) basinal brines within the dolomitized and silicified carbonates. The sulfur isotope values of ore sulfides suggest a predominant thermochemical sulfate reduction (TSR) process, and the sulfur source was probably Triassic-Jurassic seawater sulfate. Given the current evidence,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min12010095
32032834	Assessing main process mechanism and rates of sulfate reduction by granular biomass fed with glycerol under sulfidogenic conditions	1/1/2022	Zhou, Xudong;Fernández Palacios, Eva;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier;Gabriel Buguña, David	Sulfate-reducing bioreactors for sulfide production are the initial stage of processes targeting elemental sulfur recovery from sulfate-rich effluents. In this work, the principal reactions involved in glycerol fermentation and sulfate reduction using glycerol and its fermentation products as electron donors were assessed together with their specific consumption/production rates. A battery of batch activity tests with and without sulfate were performed with glycerol and with each fermentation product using a non-methanogenic but sulfidogenic granular sludge from an up-flow anaerobic sludge blanket (UASB) reactor operated under long-term while fed with crude glycerol. As a result, a mechanistic approach based on the experimental observations is proposed in this work. Glycerol was mainly fermented to 1,3-propanediol, ethanol, formate, propionate and acetate by fermentative bacteria. All organic intermediates were found to be further used by sulfate	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2021.131649
32032825	Fabrication of glass-based products as remediation alternative for contaminated urban soils of Barcelona	15/12/2021	Roca Pascual, Núria;García-Vallès, Maite;Alfonso Abella, María Pura	Contaminated soils from an area previously occupied by a metal smelting industry of Barcelona city were used as raw material for making glass. Vitrification was investigated as a possible remediation technique. The main pollutants in these soils are Cu, Pb and Zn. Glass was formulated using 80 wt% of soil and 20 wt% of Na2CO3. The mixture was molten at 1450 °C. Crystallisation temperatures, obtained by Differential Thermal Analysis, were 790 °C, 842 °C and 879 °C. Nepheline, diopside and rhönite crystallized from glass treated at exothermal peaks. The endothermic peak at 1259 °C corresponds to the melting temperature. Glass transition temperature, determined by dilatometry was 632 °C. Viscosity-temperature curve was used to calculate the relevant temperatures for the process. The conformation range is between 995 °C and 1298 °C, and the workability interval ranges from 1293 °C to 1302 °C. The contents of the elements leached from the glass	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Materials letters	10.1016/j.matlet.2021.130741

32294159	Analysis of occupational accidents in the spanish mining sector in the period 2009-2018	13/12/2021	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Rossell Garriga, Josep Maria;Anticoi Sudzuki, Hernan Francisco	Occupational accidents in the Spanish mining industry have been substantially reduced over the last decades. However, the incidence rate shows higher values than other leading mining countries. In this regard, the research carried out reveals the factors influencing the high incidence rates of the Spanish mining sector, based on three scenarios: underground mining (UG), quarries and open pit mining (OP) and mineral processing plants (PP). The three most common types of accident for each scenario have been determined, considering the accidents in Spain between 2009 and 2018. The analysis also includes the main deviations, and physical activities that the injured worker was carrying out at the time of the accident. Besides, a model to predict the number of accidents based on the lost working days is also presented together with the incidence and severity risk index adjusted by the number of employees and their worked hours, respectively, in each scenario.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of environmental research and public health	10.3390/ijerph182413122
32887777	A survey to analyze the learning of geology in the Compulsory Secondary Education system of Catalonia (Spain)	29/11/2021	Roca Pascual, Núria;García-Vallès, Maite;Alfonso Abella, María Pura;Calafat Frau, Antoni;Bover Arnal, Telm;Calvet Pallas, Maria Teresa;Playà Pous, Elisabet;Guinau Selles, Marta;Delclòs Martinez, Xavier;Rios, Martin	The training received during primary and secondary education is crucial for the development of our behavior in adulthood. For this reason, at this early stage, it is important to know our environment and its dynamics to appreciate it. Given this context, the present study investigates the structure of geoscience education inthe frame of the SCE system from Catalonia and the degree of geological knowledge acquired by the students. An online survey was selected as an appropriate methodology to be used in a quantitative study, which was conducted with 1197 students of the SCE system from Catalonia. Geological learning on the CSE system of Catalonia mainly occurs during the 1st academic year, when students are not yet aware of the geological implications in both the natural and anthropogenic environment. The CSE students show a significant lack of knowledge of the most applied aspects of geology, such as the use of minerals in daily objects.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Academia Letters	10.20935/AL4146
32024799	Analysis of the process of compaction movements of deposits of crushed salt tailings	1/11/2021	Yubero De Mateo, Maria Teresa;Olivella Pastalle, Sebastian;Gens Sole, Antonio;Bonet Gil, Enrique;Lloret Morancho, Antonio;Alfonso Abella, María Pura	In the context of chemical industry production, mining waste from saline materials, mostly consisting of granular rock salt, is stored in tailing piles. During this process, several deformational mechanisms are involved. The crushed salt displays a significant visco-plastic response. Several processes such as ?dislocation related deformation mechanisms? or ?mechanisms related to presence of humidity?, are activated. The granular saline material consolidates and void ratio reduces. Dissolution and recrystallization phenomena is developed because of confining stresses and the presence of water. Consequently, it produces bonding between salt grains increasing the strength of the material and reductions of porosity. This paper describes the compaction process of waste salt materials due to the tailing pile self-weight. Since then, it undergoes a long-term response which may lead to a material with completely different properties.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Engineering geology	10.1016/j.enggeo.2021.106290
32122271	Identification of natural and anthropogenic geochemical processes determining the groundwater quality in Port del Comte high mountain karst aquifer (SE, Pyrenees)	15/10/2021	Herms Canellas, Joan Ignasi;Jódar Bermúdez, Jorge;Soler Gil, Albert;Lambán Jiménez, Luis Javier;Custodio Gimena, Emilio;Nuñez Genestós, Joan Agustí;Arnó Pons, Georgina;Parcerisa Duocastella, David;Jorge Sanchez, Juan	The Port del Comte Massif (SE, Pyrenees) contains one of the most important vulnerable and strategic karst aquifers for supplying freshwater to the city of Barcelona (Spain). It is a fragile system, whose possible environmental impact is highly conditioned by land use. To improve the hydrogeological knowledge of the system, between September 2013 and October 2015, a detailed fieldwork was carried out for the revision of the geological model, the inventory of water points, and the in situ physico-chemical characterization on major elements and isotopes of up to a total of 43 springs, as well as precipitation water. This paper focuses on the characterization of the geochemical processes that allow explanation of the observed chemical variability of groundwater drained by the pristine aquifer system to determine the origin of salinity. The results show that the main process is the dissolution of calcite and dolomite, followed by gypsum and halite, and a	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water (Basel)	10.3390/w13202891

33763795	Learn about the water around you: use with secondary-school students	1/10/2021	Mulero Jiménez, Lorena;Grau Vilalta, Maria Dolors	In this paper, we present the Manual on water quality and consumption. It is part of the Forest and sustainability project, which seeks to tie the Sustainable Development Goals to woodlands. Our work is based on a series of open-access websites belonging to the administration. They allow secondary school students to take a first-hand look at the state of the bodies of water in their area, and to evaluate their water footprint and the carbon footprint associated with their water consumption. During the 2019-2020 school year we ran a pilot test of the program with secondary-school teachers, which allowed us to develop a working method that is currently being used at 30 secondary schools in Catalonia. Using the results, we can compare both the state of the bodies of water in the areas studied and the water footprint of project participants. Our goal is to raise secondary-school students? awareness of the need to conserve such a valuable resource, and	CITES - Sustainability Science and Technology Research Group	Modern environmental science and engineering	10.15341/mese(2333-2581)
32062024	Comparación de la siniestralidad minera en España. Análisis de varios períodos	27/9/2021	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Montaña Puig, Juan;Romero Duran, David Romero;Bergas Jane, Joan Gabriel	Este estudio tiene como objetivo evaluar el comportamiento de seguridad de los trabajadores de las minas en España y analizar los parámetros que inciden en la siniestralidad laboral. Se ha explorado la relación entre los accidentes laborales y las variables como la antigüedad en el puesto de trabajo, años de experiencia en la explotación minera y la edad de los operarios. Los accidentes laborales según la antigüedad en el puesto de trabajo tanto entre 2015-2019 como en el período 2005-2009 se dieron mayoritariamente en los trabajadores que tenían una antigüedad en la empresa entre 3 y 10 años. Según el tamaño del centro los accidentes se produjeron en mayor cantidad entre las explotaciones entre 250 y 499 trabajadores. Por edad los operarios entre los 40 y 44 años fueron los que más siniestralidad sufrieron en la década analizada.	LRG - Lightning Research Group	ORP Journal	
32061851	Used tires as fuel in clinker production: economic and environmental implications	20/9/2021	Castañón García, Ana María;Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Vega y de la Fuente, Antonio;Contreras Dominguez, Victor;Gómez Fernández, Fernando	This work analyzes how gases emitted during the manufacture of clinker vary in a cement plant using two types of fuel: petroleum coke and unusable tires (UTs). This study is based on a case study using real time data on more than 40 process variables. Gases are analyzed from two points of the production process: from the sintering kiln, where the main focus of emissions to the atmosphere is by chimney, and from the preheater. The variation of CO and NOx depending on the oxygen and fuel type is studied. The SO2 levels are also analyzed and a decrease was observed when using the UTs. The quality of the clinker is compared according to the fuel type. The results are analyzed, on the one hand, by the quality of the clinker, determined by the content of the majority (C3S, alite) and minority (free CaO) phases, and, on the other hand, by the kiln sintering temperature, the most influential parameter in the productive process. It is verified that the clinker quality is	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sustainability (Switzerland)	10.3390/su131810455
32051756	Development of a physical separation route for the concentration of base metals from old wasted printed circuit boards	18/9/2021	Walburga Keglevich de Buzin, Pedro Jorge;Ambrós, Weslei Monteiro;Schadach de Brum, Irineu Antônio;Tubino, Rejane Maria Candiota;Hoffmann Sampaio, Carlos;Oliva Moncunill, Josep	Wastes from old electronic devices represent a significant part of the electronic scrap generated in developing countries, being commonly sold by collectors as low-value material to recycling hubs abroad. Upgrading the quality of this waste type could drive the revenue of recyclers, and thus, boost the recycling market. On this basis, this study investigated the possibility of concentrating metals from old wasted printed circuit boards through a physical separation-based route. Preparation of samples comprised fragmentation, size classification, density, and magnetic separation steps, followed by chemical and macro composition analysis. Cu, Al, Fe, and Sn constituted the major metals encountered in the scraps, including some peak concentrations of Zn, Sb, Pb, Ba, and Mn. Four distinct concentrate products could be obtained after suitable processing: (a) a light fraction composed of plastics and resins; (b) an aluminum concentrate; (c) a magnetic material	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min11091014

31831917	Genetic model for Jurassic shale-hosted Zn-Pb deposits of the Arak Mining District, Malayer-Esfahan metallogenic belt: insight from sedimentological, textural, and stable isotope characteristics	1/9/2021	Mahmoodi, Pouria;Rastad, Ebrahim;Rajabi, Abdorrahman;Alfonso Abella, María Pura;Canet Miquel, Carles;Peter, Jan	The Hossein-Abad and Western Haft-Savaran Zn-Pb SEDEX deposits are located in the Arak basin of the Malayer-Esfahan Metallogenic Belt, Iran. This metallotect formed in a back-arc paleotectonic setting as a result of the subduction of the Neo-Tethys oceanic plate beneath the Sanandaj-Sirjan Zone. The rocks that host the mineralization are Jurassic organic matter-bearing, fine-grained sandstones, siltstones and shales. Asymmetric lenticular bedding, unidirectional flow (based on oblique silt lamination direction relative to horizontal bedding), graded bedding and clay-rich interbeds indicate sediments were deposited from turbidity currents in a low-energy basin environment. There are three ore facies in the Hossein-Abad and Western Haft-Savaran Zn-Pb deposits: 1) bedded ore; 2) massive ore; 3) feeder zone. Bedded ore contains pyrite framboids and polyframboidal clusters. The size range of the pyrite framboids (3 to 6 μm in diameter)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2021.104262
32032640	Construction and demolition waste recycling through conventional jig, air jig, and sensor-based sorting: a comparison	21/8/2021	Hoffmann Sampaio, Carlos;Ambrós, Weslei Monteiro;Cazacliu, Bogdan G.;Oliva Moncunill, Josep;Veras, Moacir Medeiros;Miltzarek, Gérson L.;Silva, Luis F. O.;Salvador Kuerten, Ariane;Liendo, Maria Alejandra	The paper presents a comparison of the concentration methods conventional jig, air jig, and sensor-based sorting to treat construction and demolition waste. All tests were made with concrete, brick, and gypsum particles and the tests aim to separate these materials into different size ranges, depending on the method. The equipment tested, conventional jig, air jig, and sensor-based sorting present good results to concentrate construction and demolition waste particles, with different concentrations and mass recoveries. The results show particularly good mass recoveries and particle concentration for conventional jig, especially for concrete and gypsum particles. Sensor-based sorting should preferably use concentration circuits for best results. Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min11080904
32049046	Evidence of a new geothermal prospect in the Northern-Central trans-Mexican volcanic belt: Rancho Nuevo, Guanajuato, Mexico	9/8/2021	Landa-Arreguín, J. Federico A.;Villanueva Estrada, Ruth Esther;Rodríguez Díaz, Augusto Antonio;Morales-Arredondo, J.I.;Rocha-Miller, Roberto;Alfonso Abella, María Pura	Thermal manifestations are commonly found in central Mexico as result of the volcanic activity originating from the formation of the Trans-Mexican Volcanic Belt during the Quaternary. The Rancho Nuevo hot spring is one of them that has not been described before with a discharge temperature near 92 °C. The goal of the present study is to provide geothermal characteristics of thermal manifestations at Rancho Nuevo location based on geochemical and mineralogical results to explain deep-subsurface processes that occurred in the geothermal system. The presence of kaolinite, montmorillonite, opal, zeolite, barite, pyrite, and stibnite in altered soil sediments or around the hot springs identiied by the techniques used in the present study, conirms the presence of hydrothermal activity. In addition, based on the X-ray difraction, calcite precipitates at the surface of the thermal springs. This mineral association relects deep geothermal processes and is eventually deposited in	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of Iberian Geology	10.1007/s41513-021-00173-0
32032601	Characterization of demolished concretes with three different strengths for recycling as coarse aggregate	26/7/2021	Hoffmann Sampaio, Carlos;Cazacliu, Bogdan G.;Ambrós, Weslei Monteiro;Kronbauer, Márcio André;Tubino, Rejane Maria Candiota;Dal Molin, Denise C. C.;Oliva Moncunill, Josep;Miltzarek, Gérson L.;Waskow, Regis P.;Dos Santos, Viviane L. G.;Silva, Luis F. O.	This paper presents a physical characterization for the recycling into new concretes of three comminuted concretes: C16/20 (?ordinary concrete?), C50/60 (?high strength concrete?), and C70/85 (?very high strength concrete?). The top size of the crushed concretes was 19.1 mm and the size range was 4.75 to 19.1 mm. The characterization was carried out with coarse aggregate liberation, to be prepared and concentrated in a gravity concentration process. The density distribution of the coarse aggregate, cement paste, and sand was carried out in different size ranges (4.75/19.1 mm; 4.75/8.0 mm; 8.0/12.5 mm; and 12.5/19.1 mm) for the three concretes studied. The form factor of the samples, as well as the porosity determination of particles in different density ranges, are presented. The obtained results indicate that the coarse aggregate liberation was more intensive for the low resistance concrete (C16/20), but a reasonable coarse aggregate recovery is	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min11080803

32566722	Customized screen-printed electrodes based on Ag-nanoseeds for enhanced electroanalytical response towards Cd(II), Pb(II) and As(V) in aqueous samples	30/6/2021	Torres Rivero Andrade, Karina Victoria Alejandra;Pérez-Ràfols, Clara;Bastos-Arrieta, Julio;Serrano, Núria;Marti Gregorio, Vicenç;Florido Pérez, Antonio	Electrochemical analysis based on screen-printed electrodes (SPEs) represents a great alternative to conventional analytical methods such as ICP-MS or LC-MS due to their portability, sensitivity, selectivity, and cost-effectiveness. In addition, the functionalization of SPEs with nanomaterials has been reported to provide an enhanced analytical performance. In this regard, silver nanoparticles (AgNPs) were synthesized and appropriately characterized, showing spherical silver nanoseeds (Ag-NS) with a diameter of 12.20 ± 0.04 nm. Using the drop-casting methodology, the synthesized AgNPs were used to modify screen-printed carbon nanofiber electrodes (SPCNFEs). Ag-NS deposition onto the electrode surface was confirmed by scanning electron microscopy (SEM). Furthermore, the analytical response of the modified electrodes (Ag-NS-SPCNFE) was evaluated for the determination of trace Pb(II), Cd(II), and As(V) using differential pulse anodic stripping	R2EM - Resource Recovery and Environmental Management	Chemistry proceedings	10.3390/CSAC2021-10469
32032777	Investigating the ubiquitous presence of nanometric water films on surfaces	25/6/2021	Santos Hernández, Sergio;Amadei, Carlo Alberto;Lai, Chia-Yun;Olukan, Tuza;Lu, Jin-You;Font Teixido, Jose;Barcons Xixons, Victor;Verdaguer Prats, Albert;Chiesa, Matteo	When we speak of nanometric water films on surfaces we are speaking about a truly ubiquitous phenomenon in nature. All surfaces exposed to ambient conditions are covered by a thin film of water that affects or mediates surface chemistry, general physical-chemical processes on surfaces, and even solid?solid interactions. We have investigated this phenomenon for over a decade by exploiting dynamic atomic force microscopy and have (1) described how these layers affect apparent height measurements, (2) analyzed the excitation of subharmonics, (3) investigated its effects on surface functionality over time (?aging?), (4) monitored and quantified the time-dependent wettability of several relevant surfaces such as highly oriented pyrolytic graphite and monolayer systems, and (5) developed high-resolution and highly stable modes of imaging. Here, we discuss these findings to elucidate the present and future of the field. We further provide a	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of physical chemistry C	10.1021/acs.jpcc.1c03767
32013255	Variability study of bond work index and grindability index on various critical metal ores	1/6/2021	González García, Gloria;Oliva Moncunill, Josep;Guasch Cascallo, Eduard;Anticoi Sudzuki, Hernan Francisco;Coello Velázquez, Alfredo L.;Menendez Aguado, Juan Maria	It is a well-known fact that the value of the Bond work index (wi) for a given ore varies along with the grinding size. In this study, a variability bysis is carried out with the Bond standard grindability tests on different critical metal ores (W, Ta), ranging from coarse grinding (rod mills) to fine grinding (ball mills). The relationship between wi and grinding size did not show a clear correlation, while the grindability index (gpr) and the grinding size showed a robust correlation, fitting in all cases to a quadratic curve with a very high regression coefficient. This result suggests that, when performing correlation studies among ore grindability and rock mechanics parameters, it is advised to use the grindability index instead of the Bond work index. Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Metals	10.3390/met11060970
32064836	Improvement of phosphate adsorption kinetics onto ferric hydroxide by size reduction	31/5/2021	Marti Gregorio, Vicenç;Jubany Güell, Irene;Benito Paramo, Jose Antonio	Ball milling and ultra-sonication size reduction procedures were applied to granular ferric hydroxide (GFH) to obtain two micro-sized adsorbents. These two adsorbents and GFH were investigated to improve the removal of phosphates from water. The size reduction procedures, using the milling method, allowed a reduction of size from 0.5?2 mm to 0.1?2 µm and total disaggregation of the GFH structure. Using an ultra-sonication method yielded a final size of 1.9?50.3 µm with partial disaggregation. The Langmuir model correlated well with the isotherms obtained in batch equilibrium tests for the three adsorbents. The maximum adsorption capacity (qmax) for the milled adsorbent was lower than GFH, but using ultra-sonication was not different from GFH. The equilibrium adsorption of two wastewater samples with phosphate and other anions onto the GFH corresponded well with the expected removal, showing that potential interferences in the isotherms	R2EM - Resource Recovery and Environmental Management	Water (Basel)	10.3390/w13111558

31977716	Hydroxyapatite coatings on calcite powder for the removal of heavy metals from contaminated water	27/5/2021	Gibert Agullo, Oriol;Valderrama Angel, Cesar Alberto;Martínez Martínez, María R.;Darbra Roman, Rosa Maria;Oliva Moncunill, Josep;Marti Gregorio, Vicenç	An approach for the remediation of heavy metal-contaminated wastewater that is gaining increasing attention is the application of hydroxyapatite (HAP)-based particles. HAP is conventionally synthesized through wet chemical precipitation of calcium and phosphate ions, although later studies have focused on HAP synthesis from solid calcite contacted with a phosphate solution under ambient conditions. This synthesis route can allow saving soluble Ca-chemicals and, thus, make the process more cost-efficient. The aim of this study was to coat natural calcite powder with a layer of HAP for the removal of Zn and Cu from contaminated water. For this purpose, a HAP layer was synthesized on calcite particles, characterized using several complementary techniques and evaluated for the removal of Zn and Cu from synthetic solutions. Sorption kinetics and equilibrium isotherms, as well as the effect of sonication of the synthesized sample on its sorption	R2EM - Resource Recovery and Environmental Management	Water (Basel)	10.3390/w13111493
31966955	Advances in dynamic AFM: from nanoscale energy dissipation to material properties in the nanoscale	2/4/2021	Santos Hernández, Sergio;Gadelrab, Karim Raafat;Lai, Chia-Yun;Olukan, Tuza;Font Teixido, Jose;Barcons Xixons, Victor;Verdaguer Prats, Albert;Chiesa, Matteo	Since the inception of the atomic force microscope (AFM), dynamic methods (dynamic atomic force microscopy) have been very fruitful by establishing methods to quantify dissipative and conservative forces in the nanoscale and by providing a means to apply gentle forces to the samples with high resolution. Here, we discuss developments that cover over a decade of our work on energy dissipation, phase contrast, and the extraction of relevant material properties from observables. We describe the attempts to recover material properties via one-dimensional amplitude and phase curves from force models and explore the evolution of these methods in terms of force reconstruction, fits of experimental measurements, and the more recent advances in multifrequency AFM. We further discuss open questions and key possible paths to advance the field. Since the inception of the atomic force microscope (AFM), dynamic methods	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of Applied Physics	10.1063/5.0041366
30144984	Evaluation of natural background levels of high mountain karst aquifers in complex hydrogeological settings. A Gaussian mixture model approach in the Port del Comte (SE, Pyrenees) case study	1/2/2021	Herms Canellas, Joan Ignasi;Jódar Bermúdez, Jorge;Soler Gil, Albert;Lambán Jiménez, Luis Javier;Custodio Gimena, Emilio;Nuñez Genestós, Joan Agustí;Ortego Martinez, Maria Isabel;Arnó Pons, Georgina;Parcerisa Duocastella, David;Jorge, Joan	The hydrogeological processes driving the hydrochemical composition of groundwater in the alpine pristine aquifer system of the Port del Comte Massif (PCM) are characterized through the multivariate statistical techniques Principal Component Analysis (PCA) and Gaussian Mixture Models (GMM) in the framework of Compositional Data (CoDa) analysis. Also, the groundwater Natural Background Levels (NBLs) for NO3 and SO4 and Cl are evaluated, which are specially important for indicating the occurrence of groundwater contamination derived from the anthropic activities conducted in the PCM. The different hydrogeochemical facies found in the aquifer system of the PCM comprises low mineralized Ca-HCO3 water for the main Eocene karst aquifer, and Ca-SO4 and highly mineralized Nasingle bondCl water types in	COSDA-UPC - COmpositional and Spatial Data Analysis	Science of the total environment	10.1016/j.scitotenv.2020.143864
30486774	Elimination of persistent anthropogenic pollutants by micro-mesoporous carbon xerogels. Natural organic matter on surface water and textural properties influences	1/2/2021	Llado Valero, Jordi;Lao Luque, Concepcion;Sole Sardans, M. Montserrat;Montemurro, Nicola;Pérez Solsona, Sandra;Fuente Alonso, Enrique;Ruiz Bobes, Begoña	The increase of emerging pollutants (pesticides, pharmaceuticals, iodinated contrast media (ICM), ?) in surface and groundwater is a threat to the environment and to human health due to its toxicity and its persistence in water. In this work, the removal of pharmaceuticals and ICM by adsorption onto carbon xerogels and commercial activated carbons with different physicochemical properties is studied. Carbon xerogels have similar micropore volume and BET surface area (0.152 ± 5 cm3 g-1 and 625 ± 25 m2 g-1, respectively), with macropore and mesopore volume up to 0.63 cm3 g-1 and 1.09 cm3 g-1 and an average pore diameter from 8.8 to 45.6 nm. YAO activated carbon present the highest micropore volume and BET surface area (0.357 cm3 g-1 and 1092 m2 g-1, respectively). Small pores favor the pharmaceuticals adsorption and larger pores the uptake of ICM. The presence of polymeric groups in the carbon xerogels and ashes in the HYDC	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Journal of environmental chemical engineering	10.1016/j.jece.2020.104885

30289534	La bioeconomía circular aplicada a la desulfuración de biogás: el proyecto LIFE Biogasnet	11/1/2021	Ramírez Muñoz, Martín;Gamisans Noguera, Xavier;Ortega Fuentes, Juan Jesús;Prado Rubianes, Oscar;Ramírez Barria, Carolina;Moustakas, Konstantinos	Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	RETEMA: revista técnica de medio ambiente	
30744948	Influence of ore grade and mineral medium on chalcopyrite bioleaching with mixed microbial consortia	4/1/2021	Benzal Montes, Eva;Sole Sardans, M. Montserrat;Lao Luque, Concepcion;Morral Moltó, Eloi;Gamisans Noguera, Xavier;Dorado Castaño, Antonio David	In the present work, key parameters in copper bioleaching from chalcopyrite have been investigated at long-term operation. In detail, the type of mixed microbial consortium (origin and adaptation); the composition of two mineral media (the growth medium and the modified 9K medium); its buffer capacity by the buffers HCl/KCl and Na2HPO4/KH2PO4; and the influence of different ore grades in relation with the potential alkalinity associated have been investigated. For the first time, a mixed microbial consortium, obtained from a gas-phase biotrickling filter treating high loads of H2S, was employed revealing significant copper extraction by biological leaching. Results reveal that a single adaptation step of this biomass improved both kinetics and process efficiency, nearly doubling the amount of copper obtained compared with the non-adapted consortium. Nevertheless, the growth medium also influences the efficiency of the bioleaching process, enhancing copper	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Environmental progress & sustainable energy	10.1002/ep.13588
30593107	Editorial for special issue ?Mineral liberation?	4/1/2021	Alfonso Abella, María Pura		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min11010047
32509552	Thermal behaviour of ceramics obtained from the kaolinitic clays of Terra Alta, Catalonia, Spain	1/1/2021	García-Vallès, Maite;Cuevas, Débora;Alfonso Abella, María Pura;Martínez Manent, Salvador	The thermal properties and evolution of mineralogy and colour of kaolinitic clay from the Terra Alta region were studied. The mineralogy of these materials consists mainly of kaolinite (13?27 mass%) and quartz (48?86 mass%). Minor illite, hematite, K-feldspar and calcite also occur. The linear expansion and absorption curves were used to predict the optimal firing temperature of the raw clays. During firing, from 1100 °C the water absorption decreases steeply, due to an increase in liquid phase, which penetrates into the pores and close the porosity. At this temperature, the firing shrinkage increases progressively. The fired clays are mainly composed of quartz, cristobalite and mullite, with minor hematite and rutile. Mullite starts to appear at 1050?1100 °C. SEM observations show that porosity decreases with the firing temperature. The colour properties were measured in the raw clays and in the fired bricks at different temperatures. The	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of thermal analysis and calorimetry	10.1007/s10973-021-11075-9

29291497	Coupling dissolved oxygen microsensors measurements and heterogeneous respirometry for monitoring and modeling microbial activity within sulfide-oxidizing biofilms	15/11/2020	Guimera Villalba, Xavier;Mora, M.;López de León, Luís Rafael;Gabriel Buguña, Gemma;Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David	A heterogeneous respirometer (HR) was coupled for the first time to a microelectrode monitoring system specifically designed for dissolved oxygen (DO) measuring within the biofilm. Monitoring of the oxygen concentration in the gas and liquid phases was complemented with pioneer monitoring of DO performed simultaneously and continuously at multiple biofilm depths in a linear array of eleven gold-disk electrodes of 50 µm-diameter. A set of respirometric tests performed at neutral pH and with initial gas phase concentrations of H2S ranging from 135 to 6720 ppmv were used to assess sulfide-oxidizing activity of a biofilm grown on 15.9 mm plastic Pall rings withdrawn from a biogas desulfurizing biotrickling filter. A mechanistic model for the description of multi-step sulfide oxidation within a biotrickling filter was improved considering heterogeneous biomass concentration and biomass activity distribution along the biofilm depth. A comprehensive	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2020.125846
29570132	Temperature prediction model in the main ventilation system of an underground mine	16/10/2020	Bascompta Massanes, Marc;Rossell Garriga, Josep Maria;Sanmiquel Pera, Lluis;Anticoi Sudzuki, Hernan Francisco	A model to forecast the underground temperature in a mine ventilation circuit was developed on the basis of a case study and actual data describing temperature, airflow, and drift length collected over several years. A mathematical model featuring seven variables with interactions provided reliable predicted temperatures, achieving a correlation of R2 = 0.933 with an estimation error of ±2 °C. Its soundness was proven using both the node-to-node analysis and the multi-node approach. The multi-node approach was shown to be an interesting option to model underground mining environments. This model can be very useful to predict the temperature evolution along the main ventilation system, determine the best workplace conditions in terms of temperature, and analyze different planning scenarios of the mine. Moreover, some recommendations are presented for obtaining reliable data when using temperature sensors and the model in a U-shaped	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied sciences (Basel)	10.3390/app10207238
29833215	A review of biotechnologies for the abatement of ammonia emissions	15/10/2020	Morral Moltó, Eloi;Gabriel Buguña, David;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier	Ammonia emissions are found in a wide range of facilities such as wastewater treatment plants, composting plants, pig houses, as well as the fertilizer, food and metallurgy industries. Effective management of these emissions is important for minimizing the detrimental effects they can have on health and the environment. Physical-chemical (thermal oxidation, absorption, catalytic oxidation, etc.) treatments are the most common techniques for the abatement of ammonia emissions. However, the requirement for more eco-friendly techniques has increased interest in biological alternatives. Accordingly, several bio-based process configurations (biofilters, biotrickling filters and bioscrubbers) have been reported for ammonia abatement in a wide spectrum of conditions. Due to ammonia is a highly soluble compound, bioscrubber seems to be the best option for ammonia abatement. However, this technology is still not widely studied. The proper managements of the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2020.128606
29502881	Evaluación de riesgos ocupacionales de los trabajadores de la minería española (2018)	1/10/2020	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Montaña Puig, Juan;Romero Duran, David Romero;Bergas Jane, Joan Gabriel	El sector minero español puede clasificarse en dos tipos, minería energética y no energética. La actividad minera implica riesgos para la salud y seguridad en el trabajo.En este estudio se ha evaluado los riesgos laborales de los empleados en la minería española, teniendo como base el ejercicio del año 2018. Los accidentes de trabajo se concentran en los trabajadores con menos de un año de experiencia en su dedicación a la explotación minera. El sobreesfuerzo físico fue el que causó más bajas laborales en el transcurso de los últimos diez años. Los centros de trabajo de menos de 10 personas, que en España son mayoritarios, las lesiones por persona son más numerosas que en empresas con más personal. Los empleados de menos de 24 años son los que más sufren la siniestralidad laboral en los centros mineros. El sector minero español puede clasificarse en dos tipos, minería	LRG - Lightning Research Group	ORP Journal	

29569443	Geochemical constraints on the genesis of the ?Montaña de Manganeso? vein-type Mn deposit, Mexican Plateau	1/10/2020	Madondo, Joseph;Canet Miquel, Carles;González Partida, Eduardo;Rodríguez Díaz, Augusto Antonio;Núñez Useche, Fernando;Alfonso Abella, María Pura;Rajabi, Abdorrahman;Pi Puig, Teresa;Blignaut, Lauren;Vafeas, Nicholas	Manganese mineralization at Montaña de Manganeso, San Luis Potosí state, consists of oxide ores that form sharp contacts with volcanic host rocks. The orebodies are generally in the form of veins and irregular masses, and locally as mineralized breccias. Petrographic analyses indicate that the mineralization is multi-episodic, with colloform and crustiform textures predominating. The X-ray diffraction and electron microscopy show that manganese oxides (todorokite, birnessite, pyrolusite, romanechite and cryptomelane) are the main ore minerals, while iron oxides (goethite and hematite) are accessory. The most common gangue minerals are calcite and quartz with subordinate amounts of barite. According to fluid inclusion microthermometry, the mineralization is associated with aqueous solutions of intermediate salinity (8?16 wt% NaCl equivalent) and temperatures between 101 and 140 °C. Stable isotope analysis of calcite (d13CPDB: -7.76 to	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2020.103680
29375068	The use of yailings to make glass as an alternative for sustainable environmental remediation: the case of Osor, Catalonia, Spain	16/9/2020	Alfonso Abella, María Pura;Tomasa Guix, Oriol;Domenech Rubio, Luis Miguel;García-Vallès, Maite;Martínez Manent, Salvador;Roca Pascual, Núria	Tailings from the Osor fluorite mines release large amounts of potentially toxic elements into the environment. This work is a proposal to remove these waste materials and use them as a raw material in the manufacture of glass. The chemical composition of the tailings was determined by X-ray fluorescence and the mineralogy by X-ray diffraction. Waste materials have SiO2, Al2O3 and CaO contents suitable for a glass production, but Na as NaCO3 has to be added. Two glass formulations, with 80?90% of the residue and 10?20% Na2CO3, have been produced. The crystallization temperatures, obtained by differential thermal analysis, were 875 and 901 °C, and the melting temperatures were 1220 and 1215 °C for the G80-20 and G90-10 glasses, respectively. The transition temperatures of glass were 637 and 628 °C. The crystalline phases formed in the thermal treatment to produce devitrification were nepheline, plagioclase and diopside in the G80-20 glass,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10090819
28769574	The world-class Koushk Zn-Pb deposit, Central Iran: a genetic model for vent-proximal shale-hosted massive sulfide (SHMS) deposits ? Based on paragenesis and stable isotope geochemistry	1/9/2020	Rajabi, Abdorrahman;Alfonso Abella, María Pura;Canet Miquel, Carles;Rastad, Ebrahim;Niroomand, Shojaedin;Modabberi, Soroush;Mahmoodi, Pouria	The Koushk Zn-Pb deposit is the largest known and least deformed and non-metamorphosed Early Cambrian shale-hosted massive sulfide (SHMS) deposit at Central Iran. The current remaining reserves are estimated to be greater than 14 Mt ore, averaging 7% Zn and 1.5% Pb; the primary resources ore of the deposit is estimated to be more than 60 Mt. At this deposit, different hydrothermal ore styles (bedded ore, vent complex, and feeder zone) are well preserved within the Lower Cambrian black siltstones and shales. According to fluid-rock interaction and different ore-forming processes in SHMS systems, these ore facies with extensive hydrothermal alteration provide unique conditions to understand critical textural and geochemical frameworks to present a genetic model. In this research, we focus on different paragenetic stages of sulfide mineralization and fluid-rock interactions in different ore styles from the Koushk SHMS deposit. The	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2020.103654
29673967	Destoning the Moatize coal seam, Mozambique, by dry jigging	31/8/2020	Hoffmann Sampaio, Carlos;Ambrós, Weslei Monteiro;Cazacliu, Bogdan G.;Oliva Moncunill, Josep;Selemane José, David;Miltzarek, Gérson L.;Schadach de Brum, Irineu Antônio;Petter, Carlos Otávio;Zanetti Fernandes, Eunírio;Silva Oliveira, Luis Felipe	This paper proposes pre-beneficiation studies by air jigs of the coal layers from a Moatize coal deposit. Pre-beneficiation, also called destoning, removes tailings before the beneficiation plant. The air jigs operate in the same granulometric size range as the heavy-media cyclones (HMCs) that are installed in the preparation plant. With the destoning, the heavy-media circuit operates with a lower coal feed and higher organic matter contents, increasing its cutting efficiency and lowering operational costs. The use of air jigs reduces the total water consumption in the plant, which is especially important for the region where the plant is installed, aswater is particularly scarce. Four coal layers of the Moatize coal deposit were studied, which are currentlyexploited in the mine. As main results of the study, it is possible to say that the concentration of lights (feed of the preparation plant) and heavies (waste fraction) in air jigs can be carried out with reasonable	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10090771

29284712	Nitrate and nitrite reduction by ferrous iron minerals in polluted groundwater: Isotopic characterization of batch experiments	20/8/2020	Margalef Marti, Rosanna;Carrey, Raul;Benito Paramo, Jose Antonio;Marti Gregorio, Vicenç;Soler Gil, Albert;Otero, Neus	Since nitrate (NO3-) has been related to human health and environmental problems, safe and sustainable strategies to remediate polluted water bodies must be investigated. This work aims to assess the feasibility of using ferrous iron (Fe(II))-containing minerals to stimulate microbial denitrification while avoiding pollution swapping (e.g. accumulation of the by-products nitrite (NO2-) or nitrous oxide (N2O)). To accomplish the objective, samples obtained from several batch experiments were characterized chemically and isotopically. Magnetite, siderite and olivine were tested micro-sized and magnetite was also tested nano-sized. In microbial experiments, NO3-polluted groundwater was employed as inoculum. In these experiments, NO3-reduction to nitrogen gas (N2) was only completed in microcosms containing magnetite nanoparticles, suggesting an increased Fe(II) availability from nano-sized compared to micro-sized magnetite. In abiotic experiments, no	CIEFMA-PROCOMAME - Microstructural Design and Advanced Manufacturing of Materials	Chemical geology	10.1016/j.chemgeo.2020.119691
28443125	Feasibility of S-rich streams valorization through a two-step biosulfur production process	1/8/2020	Mora Garrido, Mabel;Fernández Palacios, Eva;Guimera Villalba, Xavier;Lafuente Sancho, Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David	A bioscrubbing process named SONOVA has been developed, tested and assessed herein to valorize flue gases containing SOx. The process consists in a first scrubbing stage, to absorb and oxidize SO2 to sulfate, followed by a two-step biological stage. It consists of (1) an up-flow anaerobic sludge (UASB) reactor to reduce sulfate to sulfide with crude glycerol and (2) a continuous stirred tank reactor (CSTR) to partially oxidize sulfide to elemental sulfur (S0). SONOVA integrates the reutilization of resources, using the effluent of the biological stage as a sorbent agent and the residual heat of flue gases to dry the product. S0 is then obtained as a value-added product, which nowadays is produced from fossil fuels. In this research, SO2 concentrations up to 4000 ppmv were absorbed in 2 s of gas contact time in the spray-scrubber with removal efficiencies above 80 %. The UASB reduced up to 9.3 kg S-Sulfate m-3 d-1 with sulfide productivities of 6 kg S m-3 d-1 at	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2020.126734
28780665	Direct As(V) Determination Using Screen-Printed Electrodes Modified with Silver Manoparticles	30/6/2020	Torres Rivero Andrade, Karina Victoria Alejandra;Pérez Ràfols, Clara;Bastos Arrieta, Julio Alonso;Florido Pérez, Antonio;Marti Gregorio, Vicenç;Serrano Plana, Núria	Carbon-nanofiber-based screen-printed electrodes modified with silver nanoparticles (Ag-NP-SPCNFEs) were tested in a pioneering manner for the direct determination of As(V) at low µg L?1 levels by means of differential pulse anodic stripping voltammetry. Screen-printed electrodes were modified with two different types of Ag-NPs, nanoseeds (NS), and nanoprisms (NPr) and characterized both microscopically and electrochemically. Furthermore, after optimizing the direct voltammetric determination of As(V), the analytical performance of considered sensors was compared for the direct determination of As(V). These results suggest that Ag-NS offer a better analytical response compared to Ag-NPr, with a detection and quantification limit of 0.6 and 1.9 µg L?1, respectively. The proposed methodology was validated using a spiked tap water sample with a very high reproducibility and good agreement with inductively coupled plasma - mass spectrometry (ICP-	R2EM - Resource Recovery and Environmental Management	Nanomaterials	10.3390/nano10071280
29206255	Optimization of SO2 and NOx sequential wet absorption in a two-stage bioscrubber for elemental sulphur valorisation	29/6/2020	Guimera Villalba, Xavier;Mora Garrido, Mabel;Dorado Castaño, Antonio David;Bonsfills Pedros, Ana;Gabriel Buguña, David;Gamisans Noguera, Xavier	Flue gases contain SO2 and NOx that can be treated together for elemental sulphur recovery in bioscrubbers, a technology that couples physical-chemical and biological processes for gaseous emissions treatment in a more economic manner than classical absorption. Sequential wet absorption of SO2 and NOx from flue gas is thoroughly studied in this work in a two-stage bioscrubber towards elemental sulphur valorisation pursuing reuse of biological process effluents as absorbents. The optimal operating conditions required for SO2 and NOx absorption in two consecutive spray absorbers were defined using NaOH-based absorbents. Overall, removal efficiencies of 98.9% and 55.9% for SO2 and NOx abatement were obtained in two in-series scrubbers operated under a gas contact time of 1 and 100 s, and a liquid-to-gas ratio of 7.5 and 15 L m-3, respectively. Higher NOx removal efficiency to clean gas emission was obtained by oxidants dosing in the absorber for NOx	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental science and pollution research	10.1007/s11356-020-09607-1

28098875	The Ab-Bagh Late Jurassic-Early Cretaceous sediment-hosted Zn-Pb deposit, Sanandaj-Sirjan zone of Iran: ore geology, fluid inclusions and (S?Sr) isotopes	1/6/2020	Movahednia, Mahdi;Rastad, Ebrahim;Rajabi, Abdorrahman;Maghfouri, Sajjad;González, Francisco José;Alfonso Abella, María Pura;Choulet, Flavien;Canet Miquel, Carles	The Ab-Bagh clastic- and carbonate-hosted stratabound and stratiform Zn-Pb deposit in the Sanandaj-Sirjan zone, in the southeastern corner of the Malayer-Esfahan metallogenic belt of Iran, is typical of several sedimentary?exhalative (SEDEX) deposits in this metallogenic belt. The deposit is hosted in a late Jurassic-early Cretaceous sedimentary sequence. Based on position, there are two Zn-Pb-bearing stratigraphic ore horizons. Ore horizon 1 is hosted by late Jurassic-early Cretaceous black shale and siltstone. The wedge-shaped ore body is located close to a synsedimentary normal fault. Petrographic studies indicates that mineralization comprises three sulfide ore facies: stockwork, bedded and massive ore facies. Ore horizon 2 occurs in early Cretaceous carbonates and comprises a massive-replacement ore facies that is concordant with host rock layering; it is also underlain by a stockwork facies. Textures include framboidal, laminated,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2020.103484
28945101	Liberation characteristics of Ta?Sn ores from Penouta, NW Spain	31/5/2020	Alfonso Abella, María Pura;Hamid, Sarbast Ahmid;Anticoi Sudzuki, Hernan Francisco;García-Vallès, Maite;Oliva Moncunill, Josep;Tomasa Guix, Oriol;López Moro, Francisco Javier;Bascompta Massanes, Marc;Llorens, Teresa;Castro, David;García Polonio, Francisco	The strategic importance of tantalum and its scarcity in Europe makes its recovery fromlow grade deposits and tailings interesting. In Penouta, the contents of Ta and Sn in old tailingsfrom an Sn mine are of economic interest. Due to the relatively low grade of Ta of around 100 ppm,a detailed study of the mineralogy and liberation conditions is necessary. In this study, the mineralogyand the liberation characteristics of Sn and Ta ores of the Penouta tailings were investigated andcompared with the current leucogranite outcropping ores. The characterization was conductedthrough X-ray diffraction, scanning electron microscopy, and electron microprobe. In addition,automated mineralogy techniques were used to determine the mineral associations and liberationcharacteristics of ore minerals. The grade of the leucogranite outcropping was found to be about80 ppm for Ta and 400 ppm for Sn, and in the tailings used for the liberation study, the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10060509
27762142	Copper recovery from PCBs by Acidithiobacillus ferrooxidans: toxicity of bioleached metals on biological activity	1/4/2020	Benzal Montes, Eva;Cano Larrotta, Ana Maria Jose Candelaria;Sole Sardans, M. Montserrat;Lao Luque, Concepcion;Gamisans Noguera, Xavier;Dorado Castaño, Antonio David	The suitability and limits of bioleaching for copper recovery from printed circuits boards has been stated with new strategies and methodologies. The process has been tested using a continuous column reactor simulating those conditions found at industrial scale. The new strategy developed improved the kinetic reaction rate and overcomes transport limitations for the leaching solution, thus improving copper recoveries from 50 to 80% in only 6 h. This drastically reduced the time required by previous studies to achieve the same copper recovery. Inhibition effects of the biological process due to the release of metals from e-waste has been identified by means of microrespirometric monitoring tests. This systematic study allowed identifying that nickel, copper and aluminum impact the microorganisms? activity, inactivating them in specific scenarios (depending on the concentration and the time exposed). Including the time exposure as	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Waste and biomass valorization	10.1007/s12649-020-01036-y
27790518	Elemental copper recovery from e-wastes mediated with a two-step bioleaching process	27/3/2020	Benzal Montes, Eva;Sole Sardans, M. Montserrat;Lao Luque, Concepcion;Gamisans Noguera, Xavier;Dorado Castaño, Antonio David	Copper recovery from printed circuit boards (PCB) from waste mobile phones was investigated using a two-step bioleaching process. The method consists of a first step where Fe(II) ions are biologically oxidised to Fe(III) by Acidithiobacillus ferrooxidans. Later, Fe (III) ions are put in contact with the PCBs for copper solubilisation. At the conditions tested in the present work, the Fe(II) bio-oxidation (first step) was almost completed in 48 h. Two different methods (filtration and sedimentation) for biomass separation before the second step were tested. No significance differences between both separation methods were observed in terms of the overall process efficiency. In both cases, using 7.5 g/L of e-waste concentration, copper recovery of 95?100% were obtained in only 48 h. In order to test an inexpensive and environmental friendly method to recovery the copper from the leachate solution, cementation of Cu (II) with metallic iron was	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Waste and biomass valorization	10.1007/s12649-020-01040-2

28444242	GC-MS metabolite profile and identification of unusual homologous cannabinoids in high potency Cannabis sativa	13/2/2020	Basas Jaumandreu, Josep;de las Heras Cisa, F. Xavier	Phytochemical investigation of the lipids extracted from seeds of Cannabis sativa by GC-MS showed 43 cannabinoids, 16 of which are new. The extract is dominated by ¿9-tetrahydrocannabinolic acid (A) and its neutral derivative trans-¿9-tetrahydrocannabinol-C5 (THC) Cis and trans-¿9-tetrahydrocannabinol-C7 isomers with an ethyl-pentyl branched chain together with minor amounts of trans-¿9-tetrahydrocannabinol with a methyl-pentyl C6 branched side chain were identified as new natural compounds. Four cannabichromene isomers with a C5 side chain are postulated to be derived from the double bond migration at the terminal isoprenyl unit. C7 cannabichromene together with the neutral and acidic forms of cannabinol-C7 were also detected. The mass spectrum of these homologues as trimethylsilyl (TMS) derivatives are presented, and the fragmentation patterns are discussed.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Planta medica	10.1055/a-1110-1045
28800238	Petrographic markers for archaeometric identification of Montjuic sandstone, the flagship stone of Barcelona (NE Spain)	11/2/2020	Casas Duocastella, Lluís;Di Febo, Roberta;Parcerisa Duocastella, David	The present study deals with a particular clastic rock from the Montjuïc hill exploited since Roman times in Barcino (present-day Barcelona (NE Spain)). Polarized and cathodoluminescence microscopies have been used to describe the main petrographic features of Montjuïc sandstones. Several characteristic provenance markers have been identified; among them the most specifically restricted to Montjuïc sandstone are the K-feldspar clasts with authigenic overgrowths. A petrographic survey oriented to the detection of such markers has been fruitfully applied to sculptures, architectural elements, mosaics, and pottery. The petrographic approach has demonstrated that some Roman heritage materials had been erroneously assigned to Montjuïc sandstone and the revision of all the pieces macroscopically assigned to this provenance is advised. The use of Montjuïc sandstone in Roman tesserae has been reported for the first time with interesting implications on previously	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10020154
27369644	Mineralogical and thermal characterization of kaolinitic clays from Terra Alta (Catalonia, Spain)	1/2/2020	García-Vallès, Maite;Alfonso Abella, María Pura;Martínez Manent, Salvador;Roca Pascual, Núria	This research characterizes the kaolinitic clays from Cretaceous?Paleocene lateritic deposits of Terra Alta (south Catalonia) to evaluate their possible applications. The outcrops and quarries belong to the Horta de Sant Joan and Pinell de Brai areas. The chemical composition, mineralogy, rheological behavior, particle size distribution and plasticity are determined. The Fe and Ti4+ contents prevent them from being directly used as raw material for white ceramics. The mineralogy consists of kaolinite with quartz, illite, hematite, and minor K-feldspar and calcite. Most of the area comprises medium plastic clays that are classified as fired clays and can be used as ceramic and construction materials. In Horta de Sant Joan, a kaolinitic-rich level, up to 75 wt % of kaolinite, is highly crystalline with low plasticity and can be classified as flint clay, useful as a refractory clay. The evaluated kaolinitic clays can also be used to obtain a triaxial ceramic when they are	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10020142
27267980	Fracturing and near-surface diagenesis of a silicified miocene deltaic sequence: the Montjuïc Hill (Barcelona)	1/2/2020	Cantarero, Irene;Parcerisa Duocastella, David;Plata, Maria Alexandra;Gómez Gras, David Manuel;Gómez Rivas, Enrique;Martín Martín, Juan Diego;Travé, Anna	Near-surface diagenesis has been studied in the Langhian siliciclastic rocks of the Montjuïc Hill (Barcelona Plain) by means of petrographical (optical and cathodoluminescence) and geochemical (electron microprobe, d18O, d13C, d34S and 87Sr/86Sr) analyses. In the hill, these rocks are affected by strong silicification, but the same unit remains non-silicified at depth. The results reveal that fracturing took place after lithification and during uplift. Fracture cementation is clearly controlled by the previous diagenesis of the host rock. In non-silicified areas, cementation is dominated by calcite, which precipitated from meteoric waters. In silicified areas, fractures show multiepisodic cementation produced firstly by barite and secondly by silica, following the sequence opal, lussatite, chalcedony, and quartz. Barite precipitated only in fractures from the mixing of upflowing seawater and percolating meteoric fluids. The presence of silica stalactites, illuviation, and	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10020135

27083309	Superregeneration revisited: from principles to current applications	1/2/2020	Palà Schönwälder, Pere;Bonet Dalmau, Jordi;del Águila López, Francisco;Moncunill Geniz, Francisco Javier;Giralt Mas, M. Rosa	Wireless communications play a central role in our modern connected lives; at the same time, they constitute a very broad and deep area of research. The elements that make wireless communications possible are a transmitter, which sends information through electromagnetic waves; a medium that is able to transport these waves; and, finally, a receiver, which extracts the information from the-usually very small-amount of energy it is able to collect from the medium. Wireless communications play a central role in our modern connected lives;	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE microwave magazine	10.1109/MMM.2019.2952018
27681309	Assessment of errors in the transmission of the orientation and cartographic system from the surface to an underground mine	1/2/2020	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Rossell Garriga, Josep Maria	An accurate transmission of the orientation between surface and underground workings, by means of vertical shafts, is a major challenge in the mining industry, especially for deep mines. We assessed the accuracy of this operation in a case study using the two-shaft plumbing and gyroscopic methods in order to compare and analyse the planimetric displacement of the baseline due to different sources of error in each method. The advantages and disadvantages of both methods are discussed. Some disadvantages in each method have been reduced thanks to technological progress, especially in the two-shaft plumbing method. The different sources of error that affect the measurements are analysed in detail with the aim of compensating them and achieving the required precision for an underground infrastructure. Mine ventilation has been identified as one of the most important sources of error in the plumbing method due to intake	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of the Southern African Institute of Mining and Metallurgy	10.17159/2411-9717/826/2020
26610109	Computational and experimental investigation of biofilm disruption dynamics induced by high-velocity gas jet impingement	7/1/2020	Prades Martell, Lledó;Fabbri, Stefania;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier;Stoodley, Paul;Picioreanu, Cristian	Experimental data showed that high-speed microsprays can effectively disrupt biofilms on their support substratum, producing a variety of dynamic reactions such as elongation, displacement, ripple formation, and fluidization. However, the mechanics underlying the impact of high-speed turbulent flows on biofilm structure is complex under such extreme conditions, since direct measurements of viscosity at these high shear rates are not possible using dynamic testing instruments. Here, we used computational fluid dynamics simulations to assess the complex fluid interactions of ripple patterning produced by high-speed turbulent air jets impacting perpendicular to the surface of Streptococcus mutans biofilms, a dental pathogen causing caries, captured by high-speed imaging. The numerical model involved a two-phase flow of air over a non-Newtonian biofilm, whose viscosity as a function of shear rate was estimated using the Herschel-Bulkley model. The simulation	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	mBio	10.1128/mBio.02813-19
28924585	The Velardeña Zn?(Pb?Cu) skarn-epithermal deposits, central-northern Mexico: new physical-chemical constraints on ore-forming processes	1/1/2020	Jiménez Franco, Abigail;Canet Miquel, Carles;Alfonso Abella, María Pura;González Partida, Eduardo;Rajabi, Abdorrahman;Escalante, Edgar	The Velardeña mining district is economically the most important of Durango state. The ore deposits occur in different skarn zones developed within the intrusive contact between Mesozoic limestones and Eocene granitic stocks and dikes. The most important ore deposits are related to the Santa María dike and Reyna de Cobre porphyritic stock (separated from each other by 10 km). They occur as irregularly shaped replacement masses developed near the intrusive contact and have a skarn paragenesis dominated by calc-silicates and sulfides. The mineral assemblages show replacement textures and are dominated by calcic clinopyroxene (Di97-53Hd42-02Jh04-01) and garnet (Ad100-57Grs43-00) in the exoskarn, with wollastonite particularly abundant in the endoskarn. Hydrous silicates are actinolite, epidote, and chlorite, whereas sulfides include pyrite, sphalerite, pyrrhotite, galena, chalcopyrite, and sulfosalts. Scheelite, hematite, quartz, and calcite are also	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Geológica Mexicana	10.18268/BSGM2020v72n3a270719

26806059	Mineralogical characterization of dolomitic aggregate concrete: the Camarasa Dam (Catalonia, Spain)	1/1/2020	Garcia Vilchez, Encarnacion;Alfonso Abella, María Pura;Tauler Ferré, Esperança	The Camarasa Dam was built in 1920 using dolomitic aggregate and Portland cement with two different compositions: type A (dolomite and Portland cement) and type B (dolomite and sand-cement). The sand cement was a finely powdered mixture of dolomite particles and clinker of Portland cement. The mineralogy of concrete was studied by optical microscopy, scanning electron microscopy, and x-ray powder diffraction. Reaction of dedolomitization occurred in the two types of concrete of the Camarasa Dam, as demonstrated by the occurrence of calcite, brucite, and/or absence of portlandite. In the type A concrete, calcite, brucite, and a serpentine-group mineral precipitated as a rim around the dolomite grains and in the paste. The rims, a product of the dedolomitization reaction, protected the surface of dolomite from the dissolution process. In type B concrete, in addition to dolomite and calcite, quartz and K-feldspar	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min10020117
27769365	Demolished concretes recycling by the use of pneumatic jigs	1/1/2020	Hoffmann Sampaio, Carlos;Cazacliu, Bogdan G.;Ambrós, Weslei Monteiro;Kronbauer, Márcio André;Tubino, Rejane Maria Candiota;Dal Molin, Denise C. C.;Oliva Moncunill, Josep;Miltzarek, Gérson L.;Waskow, Regis P.;Dos Santos, Viviane L. G.	Large quantities of construction and demolition waste is generated annually around the world. Part of this material is processed in recycling plants. After removing metals, fines and lights, the construction and demolition waste is crushed and sized and can be used as aggregates for low resistance concrete, for road sub-base, city landfill and other low value-added applications. For their use as coarse aggregate in structural concretes, construction and demolition waste must exhibit high densities and regularity of the material. This material usually is presented in demolished concretes. About 20% of the particles from demolished concretes can be used as coarse aggregates substituting part of natural aggregates in structural concretes. This article presents studies of demolished concretes recycling by the use of a pneumatic jig. All jigging tests were carried out with three different concretes produced in three strength classes: C16/20, ordinary concrete; C50/60, high strength	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Waste management and research	10.1177/0734242X20902835
25892216	High-pressure grinding rolls: model validation andfunction parameters dependency on processconditions	1/12/2019	Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard;Oliva Moncunill, Josep;Alfonso Abella, María Pura;Bascompta Massanes, Marc;Sanmiquel Pera, Lluis	A model for High Pressure Grinding Rolls (HPGR) was developed in this work based on thewidely used Population Balance Model (PBM). This approach uses a variety of different func-tions one of which is the breakage distribution function. The methodology to determine thefunction parameters is presented and using these values, the model was compared with realprocessed materials from an HPGR pilot plant, with tungsten ore as the test material. Theresults of the model parameter determination, and the product of the comminution in theHPGR, showed the dependency of material breakage on the material characteristics, and onthe operative and process conditions. The model presented is reasonably robust, showingless error than the 3.0 Root Mean Square Error when compared with a heterogeneous feedparticle size distribution material. The operational gap was also studied, and its dependencyon the feed particle size, porosity, moisture, and specific	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of materials research and technology	10.1016/j.jmrt.2019.09.016
25970255	Mineralogy, alteration, and sulfur isotope geochemistry of the Zehabad intermediate-sulfidation epithermal deposit, NW Iran	7/11/2019	Shahbazi, Somaye;Ghaderi, Majid;Alfonso Abella, María Pura	The Zehabad Pb-Zn-Au-Ag (Cu) deposit lies in the Alborz magmatic arc of northwestern Iran. Ore-bearing breccia veins hosted by Eocene tuffs emplaced along the 80?130° trending fault and fracture zone. Mineralization occurs in the contact of the late Eocene igneous bodies and the Eocene volcanic and volcanosedimentary Karaj Formation. Mineralization formed in five stages: 1) disseminated framboidal pyrite and minor chalcopyrite and sphalerite; 2) quartz veins containing chalcopyrite, bornite, pyrite, and sphalerite; 3) deposition of specularite and gold grains hosted in quartz veins that crosscut chalcopyrite; 4) the main stage of mineralization that contains galena, sphalerite, tennantite-tetrahedrite, pyrite, sulfosalts, and gold; 5) barren quartz-calcite veins with sulfide mineral fragments of earlier stages. The hydrothermal alteration from closest to the veins outwards includes: a) silicification; b) phyllic with quartz, pyrite, sericite, and calcite; c) argillic with	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Turkish journal of earth sciences	10.3906/yer-1902-1

26426413	A minimally invasive microsensor specially designed for simultaneous dissolved oxygen and pH biofilm profiling	1/11/2019	Guimera Villalba, Xavier;Moya Lara, Ana;Dorado Castaño, Antonio David;Illa, Xavi;Villa, Rosa;Gabriel Buguña, David;Gamisans Noguera, Xavier;Gabriel Buguña, Gemma	A novel sensing device for simultaneous dissolved oxygen (DO) and pH monitoring specially designed for biofilm profiling is presented in this work. This device enabled the recording of instantaneous DO and pH dynamic profiles within biofilms, improving the tools available for the study and the characterization of biological systems. The microsensor consisted of two parallel arrays of microelectrodes. Microelectrodes used for DO sensing were bare gold electrodes, while microelectrodes used for pH sensing were platinum-based electrodes modified using electrodeposited iridium oxide. The device was fabricated with a polyimide (Kapton®) film of 127 µm as a substrate for minimizing the damage caused on the biofilm structure during its insertion. The electrodes were covered with a Nafion® layer to increase sensor stability and repeatability and to avoid electrode surface fouling. DO microelectrodes showed a linear response in the range 0-8 mg L-1, a	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sensors (Basel)	10.3390/s19214747
25977393	The distribution of rare metals in the LCT pegmatites from the Giraúl field, Angola	24/10/2019	Gonçalves, Antonio Olimpio;Melgarejo Draper, Joan Carles;Alfonso Abella, María Pura;Amores Casals, Sandra;Paniagua, Andrés;Buta Neto, Andrés;Alves Morais, Eduardo;Camprubí Cano, Antoni	The Giraúl granitic pegmatite field, Angola, is composed of five pegmatite types; the most evolved belong to the beryl-columbite, beryl-columbite-phosphate and spodumene types. Pegmatites are concentrically zoned with increased grain size toward a quartz core; the most evolved pegmatites have well-developed replacement units. These pegmatites are rich in Nb-Ta oxide minerals and the field has a moderate interest for critical elements as Ta and Hf. Pegmatites are concentrically zoned with an increased grain size towards a quartz core. Tourmaline, garnet and beryl micas occur as accessory minerals. The abundance of Zr and Nb-Ta minerals increases with the evolution of the pegmatites, as well as the proportions of beryl and Li-rich minerals. The ; the Ta/(Ta+Nb) ratios in Nb-Ta oxide minerals and the Hf/(Hf+Zr) ratios in zircon also increase with the grade of evolution of the pegmatites and inside within each pegmatite body from border to inner	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9100580
28452045	Comments on ?Dehydration of hot oceanic slab at depth 30?50 km: key to formation of Irankuh-Emarat Pb-Zn MVT belt, Central Iran? by Mohammad Hassan Karimpour and Martiya Sadeghi	1/10/2019	Rajabi, Abdorrahman;Mahmoodi, Pouria;Rastad, Ebrahim;Niroomand, Shojaedin;Canet Miquel, Carles;Alfonso Abella, María Pura;Shabani, Amir Ali Tabbakh;Yarmohammadi, Ali	The Malayer-Esfahan Metallogenic belt (MEMB), southwestern Iran, contains numerous different types of the sediment-hosted Zn-Pb (±Ba±Ag), volcanic-sediment hosted Zn-Pb ± Ba, sideritic Fe-Mn-Pb (±Ba±Cu), and barite mineralizations. These deposits are hosted mostly in Jurassic shales and sandstones and in Early to Late Cretaceous carbonates and siltstones with minor volcanic rocks. In contrast to the orogenicrelated Mississippi Valley type (MVT) deposits, the MEMB deposits formed in an extensional back-arc environment and are characterized by their stratabound and stratiform orebodies. In these deposits, silicification and dolomitization (±sericitization) are the main wall-rock alteration styles. The presence of primary laminated sulfides, fine-grained disseminated sphalerite and galena in association with framboidal pyrite, sedimentary structures in sulfide laminae and bands, and the association of some tuffaceous and volcanic rocks with sulfide	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/j.gexplo.2019.106346
25826272	Vent-proximal sub-seafloor replacement clastic-carbonate hosted SEDEX-type mineralization in the Mehdiabad world-class Zn-Pb-Ba-(Cu-Ag) deposit, southern Yazd Basin, Iran	1/10/2019	Maghfouri, Sajjad;Hosseinzadeh, Mohammad Reza;Choulet, Flavien;Alfonso Abella, María Pura;Azim Zadeh, Amir M.;Rajabi, Abdorrahman	The Mehdiabad Zn-Pb-Ba (Cu-Ag) deposit in the southern Yazd Basin, central Iran, is the largest sediment-hosted Zn-Pb deposit in Iran. This deposit is hosted by organic carbon matter-rich shale, fine-grained black siltstone, and dolomite interlayered with sandstone of the Taft Formation. Sedimentological and geochemical studies of the Taft Formation have shown that these organic carbon matter-rich shales formed during a period of basin deepening and under anoxic conditions. Based on the orebody structure, mineralogy, and ore fabrics, we recognize five different ore facies types in the Mehdiabad deposit: (1) a stockwork/feeder zone, consisting of a discordant sulfide mineralization, forming a stockwork of sulfide-bearing dolomite veins, cutting the sedimentary rocks of the footwall; (2) massive-replacement ore, including pervasive replacement carbonate by pyrite, chalcopyrite, galena, and sphalerite with minor barite; (3) a bedded ore, with laminated to	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2019.103047

25978363	Ventilation friction factor determination and comparison: two case studies of potash mining	1/10/2019	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Anticoi Sudzuki, Hernan Francisco;Oliva Moncunill, Josep	Friction factor is a crucial parameter in assessing and modelling ventilation systems in underground mining. However, the development of a mine along its life-cycle can complicate the airflow supply required at the working faces, creating setbacks in terms of productivity and production. Hence, it is very important to determine all the ventilation parameters, including roughness and the friction factor. In this paper we examine the data from several surveys that were carried out in two potash mines (both using the room-and-pillar method) with the aim of determining the friction factors through the Von Kármán equation, which connects the Atkinson friction factor with airway roughness. Comparison of the two mines provided consistent results, despite some differences in the mining methods, and we were able to establish standard values for this type of mining. Furthermore, a roughness variation over a year in this type of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of the Southern African Institute of Mining and Metallurgy	10.17159/2411-9717/707/2019
25977354	Indium mineralization in the volcanic dome-hosted Ánimas?Chocaya?Siete Suyos polymetallic deposit, Potosí, Bolivia	1/10/2019	Torró Abat, Lisard;Cazorla Martínez, Malena;Melgarejo Draper, Joan Carles;Camprubí Cano, Antoni;Tarrés Mercader, Marta;Gemmrich, Laura;Campeny Grego, Marc;Artiaga Torres, David;Torres Cueva, Belén;Martínez, Álvaro;Mollinedo, Diva;Alfonso Abella, María Pura;Arce Burgoa, Osvaldo R.	A volcanic dome complex of Miocene age hosts the In-bearing Ánimas?Chocaya?Siete Suyos district in SW Bolivia. Ore mineralization occurs as banded and massive infillings in subvertical, NE-SW striking veins. In this article, a detailed petrographic study is combined with in situ mineral geochemistry determinations in ore from the Arturo, Chorro and Diez veins in the Siete Suyos mine, the Ánimas, Burton, Colorada, and Rosario veins in the Ánimas mine and the Nueva vein in the Chocaya mine. A three-stage paragenetic sequence is roughly determined for all of them, and includes (1) an early low-sulfidation stage that is dominated by cassiterite, pyrrhotite, arsenopyrite, and high-Fe sphalerite (FeS > 21 mol. %); (2) a second intermediate-sulfidation stage dominated by pyrite + marcasite ± intermediate product, sphalerite (FeS < 21 mol. %), stannite, and local famatinite; and, (3) a late intermediate-sulfidation stage dominated by galena	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9100604
25796111	Stable isotope geochemistry of Chargar epithermal deposit: constraints on epithermal systems in the Tarom metallogenic belt, NW Iran	1/10/2019	Mousavi Motlagh, Seyed Hedayatalah;Ghaderi, Majid;Yasami, Narges;Alfonso Abella, María Pura	The Chargar deposit in the southern part of Tarom metallogenic belt of the Alborz structural zone, NW Iran, shows a volcaniclastic-hosted, low-sulfidation epithermal gold mineralization. The host rocks are part of the Eocene volcanic and volcaniclastic sequence of the Karaj Formation. The main host rock is an andesitic lapilli-lithic tuff. The main ore minerals include chalcopyrite and gold and the gangue minerals are quartz, barite, and calcite. The calculated d34SH2S values based on sulfide minerals for the Chargar shows a homogeneous signature ranging from -7.6 to -5.6?, in the Khalifelou deposit range between -5.2 and -1.9? and in the Aliabad-Khanchay deposit from -8.1 to -5.5?. Negative sulfur isotope values and the occurrence of framboidal pyrite in the volcaniclastic host rocks suggest a volcano-sedimentary origin for the sulfur. The Chargar calculated d34SH2S values based on barite supplied d34S values between +16.5 and +22.5?. These are	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/j.gexplo.2019.06.013
25876122	Permian?Triassic red-stained albitized profiles in the granitic basement of NE Spain: evidence for deep alteration related to the Triassic palaeosurface	1/10/2019	Fàbrega, Carles;Parcerisa Duocastella, David;Thiry, Médard;Franke, Christine;Gurenko, Andrey;Gómez Gras, David Manuel;Solé, Jesús;Travé, Anna	Extensive areas of the Variscan granitic basement in NE Spain display profiles of red-stained albitized facies characterized by albitization of Ca-plagioclase, chloritization of biotite and microclinization of orthoclase, along with the alteration of igneous quartz to secondary CL-dark quartz. These profiles have a geopetal structure beneath the Triassic unconformity, with a very intense and pervasive alteration in the upper part that progressively decreases with depth to 150?200 m where the alteration is restricted to the walls of fractures. The red albitized facies contains secondary maghemite and hematite that indicate oxidizing conditions. Dating of microclinized orthoclase and secondary monazite that have formed in the red-stained albitized facies yielded K?Ar and U?Th?Pbtotal ages of 240 and 250 Ma, respectively, suggesting that the alteration developed during the Permian?Triassic period. The geopetal disposition of the red albitized profile	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of Earth sciences	10.1007/s00531-019-01764-0

25851122	Analysis of a historical accident in a Spanish coal mine	26/9/2019	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Anticoi Sudzuki, Hernan Francisco	There has been a long history of coal mine accidents and these, usually, involve serious injuries, fatalities, and the destruction of facilities. In the seventies, an explosion killed 28 miners in a Spanish coal mine. This paper gives insight into the main factors of the accident by means of the causation mode, using two well-known alternatives: (1) the method from the Spanish Instituto Nacional de Seguridad y Salud en el Trabajo (INSST), where the causes and circumstances of the accident are classified into immediate causes and basic causes, and (2) the Feyer and Williamson method, where the classification is done using precursor events and contributing factors. The analysis identifies the lessons to be learned from the disaster. Both methods have given very similar results, verifying the goodness of the analysis. Methane emissions due to a variation in the exploitation method, the electrical installation, and a lack of safety procedures and training were the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of environmental research and public health	10.3390/ijerph16193615
25892171	Modeling the liberation of comminuted scheelite using mineralogical properties	3/9/2019	Hamid, Sarbast Ahmid;Alfonso Abella, María Pura;Oliva Moncunill, Josep;Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard;Hoffmann Sampaio, Carlos;Garcia-Vallès, Maite;Escobet Canal, Teresa	In this paper, the modeling of the liberation of scheelite is presented. A pattern of concentration experiments was performed to investigate the scheelite liberation and distribution density calculation procedure. In this work, one sample from a Mittersill tungsten ore was studied. This work describes a method for determining the downstream milling energy requirements for rod mill products based on a Bond mill test performance. The grade distribution of particles at a given size fraction was calculated using a predictive liberation model. The concentration behavior of these particles in size fractions was evaluated using batch concentrate tests. The recovery of particles in size/grade classes, image analysis using mineral liberation analysis (MLA), and function calculations were implemented for the modeling of the liberation. By describing the size, grade, and recovery data of particles in size/grade	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9090536
25826984	The Poopó polymetallic epithermal deposit, Bolivia: Mineralogy, genetic constraints, and distribution of critical elements	1/8/2019	Torres Cueva, Belén;Melgarejo Draper, Joan Carles;Torró Abat, Lisard;Camprubí Cano, Antoni;Castillo Oliver, Montgarri;Artiaga Torres, David;Campeny Grego, Marc;Tauler Ferré, Esperança;Jiménez Franco, Abigail;Alfonso Abella, María Pura;Arce Burgoa, Osvaldo R.	The tin-rich polymetallic epithermal deposit of Poopó, of plausible Late Miocene age, is part of the Bolivian Tin Belt. As an epithermal low sulfidation mineralisation, it represents a typological end-member within the ?family? of Bolivian tin deposits. The emplacement of the mineralisation was controlled by the regional fault zone that constitutes the geological border between the Bolivian Altiplano and the Eastern Andes Cordillera. In addition to Sn and Ag, its economic interest resides in its potential in critical elements as In, Ga and Ge. This paper provides the first systematic characterisation of the complex mineralogy and mineral chemistry of the Poopó deposit with the twofold aim of identifying the mineral carriers of critical elements and endeavouring to ascertain plausible metallogenic processes for the formation of this deposit, by means of a multi-methodological approach. The poor development of hydrothermal alteration assemblage, the abundance of sulphosalts and the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9080472
25284661	Valoración de los accidentes graves y mortales en las minas españolas entre los años 2013 y 2017	25/6/2019	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Montaña Puig, Juan;Romero Duran, David Romero	La industria minera es considerada como una de las industrias más peligrosas. Hay la necesidad de una gestión eficaz de la salud y de la seguridad en el trabajo para salvaguardar a los trabajadores. El objetivo de este documento es estudiar y analizar los accidentes graves y mortales en las minas de España y seleccionar las actividades mineras en función del riesgo de lesiones. Los datos del accidente se obtuvieron del Sistema DELTA suministrado por el Ministerio del Trabajo, Migraciones y Seguridad Social del Gobierno de España. Los resultados de este estudio realizado entre los años 2013 y 2017 muestran que las minas de extracción de antracita, hulla y lignito tienen la mayor tasa de incidencia, sería necesario considerar atenciones especiales de seguridad. El riesgo de mortalidad se ha reducido en las canteras y en las minas de extracción de minerales metálico significativamente, mientras que no ha habido cambios considerables en las minas de extracción de crudo de	LRG - Lightning Research Group	ORP Journal	

23966197	High reactive nano zero-valent iron produced via wet milling through abrasion by alumina	15/6/2019	Ribas Fargas, David;Pe?ková, Kristýna;Jubany Güell, Irene;Parma, Pert;Cernik, M.;Benito Paramo, Jose Antonio;Marti Gregorio, Vicenç	The performance of new nano zero-valent iron (nZVI) particles produced by a promising new milling method in organic solvent was examined. The basic feature of the new process involves the addition of abrasive alumina particles having an average particle size of 5¿µm during milling. The milled particles with alumina had a specific surface area exceeding 20¿m2·g-1 as well as high percentages of Fe(0) content of 75?80%. The reactivity against Cr(VI), Trichloroethylene, and Tetrachloroethylene was determined and in all cases, the removal capacity of the milled particles was higher than that of commercial available nZVI particles. This high reactivity may be related to the absence of a thick and continuous oxide layer on the surface, the high disorder levels of the metallic structure and the large number of reaction sites. Sedimentation tests revealed very good suspension stability, while in mobility tests, the particles could be distributed throughout the column	CIEFMA-PROCOMAME - Microstructural Design and Advanced Manufacturing of Materials	Chemical engineering journal	10.1016/j.cej.2019.02.090
25826290	Análisis de un accidente del sector minero mediante el método del árbol de causas y el método de Feyer & Williamson	6/6/2019	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Felipe Blanch, Jose Juan de;Vintro Sanchez, Carla;Anticoi Sudzuki, Hernan Francisco;Freijo Alvarez, Modesto	Fundamento y Métodos: En esta investigación se presenta el caso del análisis de un accidente del sector minero a través de 2 métodos distintos: 1) árbol de causas, 2) Feyer & Williamson. En el método del árbol de causas se identifican y codifican causas inmediatas y causas básicas según el método de clasificación del INSHT. Seguidamente se ordenan esquemáticamente en forma de árbol, desde el accidente, pasando por causas inmediatas y finalizando en causas básicas. Normalmente, si la investigación del accidente ha sido o ha podido ser adecuada, se puede identificar una causa básica detrás de cada causa inmediata. El método de Feyer & Williamson, ha sido diseñado para permitir la codificación de una secuencia temporal de hasta 3 acontecimien denominan Acontecimientos Precedentes y se caracterizan por ser factores determinantes para la génesis del accidente. Así mismo se identifican	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	ORP Journal	
25639683	The importance of mineralogical knowledge in the sustainability of artisanal gold mining: a mid-south Peru case	1/6/2019	Alfonso Abella, María Pura;Anticoi Sudzuki, Hernan Francisco;Yubero De Mateo, Maria Teresa;Bascompta Massanes, Marc;Henao, Laura;García-Vallès, Maite;Palacios Ubach, Silvia;Yáñez, Juan	Mineralogy and gold processing techniques from several mining areas of the Nazca-Ocoña gold belt, Mid-South Peru, were investigated to assess the efficiency of gold extraction methods in relation to their mineralogy. The deposits from this belt are intrusion gold related to mineralization in quartz veins. Native gold occurs as micrometric grains encapsulated in pyrite and in minor amounts in other sulfides and quartz. Electrum is found mainly in fractures of pyrite and attains up to 35 wt. % Ag. In addition to these occurrences, gold tellurides also occur and they are abundant in San Luis. Gold processing is carried out by amalgamation with mercury and/or cyanidation. The comparison of the gold grade in the mineralizations and in the residual tailings indicates that a significant amount of gold is not recovered using the mercury amalgamation process and also, in the case of the gold recovery by cyanidation, except when cement was added to the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9060345
25822672	Spatial and temporal controls on the distribution of indium in xenothermal vein deposits: the Huari Huari district, Potosí, Bolivia	17/5/2019	Torró Abat, Lisard;Melgarejo Draper, Joan Carles;Gemmrich, Laura;Mollinedo, Diva;Cazorla Martínez, Malena;Martínez, Álvaro;Pujol Solà, Núria;Farré de Pablo, Júlia;Camprubí Cano, Antoni;Artiaga Torres, David;Torres Cueva, Belén;Alfonso Abella, María Pura;Arce Burgoa, Osvaldo R.	The Huari Huari deposit, Potosí Department in SW Bolivia, hosts polymetallic stratiform and vein mineralization of Miocene age with significant concentrations of the critical metal indium (In). Vein mineralization records document early crystallization of quartz and cassiterite followed by prominent associations of sulfides and sulfosalts. The earliest sulfide was arsenopyrite, followed by pyrrhotite, and progressively giving way to pyrite as the main iron sulfide, whereas Cu?Ag?Pb sulfosalts constitute late hypogene associations. Sphalerite is the chief ore mineral, and its crystallization is extended during most of the mineralization lifespan as evidenced by its initial cocrystallization with pyrrhotine, then with pyrite, and finally with Ag?Pb sulfosalts. The composition of sphalerite varies from early to late generations with a continuous decrease in FeS that attests to a decrease in temperature, which is constrained to vary from ~450 to <200 °C, and/or an increase in	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9050304

23943356	Allelochemicals and esters from leaves and inflorescences of Sambucus nigra L	1/4/2019	Basas Jaumandreu, Josep;de las Heras Cisa, F. Xavier	Allelochemical compounds were detected in leaves and inflorescences of Sambucus nigra L. by means of GC-EIMS. The identified compounds were characterized by their mass spectra and relative retention times as their trimethylsilyl derivatives. The pheromone L-isoleucine methyl ester extracted from inflorescences can attract pollinator insects during the flowering period and together with uncommon n-alkyl and benzyl esters were firstly identified in S. nigra. On the other hand, mandelonitrile, which is used by the plant to avoid herbivore attack, was observed as the most abundant compound from the leaf extracts. In the present work are described 154 compounds from leaves and 196 from inflorescences including alkanes, alcohols, acids and terpenoids from elder aerial parts. Allelochemical compounds were detected in leaves and inflorescences of Sambucus nigra L. by means of GC-EIMS. The identified compounds were	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Phytochemistry Letters	10.1016/j.phytol.2019.01.030
23649638	Contribution of isotopic research techniques to characterize high-mountain-Mediterranean karst aquifers: The Port del Comte (Eastern Pyrenees) aquifer	15/3/2019	Herms Canellas, Joan Ignasi;Jódar Bermúdez, Jorge;Soler Gil, Albert;Lambán Jiménez, Luis Javier;Martos Rosillo, S.;Nuñez, J. A.;Arnó Pons, Georgina;Jorge Sanchez, Juan	Water resources in high mountain karst aquifers are usually characterized by high rainfall, recharge and discharge that lead to the sustainability of the downstream ecosystems. Nevertheless, these hydrological systems are vulnerable to the global change impact. The mean transit time (MTT) is a key parameter to describe the behavior of these hydrologic systems and also to assess their vulnerability. This work is focused on estimating MTT by using environmental tracers in the framework of high-mountain karst systems with a very thick unsaturated zone (USZ). To this end, it is adapted to alpine zones a methodology that combines a semi-distributed rainfall-runoff model to estimate recharge time series, and a lumped-parameter model to obtain ¿¿¿. The methodology has been applied to the Port del Comte Massif (PCM) hydrological system (Southeastern Pyrenees, NE Spain), a karst aquifer system with an overlying 1000¿m thick USZ. Six catchment areas	GHS - Hydrogeology Group	Science of the total environment	10.1016/j.scitotenv.2018.11.188
24012201	Optimal batch scheduling of a multiproduct dairy process using a combined optimization/constraint programming approach	8/3/2019	Escobet Canal, Teresa;Puig Cayuela, Vicenç;Quevedo Casin, Joseba-jokin;Palà Schönwälder, Pere;Romera Formiguera, Juli;Adelman, Winfried	This paper presents the optimal batch scheduling of a multi-product dairy process using an approach that combines optimization and constraint programming techniques. A suitable model describing the subprocesses and production rules is developed allowing to obtain scheduling constraints relating the production process and the machines available together with their relative efficiencies. After the scheduling problem has been formulated, the batch scheduling of a real powder milk/yogurt process is obtained in an optimal manner using the proposed approach with the objective of meeting customers? deadlines considering the efficiencies/costs of available alternative machines. Results using real consumer orders on some representative scenarios corresponding to the dairy production plant used as a case study are provided. This application shows a formulation closer to the engineering problem description thanks to the constraint-based language	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Computers & chemical engineering	10.1016/j.compchemeng.2018.08.040
23844429	An interdisciplinary approach to motivate students to learn digital systems and computing engineering	1/3/2019	Tarres Puertas, Marta Isabel;Lopez Riera, Alexis;Palà Schönwälder, Pere;Vila Marta, Sebastian	We report a new learning approach in collaborative learning-by doing, real-world team-based project in two ICT courses: DigitalSystems and Computing Engineering, conducted at Universitat Polite`cnica de Catalunya. Data collected included: backgroundinformation on students; course evaluations; measures of the knowledge and cross-knowledge of both disciplines taken before andafter our SimulAVR project. SimulAVR integrates interdisciplinary knowledge by simulating via software a microcontroller and itsimplementation in VHDL. Our study is based on the analysis of the results of running the project for 3 years. After taking thesimulAVR project, the students rated the interest in both courses higher. We report a new learning approach in collaborative learning-by doing, real-world team-based project in two ICT courses: DigitalSystems and Computing Engineering, conducted at Universitat Polite`cnica de Catalunya. Data	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of engineering education	

23837746	Detection of irrigation inhomogeneities in an olive grove using the NDRE vegetation index obtained from UAV images	1/1/2019	Jorge Sanchez, Juan;Vallbe Mumbru, Marc;Soler García, José Alberto	We have developed a simple photogrammetric method to identify heterogeneous areas of irrigated olive groves and vineyard crops using a commercial multispectral camera mounted on an unmanned aerial vehicle (UAV). By comparing NDVI, GNDVI, SAVI, and NDRE vegetation indices, we find that the latter shows irrigation irregularities in an olive grove not discernible with the other indices. This may render the NDRE as particularly useful to identify growth inhomogeneities in crops. Given the fact that few satellite detectors are sensible in the red-edge (RE) band and none with the spatial resolution offered by UAVs, this finding has the potential of turning UAVs into a local farmer?s favourite aid tool. We have developed a simple photogrammetric method to identify heterogeneous areas of irrigated olive groves and vineyard crops using a commercial multispectral camera mounted on an unmanned aerial vehicle	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	European journal of remote sensing	10.1080/22797254.2019.1572459
26658477	Mineralogy and distribution of critical elements in the Sn?W?Pb?Ag?Zn Huanuni deposit, Bolivia	1/1/2019	Cacho Amorós, Andreu;Melgarejo Draper, Joan Carles;Camprubí Cano, Antoni;Torró Abat, Lisard;Castillo-Oliver, Montgarri;Torres Cueva, Belén;Artiaga Torres, David;Tauler Ferré, Esperança;Martínez, Álvaro;Campeny Grego, Marc;Alfonso Abella, María Pura;Arce Burgoa, Osvaldo R.	The polymetallic Huanuni deposit, a world-class tin deposit, is part of the Bolivian tin belt. As a likely case for a ?mesothermal? or transitional deposit between epithermal and porphyry Sn types (or shallow porphyry Sn), it represents a case that contributes significantly to the systematic study of the distribution of critical elements within the ?family? of Bolivian tin deposits. In addition to Sn, Zn and Ag, further economic interest in the area resides in its potential in critical elements such as In, Ga and Ge. This paper provides the first systematic characterisation of the complex mineralogy and mineral chemistry of the Huanuni deposit with the twofold aim of identifying the mineral carriers of critical elements and endeavouring plausible metallogenic processes for the formation of this deposit, by means of a multi-methodological approach. With In concentrations consistently over 2000 ppm, the highest potential for relevant concentrations in this metal resides in	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min9120753
23629109	Graduats en Enginyeria Química: la gran oportunitat de futur	1/12/2018	Dorado Castaño, Antonio David	Postprint (author's final draft)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Enginyeria_XXII	
23469034	Evaluación de los accidentes en el sector minero español entre los años 2010 y 2016	2/11/2018	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla;Vives Costa, Jordi;Viladomat Vers, Antoni;Montaña Puig, Juan	Las actividades mineras son una de las industrias de mayor riesgo que exponen a los a sus trabajadores a un alto nivel de riesgo de salud y seguridad en el trabajo. El objetivo de este estudio fue evaluar durante un período comprendido entre 2010 y 2016 los accidentes leves, graves y mortales en jornada de trabajo, descartando la siniestralidad en itineri, en la industria minera española. Aunque tanto el número de empleados como de accidentes han bajado, destaca la alta siniestralidad en las explotaciones de extracción de carbón en comparación con las lesiones en las explotaciones de crudo de petróleo y gas natural, que en 2016 arrojaron un índice de incidencia de 34526 y 727 respectivamente. Las industrias dedicadas a la cantera con un índice de 5015 , las empresas de extracción de minerales no metálicas, 2510, siguen a	LRG - Lightning Research Group	ORP Journal	

23629129	Biotecnología para recuperar metales valiosos en residuos electrónicos	1/11/2018	Dorado Castaño, Antonio David	Postprint (author's final draft)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	RETEMA: revista técnica de medio ambiente	
23524849	An improved high-pressure roll crusher model for tungsten and tantalum ores	25/10/2018	Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard;Hamid, Sarbast Ahmad Hamid;Oliva Moncunill, Josep;Alfonso Abella, María Pura;Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Escobet Canal, Teresa;Escobet Canal, Antoni;Parcerisa Duocastella, David;Peña Pitarch, Esteban;Argelaguet Isanta, Maria Rosa;Felipe Blanch, Jose Juan de	An improved approach is presented to model the product particle size distribution resulting from grinding in high-pressure roll crusher with the aim to be used in standard high-pressure grinding rolls (HPGR). This approach uses different breakage distribution function parameter values for a single particle compression condition and a bed compression condition. Two materials were used for the experiments; altered Ta-bearing granite and a calc-silicate tungsten ore. A set of experiments was performed with constant operative conditions, while varying a selected condition to study the influence of the equipment set-up on the model. The material was comminuted using a previously determined specific pressing force, varying the feed particle size, roll speed and the static gap. A fourth group of experiments were performed varying the specific pressing force. Experimental results show the high performance of the comminution in a	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min8110483
23457596	Safety culture maturity assessment for mining activities in South America	9/10/2018	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla;Rossell Garriga, Josep Maria;Costa, M.	BACKGROUND:Health and safety is a crucial issue in the mining industry due to the implication of accidents in the sector. OBJECTIVE:This study determines the safety culture characteristics in several mining activities from South America. METHODS:A survey of the safety culture maturity has been done by means of 24 questions regarding the type of activity, number of employees and safety culture characteristics of the activity: information of accidents and incidents, organizational structure to deal with information, involvement of the company in health and safety issues, the way it communicates accidents and incidents and commitment of the company towards health and safety. RESULTS:The questionnaire was completed by 62 managers from Bolivia, Peru and Colombia. Results show different behaviors depending on the type of company, Artisanal or Large-Scale Mines, ASM and LSM respectively. LSM show a level of maturity according to the size of the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Work: a journal of prevention, assessment and rehabilitation	10.3233/WOR-182781
23245689	Potential of tungsten tailings as glass raw materials	1/10/2018	Alfonso Abella, María Pura;Tomasa Guix, Oriol;García-Vallès, Maite;Tarragó Aymerich, Mariona;Martínez Manent, Salvador	Glasses from different types of tungsten mine tailings were obtained and studied to determine their ability to be used as raw materials of commercial glass. Tailings of granitic composition from Barruecopardo, of calc-silicate wastes from Morille, and of schists and quartz from Panasqueira, were used as raw materials. The addition of CaCO3 and NaCO3 was necessary for the manufacture of the glass. Samples were characterised by XRF, XRD, HSM and DTA-TG. Furthermore, the expansion coefficient, Vickers microhardness and leaching properties were measured. The results show that all the tungsten mine tailings used were suitable for the manufacture of commercial glass, with the addition of calcium and soda. The calc-silicate tailing needs less additive content to produce a glass. Also, they present lower workability temperatures and higher durability. Glasses obtained from all the tested tailings retain the potentially toxic elements in their structure and prevents	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Materials letters	10.1016/j.matlet.2018.06.098

23499539	Análisis de la influencia de la evolución tecnológica en los riesgos laborales que afectan las mediciones topográficas	19/9/2018	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Vives Costa, Jordi;Freijo Alvarez, Modesto	Fundamento y Métodos: En esta investigación se presenta el caso de la mejora de los riesgos laborales que experimenta un puesto de trabajo dedicado a mediciones topográficas, con la evolución tecnológica experimentada en este sector en los últimos 20 años. Para ello, se lleva a cabo una identificación y evaluación de los riesgos más importantes de este tipo de trabajos en el exterior (excavaciones y canteras), así como en actividades mineras y obras subterráneas. Esta identificación y evaluación de riesgos se realiza considerando 4 escenarios: 1) mediciones topográficas realizadas con estaciones totales con capacidad para medir distancias siendo necesario el uso de prismas; 2) mediciones topográficas basadas realizadas con estaciones totales con capacidad de medir distancias sin necesidad de prismas; 3) mediciones topográficas realizadas con receptores GPS; y 4)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	ORP Journal	
25734562	Airflow stability and diagonal mine ventilation system optimization: a case study	1/9/2018	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Zhang, Jiang Ji Ho	Airflow reverse is a severe problem in an underground ventilation system. In addition, the airflow stability and safety production can be seriously affected by the problem of air velocity overrun in the roadways. In this study the crucial causes of the ventilation problems in a coal mine case study are analyzed and a solution is proposed through an analytical methodology. Measurements indicate high air resistance in the shaft and low values in the maintenance roadway, generating abnormal airflow directional behaviors. Strategies to solve the ventilation-related problems have been proposed and implemented, verifying normal ventilation conditions. Airflow reverse is a severe problem in an underground ventilation system. In addition, the airflow stability and safety production can be seriously affected by the problem of air velocity overrun in the roadways. In this study the crucial causes of the ventilation problems in a coal mine case study are	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of mining science	10.1134/S1062739118054927
23526051	Mineral chemistry of In-bearing minerals in the Santa Fe mining district, Bolivia	1/9/2018	Jiménez Franco, Abigail;Alfonso Abella, María Pura;Canet Miquel, Carles;Trujillo Lunario, Juan Elvys	The Santa Fe mining district is located in the Central Andean tin belt of Bolivia and contains several SnZn-Pb-Ag deposits. From the economic point of view, the most important deposits of the district are Japo, Santa Fe and Morococala. Beyond the traditional metal commodities, the Central Andean Tin Belt could become an exploration target for indium, owing to the potential of the ore-bearing paragenesis with high concentrations of this technology-critical element. In the Santa Fe mining district, the ore occurs as two main types: (a) Sn-rich cassiterite-quartz veins, and (b) Zn-Pb-Ag veins with sphalerite, galena and stannite mineral phases. The In content in igneous rocks is between 1.5 and 2.5 ppm, whereas in the ore concentrate it attains up to 200 ppm. The 1,000×In/Zn ratio in concentrate ranges from 25 up to 4,000. Exceptionally	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Andean Geology	10.5027/andgeoV45n3-3052
23170667	Redox conditions and authigenic mineralization related to cold seeps in central Guaymas Basin, Gulf of California	1/8/2018	Núñez Useche, Fernando;Canet Miquel, Carles;Liebetrau, Volker;Pi Puig, Teresa;Cristin Ponciano, Alejandro;Alfonso Abella, María Pura;Berndt, Christian;Hensen, Christian;Mortera-Gutierrez, Carlos;Rodríguez Díaz, Augusto Antonio	Authigenic carbonate crusts, surface muds and bivalve shell fragments have been recovered from inactive and active recently discovered cold seep sites in central Guaymas Basin. In this study, for first time, redox conditions and fluid sources involved in mineral precipitation were investigated by analyzing the mineralogy and textures of surface samples, along with skeletal contents, and C, O and S isotopes variations. The d13C values of aragonitic bivalve shells and non-skeletal carbonate from some surface muds (1? to -3.7? V-PDB) suggest that carbonate precipitated from ambient dissolved inorganic carbon, whereas fibrous aragonite cement and non-skeletal carbonate from other sites are highly depleted in 13C (down to -47.6? V-PDB), suggesting formation via anaerobic oxidation of methane, characteristic of methane seepage environments. d18O in most of the carbonates varies from +1.4? to +3.2? V-PDB, indicating that they formed from slightly modified seawater.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Marine and petroleum geology	10.1016/j.marpetgeo.2018.04.010

23332571	Sulfur isotope geochemistry of the Chodarchay Cu-Au deposit, Tarom, NW Iran	1/8/2018	Yasami, Narges;Ghaderi, Majid;Alfonso Abella, María Pura	The Chodarchay porphyry?high-sulfidation epithermal Cu-Au deposit in the Tarom subzone of the western Alborz structural zone of NW Iran is related to quartz-monzonite and alkali-granite intrusions that were emplaced within the volcanic-volcaniclastic rocks of Karaj Formation during Tertiary. The Chodarchay deposit formed as a high-sulfidation epithermal overprint on porphyry type mineralization. The mineralization occurred as stockwork, dissemination, veinlet, open space filling and breccias. Chalcopyrite, pyrite, sphalerite, and galena are the main sulfide minerals in the area. The sulfur isotope composition of sulfide minerals from the Chodarchay deposit is positive, ranging from 0.2 to 6.8 ?. The sphalerite-galena isotope geothermometer shows 360 °C for the crystallization temperature. Sulfur was sourced from a homogeneous magma, and its isotopic composition decreases with depth and temperature decreasing due to fluid oxidation changes.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Neues Jahrbuch für Mineralogie-Abhandlungen	10.1127/njma/2018/0097
23214992	Subsidence management system for underground mining	7/6/2018	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Vintro Sanchez, Carla;Yubero De Mateo, Maria Teresa	Potash mining is an important economic activity in the north-east of Spain. However, one of the main environmental issues produced for such type of mining is subsidence, which generates horizontal and vertical ground displacements. A Geographic Information System (GIS)-based model is proposed as a management system in a case study with two mines. This system is able to deal with subsidence data and its behavior over time. More than 1300 control points are included in the GIS, with data since 2007. These data processed by the GIS allowed determining the module, sense and direction of the displacements, the sinking velocity and the possible affectation of subsidence to infrastructures and buildings. Hence, the system created can be a useful tool to manage subsidence data, determine its evolution, predict future environmental and social impacts and control corrective measures.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min8060243
23180429	Textural and mineral-chemistry constraints on columbite-group minerals in the Penouta deposit: evidence from magmatic and fluid-related processes	1/5/2018	Alfonso Abella, María Pura;Hamid, Sarbast Ahmad Hamid;García-Vallès, Maite;Llorens González, Teresa;López Moro, Francisco Javier;Tomasa Guix, Oriol;Calvo Torralba, Daniel;Guasch Cascallo, Eduard;Anticoi Sudzuki, Hernan Francisco;Oliva Moncunill, Josep;Parcerisa Duocastella, David;García Polonio, Francisco	The Penouta Sn-Ta deposit, in the northwest of Spain, is a greisenized granitic cupola where Ta minerals occur mainly as disseminations in a leucogranite body intruded in Precambrian?Lower Cambrian gneisses and mica-schists. This leucogranite is a medium- to fine-grained inequigranular rock consisting mainly of quartz, albite, K-feldspar and muscovite. Accessory minerals are mainly of spessartine, zircon, cassiterite, Nb-Ta oxides, monazite, xenotime, native bismuth and pyrite. The alteration processes were mainly albitization, muscovitization and kaolinitization. This leucogranite is peraluminous and P-poor, with 0.03?0.07 wt.% P2O5, 900?1500 ppm Rb, 30?65 ppm Cs, 120?533 ppm Li, 80?140 ppm Ta, 51?81 ppm Nb and up to 569 ppm of Sn. Mineralogical characterization of Nb-Ta oxide minerals was determined by X-ray diffraction, scanning electron microscopy, electron microprobe analysis and mineral liberation analysis. Mn-	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralogical magazine	10.1180/minmag.2017.081.107
22957930	Breakage function for HPGR: mineral and mechanical characterization of tantalum and tungsten ores	20/4/2018	Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard;Hamid, Sarbast Ahmad Hamid;Oliva Moncunill, Josep;Alfonso Abella, María Pura;García-Vallès, Maite;Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Escobet Canal, Teresa;Argelaguet Isanta, Maria Rosa;Escobet Canal, Antoni;Felipe Blanch, Jose Juan de;Parcerisa Duocastella, David;Peña Pitarch, Esteban	The modelling of high pressure grinding rolls is described by the population balance model, a mass balance which includes several functions that are related to the mineral characteristics, material kinetics and operative conditions of the device. The breakage distribution function is one of these functions and refers to the way in which the daughter particles are generated by the process of comminution. The piston-die press is presented as a methodology to determine the breakage distribution function of two different materials, from the mechanical response point of view: altered granite and a cal-silicate material. The aim is to determine the relation between the operative conditions and the mineral characteristics in order to explain and predict the breakage function parameters. The materials were characterised using XRD and single compression strength tests. The altered granite is a	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min8040170

23170731	Quantitative mineralogical comparison between HPGR and ball mill products of a Sn-Ta ore	11/4/2018	Hamid, Sarbast Ahmid;Alfonso Abella, María Pura;Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard;Oliva Moncunill, Josep;Dosbaba, Marek;García-Vallès, Maite;Chugunova, Marina	The mineralogy and liberation characteristics of the comminuted Penouta leucogranite host of the Sn-Ta ore were determined. Grinding developed by a combination of high-pressure grinding rolls (HPGR) followed by a ball mill (BM) was compared with a single ball mill process. The mineral characteristics of the grinding products were analyzed using a Tescan Integrated Mineralogical Analyzer (TIMA-X) and X-ray powder diffraction (XRD). The ore contains 103 ppm of Ta and is mainly composed of quartz, albite, microcline, muscovite, and kaolinite. Nb, Ta-rich minerals are columbite-(Mn) and tantalite-(Mn), as well as minor microlite and wodginite. The liberation in the product is high in the size fraction of less than 250 m (51?52 wt % for columbite-group minerals (CGM) and 74?80 wt % for cassiterite) and reduced in larger particles (8.8?17 wt % for CGM and 28?37 wt % for cassiterite). The recovery in the ¿250 m fraction was high,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals	10.3390/min8040151
22961628	Analysis of the European tourist mines and caves to design a monitoring system	1/4/2018	Sanmiquel Pera, Lluis;Alfonso Abella, María Pura;Bascompta Massanes, Marc;Vintro Sanchez, Carla;Parcerisa Duocastella, David;Oliva Moncunill, Josep	A database of tourist mines and caves has been created to investigate the requirements of an integrated monitoring system with the aim of ensuring the safety of visitors and preserving the environment of the activities. It contains the main features of each site, in particular the physical, geological and technical information. The results unfold the main characteristics of these sites and give an insight of the parameters to be monitored: number of visitors, temperature, noise, gas concentrations, ground movements, among other factors. All these features are crucial for the safety of tourists and guides, as well as for the preservation of biodiversity and geodiversity. This information will be used to create a system capable of controlling the entire underground activity, such as the one tested in the two case studies. A database of tourist mines and caves has been created to investigate the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Dyna (Medellín)	10.15446/dyna.v85n205.69701
22007698	Analysis of occupational accidents in underground and surface mining in Spain using data-mining techniques	7/3/2018	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Rossell Garriga, Josep Maria;Anticoi Sudzuki, Hernan Francisco;Guasch Cascallo, Eduard	An analysis of occupational accidents in the mining sector was conducted using the data from the Spanish Ministry of Employment and Social Safety between 2005 and 2015, and data-mining techniques were applied. Data was processed with the softwareWeka. Two scenarios were chosen from the accidents database: surface and underground mining. The most important variables involved in occupational accidents and their association rules were determined. These rules are composed of several predictor variables that cause accidents, defining its characteristics and context. This study exposes the 20 most important association rules in the sector?either surface or underground mining?based on the statistical confidence levels of each rule as obtained byWeka. The outcomes display the most typical immediate causes, along with the percentage of accidents with a basis in each association rule. The most	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of environmental research and public health	10.3390/ijerph15030462
21135489	New approach to ball mill modelling as a piston flow process	15/1/2018	Guasch Cascallo, Eduard;Anticoi Sudzuki, Hernan Francisco;Hamid, Sarbast Ahmad Hamid;Oliva Moncunill, Josep;Alfonso Abella, María Pura;Escobet Canal, Teresa;Sanmiquel Pera, Lluis;Bascompta Massanes, Marc	Comminution represents one of the most important operations in mineral processing due to the high energy cost and tool wear. This paper presents a new population balance model (PBM) of ball mills that understands the ball mill process as a hybrid of a perfectly mixed mill and piston flow mill. Usually, PBM for grinding is related to a perfectly mixed mill. In this case, the piston flow was introduced for a more realistic process. The ball mill modelling process is described as the point where the feed entering the distribution size is coarse, and where there is an overflow and discharge of the mill, the distribution size is fine and equivalent to the product distribution size. In this work, the evolution of the size of particles along the mill piston flow process was studied. The relationship between the particle size and position in the length of the mill was established. The equation of the balance population model was formulated, and the parameters were determined for a tungsten	GREMS - Sustainable Mining Research Group	Minerals engineering	10.1016/j.mineng.2017.04.002

21604592	Influencia del factor humano en la siniestralidad laboral en las canteras españolas antes de la crisis económica	14/11/2017	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Montaña Puig, Juan;Vintro Sanchez, Carla	Este estudio se ha llevado a cabo en el sector de la minería a cielo abierto,en Cataluña y Aragón, se ha entrevistado a empresarios, facultativos y trabajadores de las explotaciones mineras visitadas. La gran mayoría de las empresas que se dedican a la extracción de piedra ornamental y áridos, está constituida por pequeñas y medianas explotaciones. Las exigencias psicológicas de los trabajadores de estas industrias mineras no so favorables para la salud, al igual que el trabajo activo, el apoyo social, la estima y la inseguridad en el trabajo. Las principales dificultades en relación con la exposición a factores de riesgo psicosocial derivados de las características de la organización del trabajo son, por orden de prevalencia: exigencias psicológicas cuantitativas, (45,7); la inseguridad (28,1); la falta de influencia (24,5) y el refuerzo (21,1). Peer Reviewed	LRG - Lightning Research Group	ORP Journal	
21605223	Características de la siniestralidad laboral del sector minero español de productos de cantera y rocas ornamentales en los períodos 2003-2008 y 2009-2014	30/10/2017	Sanmiquel Pera, Lluis;Bascompta Massanes, Marc;Anticoi Sudzuki, Hernan Francisco;Rossell Garriga, Josep Maria;Freijo Alvarez, Modesto	Fundamento y Métodos: En esta investigación se analizan las características más importantes de la siniestralidad laboral del sector minero español de los productos de cantera y rocas ornamentales en 2 períodos distintos: 2003-2008 y 2009-2014. La elección de estos 2 períodos obedece a que corresponden con: el período de máximo desarrollo del boom de la construcción en España y que implicó una actividad muy fuerte en las actividades mineras dedicadas a la explotación de productos de cantera y rocas ornamentales; y el período de fuerte crisis de la construcción. Se lleva a cabo también una comparación de las características de la accidentabilidad laboral del sector minero indicado de los 2 períodos de cara a analizar si hay diferencias significativas. Resultados: Se han calculado los índices estadísticos de siniestralidad laboral por años y por agrupaciones de los 2 períodos. También se han obtenido el %	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	ORP Journal	
21594352	Modelo de formación de los yacimientos estratoligados de Cu en lechos rojos de Las Vigas (Chihuahua, México)	28/10/2017	González Partida, Eduardo;Camprubí Cano, Antoni;Pironon, Jaques;Alfonso Abella, María Pura;Cienfuegos Alvarado, Edith;Morales Puente, Pedro Antonio;Canet Miquel, Carles;González Ruíz, Luis E;Díaz Carreño, Erik H.	En el cortejo de cuencas intracratónicas de Chihuahua y Sabinas, los yacimientos estratoligados de cobre se encuentran sistemáticamente alojados en rocas siliciclásticas de las formaciones Las Vigas, San Marcos y Huizachal. Los yacimientos del área de Las Vigas, Chihuahua, se alojan en la cima de la Formación Las Vigas del Valanginiano-Hauteriviano, sobreyacida de forma concordante por yesos y calizas de la Formación La Virgen del Barremiano. Otras evaporitas a nivel local son las contenidas en la Formación La Casita, de edad Jurásica. El yacimiento de cobre estratoligado de Las Vigas fue explotado con leyes de 2 a 4 % Cu con ocasionales valores de 1 g/t Au y 80 a 100 g/t Ag, en 4 mantos con potencias entre 1 y 4 m. Los minerales metálicos hipogénicos en el yacimiento son calcopirita, bornita, pirita, esfalerita y galena, junto con	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Geológica Mexicana	10.18268/bsgm2017v69n3a6
21588117	Biotrickling filter modeling for styrene abatement. Part 2: Simulating a two-phase partitioning bioreactor	27/10/2017	San Valero Tornero, Pau;Dorado Castaño, Antonio David;Quijano, G.;Álvarez Hornos, Francisco Javier;Gabaldón García, Carmen	A dynamic model describing styrene abatement was developed for a two-phase partitioning bioreactor operated as a biotrickling filter (TPPB-BTF). The model was built as a coupled set of two different systems of partial differential equations depending on whether an irrigation or a non-irrigation period was simulated. The maximum growth rate was previously calibrated from a conventional BTF treating styrene (Part 1). The model was extended to simulate the TPPB-BTF based on the hypothesis that the main change associated with the non-aqueous phase is the modification of the pollutant properties in the liquid phase. The three phases considered were gas, a water?silicone liquid mixture, and biofilm. The selected calibration parameters were related to the physical properties of styrene: Henry?s law constant, diffusivity, and the gas?liquid mass transfer coefficient. A sensitivity analysis revealed that Henry?s law constant was the most sensitive	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2017.10.141

21588080	Biotrickling filter modeling for styrene abatement. Part 1: Model development, calibration and validation on an industrial scale	11/10/2017	San Valero Tornero, Pau;Dorado Castaño, Antonio David;Martínez Soria, Vicente;Gabaldón García, Carmen	A three-phase dynamic mathematical model based on mass balances describing the main processes in biotrickling filtration: convection, mass transfer, diffusion, and biodegradation was calibrated and validated for the simulation of an industrial styrene- degrading biotrickling filter. The model considered the key features of the industrial operation of biotrickling filters: variable conditions of loading and intermittent irrigation. These features were included in the model switching from the mathematical description of periods with and without irrigation. Model equations were based on the mass balances describing the main processes in biotrickling filtration: convection, mass transfer, diffusion, and biodegradation. The model was calibrated with steady-state data from a laboratory biotrickling filter treating inlet loads at 13?74 g C m-3 h-1 and at empty bed residence time of 30?15 s. The model predicted the dynamic emission in the outlet of the biotrickling	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2017.10.069
21583401	Capillary membrane bioreactor for abatement of low soluble compounds in waste gas	28/9/2017	Morral Moltó, Eloi;Lao Luque, Concepcion;Gabriel Buguña, David;Gamisans Noguera, Xavier;Dorado Castaño, Antonio David	BACKGROUND: The removal of problematic volatile organic compounds (VOCs) from polluted gas (toluene, iso-octane and hexane) has been investigated in amembrane bioreactor (MBR) by adapting a commercial capillarymicroporous polypropylene membrane. TheMBRperformancewasmeasuredunder several operational conditions. The influenceof theemptybedresidence time (EBRT), the liquid velocity and the inlet concentration was evaluated. RESULTS: For toluene, itwas possible to treat higher loading rates than 1600 gm-3 h-1 with amaximum elimination capacity (EC) of 1309 g m-3 h-1, removal efficiencies (RE) of ~80%. However, iso-octane was poorly degraded as a single pollutant. Hexane presented lower EC values (400 g m-3 h-1) than toluene. The synergistic effect of hexane degradation in two different	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of chemical technology & biotechnology	10.1002/jctb.5400
21625888	The building stone of the Roman city of Dougga (Tunisia): Provenance, petrophysical characterisation and durbility	21/9/2017	Zoghlami, Karima;Navarro Ezquerra, Antonia;Rosell Amigo, Juan Ramon;Martín Martín, Juan Diego;Gómez Gras, David Manuel;Parcerisa Duocastella, David	Preservation of the architectural integrity of archaeological sites requires detailed information about the properties of the building materials and their decay processes. This study investigates the petrophysical properties of the Eocene nummulitic limestone rock used in the construction of the Roman City of Dougga (Tunisia) and its resistance to various factors of decay. The petrographical study is carried out using standard microscope techniques and the petrophysical behaviour by a combination of techniques focusing on hydric and mechanical properties. The pore network is studied by fluorescence microscopy and mercury intrusion porosimetry. Durability was assessed by ice crystallization and SO2 attack ageing tests. The results allowed the identification of four main building lithotypes and their exact stratigraphic point of mining in the ancient quarries. The petrographic variations between lithotypes correlate well with their physical properties. In	GICITED - Interdisciplinary Group on Building Science and Technology	Comptes rendus géoscience	10.1016/j.crte.2017.09.017
19857803	Activation process of air stable nanoscale zero-valent iron particles	15/7/2017	Ribas Fargas, David;Cernik, M.;Benito Paramo, Jose Antonio;Filip, J.;Marti Gregorio, Vicenç	Nanoscale Zero Valent Iron (nZVI) represents a promising material for subsurface water remediation technology. However, dry, bare nZVI particles are highly reactive, being pyrophoric when they are in contact with air. The current trends of nZVI manufacturing lead to the surface passivation of dry nZVI particles with a thin oxide layer, which entails a decrease in their reactivity. In this work an activation procedure to recover the reactivity of air-stable nZVI particles is presented. The method consists of exposing nZVI to water for 36 h just before the reaction with the pollutants. To assess the increase in nZVI reactivity based on the activation procedure, three types of nZVI particles with different oxide shell thicknesses have been tested for Cr(VI) removal. The two types of air-stable nZVI particles with an oxide shell thickness of around 3.4 and 6.5 nm increased their reactivity by a factor of 4.7 and 3.4 after activation, respectively. However, the pyrophoric nZVI	R2EM - Resource Recovery and Environmental Management	Chemical engineering journal	10.1016/j.cej.2017.03.056

20336216	Highly microporous activated carbons derived from biocollagenic wastes of the leather industry as adsorbents of aromatic organic pollutants in water	12/4/2017	Llado Valero, Jordi;Gil, R. R.;Lao Luque, Concepcion;Sole Sardans, M. Montserrat;Fuente Alonso, Enrique;Ruiz Bobes, Begoña	Leather industries generate large amounts of biocollagenic wastes that need to be processed. Moreover, the presence of aromatic organic pollutants produced by different industries (pharmaceutical, food, perfume,?) is increasing in surface and groundwater and this is seriously affecting the environment. The purpose of this study is to use biocollagenic wastes (shavings, trimmings and buffing dust) and their pyrolyzed products as bioprecursors of activated carbons for future waste water applications. Activated carbons were prepared by KOH and K2CO3 chemical activation at different temperatures. The characteristics of the precursors and the influence of the activating temperature and activating agent on the process were studied and discussed. The obtained materials and two commercial activated carbons (WAC and YAO) were used as adsorbents to remove the following aromatic organic pollutants from the water: acetanilide, aniline,	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Journal of environmental chemical engineering	10.1016/j.jece.2017.04.018
19353971	Geological setting and genesis of stratabound barite deposits at Múzquiz, Coahuila in northeastern Mexico	1/3/2017	González Sánchez, Francisco;González Partida, Eduardo;Canet Miquel, Carles;Atudorei, Viorel;Alfonso Abella, María Pura;Morales Puente, Pedro Antonio;Cienfuegos Alvarado, Edith;González Ruíz, Luis E	The opening of the Gulf of Mexico during the Mesozoic led to the formation of the Sabinas Basin. Large carbonate platforms were developed throughout the Lower and Middle Cretaceous. The basin provided ideal conditions for the formation of a suite of carbonate-hosted, stratabound deposits such as barite, celestine, fluorite, and lead?zinc of Barremian?Aptian age. These deposits resemble Mississippi Valley-type (MVT) and associated deposits. The mining district of Sierra de Santa Rosa is located approximately ~ 7 km SE from Melchor Múzquiz in the state of Coahuila, Mexico. Barite is the economic mineral and the shape of the ore bodies is considered ?mantos?, the gangue minerals are calcite, local gypsum, traces of celestine, silica, and iron (oxy) hydroxides. The barite deposits show relict textures such as rhythmic, alternating black and white bands due to the presence of organic matter, and globular clusters similar to the ?chicken-wire? anhydrite, typical	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2015.10.008
19668142	The Upper Cretaceous Guaynopa IOCG and Guaynopita porphyry copper deposits, Chihuahua, Mexico	1/3/2017	Camprubí Cano, Antoni;González Partida, Eduardo;López Martínez, Margarita;Iriondo, Alexander;Alfonso Abella, María Pura;Cienfuegos Alvarado, Edith;Gutierrez Armendariz, Eric;Morales Puente, Pedro Antonio;Canet Miquel, Carles;González Ruíz, Luis E	The Guaynopa and Guaynopita mineralized areas in central-western Chihuahua are conterminous sets of ore deposits that formed in association with gabbroic and granitic intrusions that correspond to the Lower Volcanic Complex of the Sierra Madre Occidental silicic large igneous province. The Guaynopa IOCG deposit consists of (1) early iron oxide?copper?gold mantos accompanied by potassic (fuchsite, biotite and potassium feldspar) and/or calcic?sodic alteration (tremolite?actinolite) and hosted by marmorized limestones near the contact with intrusive granites, (2) later copper-rich stockworks and gold disseminations, and (3) late gold- and copper-rich quartz-calcite veins. Mantos contain most of the copper and gold ores in this deposit, and their hypogene mineralogy consists of magnetite, fuchsite, chalcopyrite, Ag-rich gold, cuprite, and late hematite. The Guaynopita porphyry copper deposit consists mainly of stockworks within potassic	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2016.01.006
19668127	Mesozoic volcanogenic massive sulfide (VMS) deposits in Mexico	1/3/2017	Camprubí Cano, Antoni;González Partida, Eduardo;Alfonso Abella, María Pura;Torró Abat, Lisard;Canet Miquel, Carles;Miranda Gasca, Miguel A.;Martini, Michelangelo;González Sánchez, Francisco	Volcanogenic massive sulfide (VMS) deposits are the most conspicuous type of deposits that formed during the Mesozoic in Mexico. Many Mexican VMS deposits display ?classical? Kuroko-type mineral zonation and structure, and some of them, as Cuale and La Minita formed in shallow submarine environments. The most prospective time window for the formation of VMS deposits in Mexico comprises the Late Jurassic and the Early Cretaceous. VMS stopped forming during the progressive continentalization of Mexico, since its metallotectonic processes (dominated by extensive tectonics) changed giving way to compression during the late Early Cretaceous; new VMS deposits did not form until after the opening of the Gulf of California. Mesozoic VMS deposits in Mexico occur in submarine volcano-sedimentary sequences that deposited essentially in association with back-arc basins (now	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2015.07.027

19700763	Predicting instrumental mass fractionation (IMF) of stable isotope SIMS analyses by response surface methodology (RSM)	10/2/2017	Fàbrega Alsina, Carles;Parcerisa Duocastella, David;Rossell Garriga, Josep Maria;Gurenko, Andrey;Franke, Christine	Instrumental mass fractionation (IMF) of isotopic SIMS analyses (Cameca 1280HR, CRPG Nancy) was predicted by response surface methodology (RSM) for 18O/16O determinations of plagioclase, K-feldspar and quartz. The three predictive response surface models combined instrumental and compositional inputs. The instrumental parameters were: (i) X and Y position, (ii) LT1DefX and LT1DefY electrostatic deflectors, (iii) chamber pressure and, (iv) primary-ion beam intensity. The compositional inputs included: (i) anorthite content (An%) for the plagioclase model and, (ii) orthoclase (Or%) and barium (BaO%) contents for the K-feldspar model. The three models reached high predictive powers. The coefficients R2 and prediction-R2 were, respectively, 90.47% and 86.74% for plagioclase, 87.56% and 83.17% for K-feldspar and 94.29% and 91.59% for quartz. The results show that RSM can be confidently applied to IMF prediction in stable isotope SIMS analyses by	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of analytical atomic spectrometry	10.1039/C6JA00397D
19774765	Les extincions geològiques des de la cadira de l'avi Manel	1/2/2017	Parcerisa Duocastella, David		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sirius	
19680243	Heat generation model in the ball milling process of a Tantalum ore	1/2/2017	Marino Saguero, Jessica;Jorge Sanchez, Juan;Menendez Aguado, Juan Maria;Álvarez Rodriguez, Beatriz;Felipe Blanch, Jose Juan de	This work focuses on the characterization of heat generation during dry fracture by direct impact of a tantalum ore. Moreover, an attempt was made to quantify the heat energy loss to the environment during the grinding process of a ball mill. The study was carried out using mineral samples from a Spanish mine that were characterized by measuring their density and specific heat. During the experiments, increases of temperature ranging from 5.9 to 7.3 °C after the fracturing process were observed. A numerical model was then applied to calculate temperature distributions through the mill wall. Three possible combinations of heat transfer coefficients were analyzed, from (1) Kapakyulu and Moys, (2) Duda and (3) the heat transfer laboratory of Universitat Politècnica de Catalunya. The models with the coefficients from Kapakyulu and Moys and the heat transfer laboratory of Universitat Politècnica de Catalunya were found to provide results that were in best	EXPLORATORI - EXPLORATORI Natural Resources	Minerals and metallurgical processing	10.19150/mmp.7244
19701290	U-Pb geochronology on zircon and columbite-group minerals of the Cap de Creus pegmatites, NE Spain	1/2/2017	Van Lichtervelde, Marieke;Grand?Homme, Alexis;de Saint-Blanquat, Michel;Olivier, Philippe;Gerdes, Axel;Paquette, Jean-Louis;Melgarejo Draper, Joan Carles;Druget, Elena;Alfonso Abella, María Pura	The Cap de Creus granitic pegmatites in the eastern Catalan Pyrenees were dated using in situ U-Pb geochronology by laser ablation ICP-MS on zircon and columbite-group minerals (CGM), which are present in the different types of pegmatites from type I (K-feldspar pegmatites, least evolved) to type IV (albite pegmatites, most evolved) and therefore allow dating the different pegmatitic pulses. In a type III pegmatite where zircon and CGMare co-genetically associated in the same sample, both minerals were dated using zircon and tantalite reference materials, respectively, to avoid laserinduced matrix- dependent fractionation. In one sample, xenotime genetically associated with zircon was also dated. Two ages were obtained for type I and three ages for type III pegmatites. Three of these 5 ages range from 296.2 ± 2.5 to 301.9 ± 3.8 Ma and are allocated to the primary magmatic stage of crystallization and	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralogy and petrology	10.1007/s00710-016-0455-1

20318589	Joint symbol and chip synchronization for a burst-mode-communication superregenerative MSK receiver	5/1/2017	Lopez Riera, Alexis;del Águila López, Francisco;Palà Schönwälder, Pere;Bonet Dalmau, Jordi;Giralt Mas, M. Rosa;Moncunill Geniz, Francisco Javier	In this paper we describe a superregenerative (SR) MSK receiver able to operate in a burst-mode framework where synchronization is required for each packet. The receiver is based on an SR oscillator which provides samples of the incoming instantaneous phase trajectories. We develop a simple yet effective technique to achieve joint chip and symbol synchronization within the time limits of a suitable preamble. We develop some general results and focus on the case of the IEEE 802.15.4 MSK physical layer. We provide details on a VHDL implementation on an FPGA where the most complex digital processing block is an accumulator. Simulation and experimental results are provided to validate the described technique. In this paper we describe a superregenerative (SR) MSK receiver able to operate in a burst-mode framework where synchronization is required for each packet. The receiver is based	CIRCUIT - Communication Circuits and Systems Research Group	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2016.2636022
22416654	Mineralogía del depósito de Sn del distrito de Santa Fe, Bolivia	1/1/2017	Jiménez Franco, Abigail;Alfonso Abella, María Pura;Canet Miquel, Carles;García-Vallès, Maite;Trujillo Lunario, Juan Elvys	El depósito de Sn-Zn-Pb-Ag de Japo-Santa Fe-Morococala se encuentra en la provincia metalogenética del cinturón Central Andino. La mineralización se encuentra encajada en una secuencia metasedimentaria paleozoica y rocas ígneas porfídicas del Oligoceno-Mioceno. Las menas se encuentran en vetas y diseminaciones. Se distinguen dos tipos de mineralización: (1) una mineralización temprana de Sn y (2) una mineralización tardía de Sn y Zn-Pb-Ag. La asociación mineral consiste principalmente en cuarzo, pirita, casiterita, sulfuros y sulfosales. La casiterita, hasta 0,25% en peso de In, constituye la mineralización más temprana. La galena y la esfalerita son los principales sulfuros. La esfalerita presenta 0,24% de In. Los minerales del grupo de la estannita están representados por estannoidita, kersterita y sulfuros del sistema Sn-Cu-ZnFe-S. Las sulfosales incluyen sakuraiita, potosiita, franckeita, freibergita, tetrahedrita, myargyrita, boulangerita, jamesonita, zinckenita,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Revista de Medio Ambiente Minero y Minería	
21578051	Subsurface nitrate reduction under wetlands takes place in narrow superficial zones	1/1/2017	Ribas Fargas, David;Calderer, Montserrat;Marti Gregorio, Vicenç;Johnsen, A.R.;Aamand, Jens;Nilsson, B.;Jensen, J. K.;Engesgaard, P.;Morici, C.	This study aims to investigate the depth distribution of the Nitrate Reduction Potential (NRP) on a natural and a re-established wetland. The obtained NRP provides a valuable data of the driving factors affecting denitrification, the Dissimilatory Nitrate Reduction to Ammonium (DNRA) process and the performance of a re-established wetland. Intact soil cores were collected and divided in slices for the determination of Organic Matter (OM) through Loss of Ignition (LOI) as well as Dissolved Organic Carbon (DOC) and NRP spiking nitrate in batch tests. The Nitrate Reduction (NR) was fitted as a pseudo-first order rate constant (k) from where NRPs were obtained. NR took place in a narrow superficial zone showing a dropping natural logarithmic trend along depth. The main driving factor of denitrification, besides depth, was OM. Although, DOC and LOI could not express by themselves and absolute correlation with NRP, high amounts of DOC ensured enough quantity and	R2EM - Resource Recovery and Environmental Management	Environmental technology	10.1080/09593330.2016.1276220
19729140	Effect of a science communication event on students? attitudes towards science and technology	1/1/2017	Torras Melenchon, Núria;Grau Vilalta, Maria Dolors;Font Soldevila, Jose;Freixas Bosch, Josep	This study investigates the effect of participation in the Knowledge Fair, a Science Communication Event at Catalonia (North East of Spain), on the attitudes of secondary school students towards science and technology. Specifically, this study focuses on answering the following research question: Did students change their attitude towards science and technology after participating in the Knowledge Fair? A total of 1,293 students (aged 14?18 years) from 23 Catalan secondary schools participated in the study following a quasi-experimental pre-test-post-test research design. Data were collected in April 2014 and April 2015, when the fourth and fifth editions of the Knowledge Fair took place, through two questionnaires taken at the beginning and at the end of the event. Four attitude components are evaluated: interest in learning science, technology, engineering, and mathematics (STEM) disciplines; perception of science and technology	EXPLORATORI - EXPLORATORI Natural Resources	International journal of engineering education	

19670615	CFD modeling of a fixed-bed biofilm reactor coupling hydrodynamics and biokinetics	26/12/2016	Prades Martell, Lledó;Dorado Castaño, Antonio David;Climent Agustina, Javier;Guimera Villalba, Xavier;Chiva, Sergio;Gamisans Noguera, Xavier	Rigorous modeling of transport phenomena is essential to reproduce accurately biofiltration systems performance. In this sense, the aim of this study was to investigate the effect of integrating fluid flow dynamics in the development of these bioreactor models, mimicking their hydrodynamics and behavior in a fixed biofilm reactor. 2D bioreactor models were developed using three different well-established tools for modeling bioreactors (AQUASIM, MATLAB, and Computational Fluid Dynamics ? CFD), considering from ideal flow patterns to more complex fluid dynamics. A detailed comparison was performed among the results, taking into account the simulation of dissolved oxygen profiles in the liquid phase, inside the biofilm and in the boundary layer along a bioreactor. These models were validated by comparing the simulations with direct measurements obtained by means of dissolved	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Chemical engineering journal	10.1016/j.cej.2016.12.107
18970959	A GIS-based approach: Influence of the ventilation layout to the environmental conditions in an underground mine	1/11/2016	Bascompta Massanes, Marc;Castañón García, Ana María;Sanmiquel Pera, Lluis;Oliva Moncunill, Josep	Gases such as CO, CO2 or NOx are constantly generated by the equipment in any underground mine and the ventilation layout can play an important role in keeping low concentrations in the working faces. Hence, a method able to control the workplace environment is crucial. This paper proposes a geographical information system (GIS) for such goal. The system created provides the necessary tools to manage and analyse an underground environment, connecting pollutants and temperatures with the ventilation characteristics over time. Data concerning the ventilation system, in a case study, has been taken every month since 2009 and integrated into the management system, which has quantified the gasses concentration throughout the mine due to the characteristics and evolution of the ventilation layout. Three different zones concerning CO, CO2, NOx and effective temperature have been found as well as some variations among	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of environmental management	10.1016/j.jenvman.2016.08.013
19033338	Removal of pharmaceutical industry pollutants by coal-based activated carbons	1/11/2016	Llado Valero, Jordi;Sole Sardans, M. Montserrat;Lao Luque, Concepcion;Fuente Alonso, Enrique;Ruiz Bobes, Begoña	Several studies have demonstrated the presence of pollutants from the pharmaceuticalindustry in surface and groundwater. The main inputs of pollutants come from households,hospitals and the industry and many of these compounds are not completely removed by WWTPs. The purpose of this research is to study the adsorption of paracetamol, phenoland salicylic acid using coal-based activated carbons. A lignite from Mequinenza (M) andan anthracite from Coto Minero Narcea (CN) from Spain were chemically activated withalkaline agents obtaining two activated carbons (MAC and CNAC). Two commercial activated carbons widely used in water treatment (F400 and NPK) were selected for comparison purposes. The activated carbons were characterized and the results showed a high surface BET (1839 m2g-1) and total pore volume (0.83 cm3g-1) on CNAC while MAC was charac-terized by high sulphur content (6%). Vapour isotherms indicated a chemical	BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Process safety and environmental protection	10.1016/j.psep.2016.09.009
19240634	The Mendeleev-Meyer force project	28/10/2016	Santos Hernandez, Sergio;Lai, Chia-Yun;Amadei, Carlo Alberto;Gadelrab, Karim Raafat;Tang, Tzu-Chieh;Verdaguer Prats, Albert;Barcons Xixons, Victor;Font Teixido, Jose;Colchero, Jaimer;Chiesa, Matteo	Here we present the Mendeleev?Meyer Force Project which aims at tabulating all materials and substances in a fashion similar to the periodic table. The goal is to group and tabulate substances using nanoscale force footprints rather than atomic number or electronic configuration as in the periodic table. The process is divided into: (1) acquiring nanoscale force data from materials, (2) parameterizing the raw data into standardized input features to generate a library, (3) feeding the standardized library into an algorithm to generate, enhance or exploit a model to identify a material or property. We propose producing databases mimicking the Materials Genome Initiative, the Medical Literature Analysis and Retrieval System Online (MEDLARS) or the PRoteomics IDEntifications database (PRIDE) and making these searchable online via search engines mimicking Pubmed or the PRIDE web interface. A prototype exploiting deep learning algorithms, i.e. multilayer	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Nanoscale	10.1039/c6nr06094c

19680451	Influencia de la crisis económica en los accidentes eléctricos en minería, en los años 2008 y 2014, en España	20/10/2016	Freijo Alvarez, Modesto;Vintro Sanchez, Carla;Viladomat Vers, Antoni;Sanmiquel Pera, Lluis	La reducción de accidentes eléctricos por contacto indirecto fue bastante elevada, pasando de 18.048 siniestros en 2.008 a 7.487 en el 2.014, es decir, se produjeron un 58,52% menos, aunque hay que tener en cuenta que también se redujo el número de persones trabajando. La probabilidad que tener un accidente eléctrico por contacto indirecto fue menor en 2014 que en el 2008, exactamente del 0,76 (0,74-0,77). Sin embargo pasó el contrario con los accidentes eléctricos por contacto directo, que fue de 1,22 (1,20 ? 1,24) , que significa que el riesgo por persona de sufrir una electrocución fue más elevado para los trabajadores en el año 2.014 que en el 2. La reducción de accidentes eléctricos por contacto indirecto fue bastante elevada, pasando de 18.048 siniestros en 2.008 a 7.487 en el 2.014, es decir, se produjeron un 58,52% menos, aunque hay que tener en cuenta que	LRG - Lightning Research Group	ORP Journal	
19161051	Mineralogical characterisation of tantalum ores for the optimization of their processing	19/10/2016	Alfonso Abella, María Pura;Oliva Moncunill, Josep;García-Vallès, Maite;Tomasa Guix, Oriol;Calvo Torralba, Daniel;Guasch Cascallo, Eduard;Anticoi Sudzuki, Hernan Francisco;Parcerisa Duocastella, David	Tantalum is a strategic metal with multiple applications for the new technologies. Tantalum ore deposits are scarce in the European Union, thus, more efficient extracting processes are necessary to contribute to a greater European independence on the market of these critical raw materials. Tantalum mainly occurs in pegmatites, leucogranite deposits and its placers. There are not active tantalum mines in Europe, however, several deposits are susceptible to being exploited if current technologies of processing are improved. This work is part of the Optimore Project which aims to develop model and control technologies, using advanced sensing and advanced industrial control by artificial intelligence techniques, for more efficient and flexible tantalum and tungsten processing from crushing to separation process. In this paper, a characterization of tantalum ores from leucogranite and alluvial deposits is presented. This study will be used as a basis for	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of mining, materials, and metallurgical engineering (IJMMME)	
19162217	Mineral processing analysis in artisanal gold mining, Peru	18/10/2016	Anticoi Sudzuki, Hernan Francisco;Alfonso Abella, María Pura;Bascompta Massanes, Marc;Palacios Ubach, Silvia	The usage of inefficient techniques in artisanal gold mining is quite common, either to extract the ore or processing it, and always related to environmental contamination. This paper analyse the mineral processing of a case study in Peru (San Cristobal) with the aim to improve the gold recovery process and mitigate the environmental impact. The process of amalgamation (gold-mercury) has been found as ineffective due to the presence of arsenic, while the particle size is not optimal to recover the gold. Therefore, the processing equipment should be changed to improve the grade recovery. The mineral liberation and particle size distribution analysis are the key to evaluate the performance of the process. Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of mining, materials, and metallurgical engineering (IJMMME)	
19160964	Characterization and evaluation of poplar and pine wood in twin biotrickling filters treating a mixture of NH3, H2S, butyric acid, and ethylmercaptan	7/10/2016	Hernández, Jerónimo;Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Jesús Prado, Óscar;Gabriel Buguña, David	Biotrickling filters for waste gas treatment are often packed with expensive, inert packing materials. In this work, poplar and pine wood chips were evaluated as low-cost packing materials in two biotrickling filters for the simultaneous treatment of a mixture of organic and inorganic volatile compounds. Bioreactors were operated at gas contact times of 22?34 s. Inlet loading rates of 3.5¿±¿1.0 gN-NH3 m-3h-1 and 6.5¿±¿1.1 gS-H2S m-3h-1 were supplied, while ethylmercaptan and butyric acid were fed at loads of 3.6¿±¿1.2 and 6.0¿±¿2.1 g m-3h-1, respectively. A thorough characterization of both packing materials revealed some differences in the physical?chemical properties, mainly in their water retentivity and buffer capacity. Despite of such differences, both bioreactors performed similarly. Bioreactors were able to achieve complete removal of NH3 and butyric acid, while H2S and EM removal efficiencies over 90% and 70%, respectively, were found. N-species	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental progress & sustainable energy	10.1002/ep.12491

16377187	Measuring the relevance of factors in the occurrences of events	1/9/2016	Fragnelli, Vito;Freixas Bosch, Josep;Pons Vallès, Montserrat;Sanmiquel Pera, Lluis	A new way to compare the relevance of the different factors intervening in the occurrences of an event is presented and developed in this paper. The idea behind the method comes from cooperative game theory but the focus is slightly different because factors are not necessarily rational decision-makers and because the only data available are obtained by repetition of the event. The concept of relevance measure for a factor in a set of data is introduced, some significant examples are given and the main properties of relevance measures are defined and studied. One of these measures, the fair measure, is proved to have interesting properties which characterize it. Two real world situations, one about traffic accidents and the other one about mining accidents, both of them with real data, are used to show the use of relevance measures to compare factors in each one of these events. The final publication is available at Springer via	ALBCOM - Algorithms, Computational Biology, Complexity and Formal Methods	Central european journal of operations research	10.1007/s10100-014-0352-9
19160011	Mineralogical and thermal characterization of borate minerals from Rio Grande deposit, Uyuni (Bolivia)	1/8/2016	García-Vallès, Maite;Alfonso Abella, María Pura;Arancibia Balderrama, Jhony Roger Hanz;Martínez Manent, Salvador;Parcerisa Duocastella, David	Large volumes of borate resources exist in Bolivia, with the most important being the Rio Grande deposit, located close to the Salar of Uyuni. Here, borates occur in beds and lenses of variable thickness. A mineralogical and thermal characterization of borates from the Rio Grande was made using XRD, FTIR, SEM and DTA?TG. The deposit is mainly composed of B2O3, CaO and Na2O, with minor contents of MgO and K2O. Some outcrops are constituted by pure ulexite aggregates (NaCaB5O6(OH)6·5H2O) of fibrous morphology; in other cases, gypsum, calcite and halite also are present. The thermal decomposition of ulexite begins at 70 °C and proceeds up to ~550 °C; this decomposition is attributed to dehydration and dehydroxylation processes in three steps: at 115, 150?300 and 300?550 °C. The last mass loss of 1?5 % at 800 °C is due to the removal of Cl2 from the decomposition of halite. DTA shows two endothermic events related to the removal of water;	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of thermal analysis and calorimetry	10.1007/s10973-015-5161-4
18850243	Dynamic characterization of external and internal mass transport in heterotrophic biofilms from microsensors measurements	7/7/2016	Guimera Villalba, Xavier;Dorado Castaño, Antonio David;Bonsfills Pedros, Ana;Gabriel Buguña, Gemma;Gabriel Buguña, David;Gamisans Noguera, Xavier	Knowledge of mass transport mechanisms in biofilm-based technologies such as biofilters is essential to improve bioreactors performance by preventing mass transport limitation. External and internal mass transport in biofilms was characterized in heterotrophic biofilms grown on a flat plate bioreactor. Mass transport resistance through the liquid-biofilm interphase and diffusion within biofilms were quantified by in situ measurements using microsensors with a high spatial resolution (<50 mm). Experimental conditions were selected using a mathematical procedure based on the Fisher Information Matrix to increase the reliability of experimental data and minimize confidence intervals of estimated mass transport coefficients. The sensitivity of external and internal mass transport resistances to flow conditions within the range of typical fluid velocities over biofilms (Reynolds numbers between 0.5 and 7) was assessed. Estimated external mass transfer coefficients at	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water research (Oxford)	10.1016/j.watres.2016.07.009
18738854	Oxidation of methane in biotrickling filters inoculated with methanotrophic bacteria	1/7/2016	Cáceres, Manuel;Dorado Castaño, Antonio David;Gentina, Juan C.;Aroca Arcaya, Germán	The oxidation of methane (CH4) using biofilters has been proposed as an alternative to mitigate anthropogenic greenhouse gas emissions with low concentration of CH4 that cannot be used as a source of energy. However conventional biofilters utilize organic packing materials that have a short lifetime, clogging problems and are commonly inoculated with non-specific microorganisms leading to unpredictable CH4 elimination capacities (EC) and removal efficiencies (RE). The main objective of this work was to characterize the oxidation of CH4 in two biotrickling filters (BTFs) packed with polyethylene rings and inoculated with two methanotrophic bacteria Methylomicrobium album and Methylocystis sp. in order to determine the CH4 elimination capacity (EC) and CO2 production (pCO2) when using a specific inoculum. The repeatability of the results in both BTF was determined when operated at the same inlet load of CH4.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental science and pollution research	10.1007/s11356-016-7133-z

18534909	Monte carlo simulation as a tool to show the influence of the human factor into the quantitative risk assessment	1/7/2016	González Dan, Jose Roberto;Guix Pujolar, Alan;Marti Gregorio, Vicenç;Arnaldos Viger, Josep;Darbra Roman, Rosa Maria	The frequency of occurrence of an accident is a key aspect in the risk assessment field. Vari- ables such as the human factor (HF), which is a major cause of undesired events in process industries, are usually not considered explicitly, mainly due to the uncertainty generated due to the lack of knowledge and the complexity associated to it. In this work, failure frequencies are modified through Monte Carlo (MC) simulation includ- ing the uncertainty generated by HF. MC is one of the most commonly approach used for uncertainty assessment based on probability distribution functions that represent all the variables included in the model. This technique has been also proved to be very useful in the risk assessment field. The model takes into account the uncertainty and variability generated by several HF variables. In order to test the model, it has been applied to two real case studies, obtaining new frequency values for the different scenarios. Together	CERTEC - Centre for Technological Risk Studies	Process safety and environmental protection	10.1016/j.psep.2016.04.024
18733141	Modeling an aerobic biotrickling filter for biogas desulfurization through a multi-step oxidation mechanism	15/6/2016	Lopez, L. R.;Dorado Castaño, Antonio David;Mora, M.;Gamisans Noguera, Xavier;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David	A dynamic model describing physical-chemical and biological processes for the removal of high loads of H2S from biogas streams in biotrickling filters (BTFs) was developed, calibrated and validated for a wide range of experimental conditions in a lab-scale BTF. The model considers the main processes occurring in the three phases of a BTF (gas, liquid and biofilm) in a co-current flow mode configuration. Furthermore, this model attempts to describe accurately the intermediate (thiosulfate and elemental sulfur) and final products (sulfate) of H2S oxidation. A sensitivity analysis was performed in order to focus parameters estimation efforts on those parameters that showed the highest influence on the estimation of the H2S removal efficiency, the accumulated mass of sulfur and the sulfate concentration in the liquid phase. Biofilm and liquid layer thicknesses, specific growth rate of biomass over elemental sulfur and the H2S global mass transfer coefficient	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2016.03.013
19161988	Improvements in nanoscale zero-valent iron production by milling through the addition of alumina	2/6/2016	Ribas Fargas, David;Cernik, M.;Marti Gregorio, Vicenç;Benito Paramo, Jose Antonio	A new milling procedure for a cost-effective production of nanoscale zero-valent iron for environmental remediation is presented. Conventional ball milling of iron in an organic solvent as Mono Ethylene Glycol produces flattened iron particles that are unlikely to break even after very long milling times. With the aim of breaking down these iron flakes, in this new procedure, further milling is carried out by adding an amount of fine alumina powder to the previously milled solution. As the amount of added alumina increases from 9 to 54 g l-1, a progressive decrease of the presence of flakes is observed. In the latter case, the appearance of the particles formed by fragments of former flakes is rather homogeneous, with most of the final nanoparticles having an equivalent diameter well below 1 µm and with an average particle size in solution of around 400 nm. An additional increase of alumina content results in a highly viscous solution showing worse particle	R2EM - Resource Recovery and Environmental Management	Journal of nanoparticle research	10.1007/s11051-016-3490-2
17737585	Modeling and control strategies for anoxic biotrickling filtration in biogas purification	1/6/2016	Almenglo, Fernando;Ramírez Muñoz, Martín;Gómez, José Manuel;Cantero, Domingo;Gamisans Noguera, Xavier;Dorado Castaño, Antonio David	BACKGROUND Anoxic biotrickling filters have been used to 'sweeten' biogas. Nevertheless, the cost and availability of large amounts of nitrate could limit the use of this technology in comparison with aerobic biotrickling filters. The development of a dynamic mathematical model would be useful for the design of control strategies with regard to nitrate dosage. RESULTS A dynamic model has been developed to describe the performance of an anoxic biotrickling filter for biogas desulfurization. The model considers the most relevant phenomena involved in biotrickling filter operation: advection, absorption, diffusion and biodegradation. Moreover, a fraction of the liquid phase is stagnant ? an assumption that increases the importance of diffusion	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of chemical technology & biotechnology	10.1002/jctb.4769

18740757	Heat flow assessment in an underground mine: an approach to improve the environmental conditions	1/6/2016	Bascompta Massanes, Marc;Castañón García, Ana María;Sanmiquel Pera, Lluis;Oliva Moncunill, Josep	The generation of heat in underground spaces due to working activities is a factor that influences production and productivity rates. This paper analyses the heat generation in an underground mine and provides a number of approaches to enhance the ventilation conditions using electrical, instead of diesel machines. This assessment has been carried out using theoretical equations and modelling software. Investigations prove that sensible and latent heat would be reduced by around 50% and 84% respectively if the change were applied in the case study. This reduction on heat input to the ventilation system would improve the workplace environment because of lower effective temperatures and gas concentrations, which would result in better safety conditions and higher employee efficiency. Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Dyna (Medellín)	10.15446/dyna.v83n197.52182
17700279	Bioevents and redox conditions around the Cenomanian-Turonian anoxic event in Central Mexico	1/5/2016	Núñez Useche, Fernando;Canet Miquel, Carles;Barragán Manzo, Ricardo;Alfonso Abella, María Pura	The Xilitla section of central Mexico (western margin of the proto-North Atlantic) is characterized by pelagic sediments enriched in marine organic matter. Using biostratigraphic and radiometric data, it was dated at the latest Cenomanian-earliest Turonian transition. We identified an interval coeval with the faunal turnover associated with the Oceanic Anoxic Event 2 (OAE 2), recording the Heterohelix shift and the 'filament event' for the first time in Mexico. An integral analysis of sedimentary facies, pyrite and geochemical proxies reveals vertically variable redox conditions, with prevailing anoxic to dysoxic bottom waters. Along with phosphorous and manganese depletion, the highest content of total organic carbon and of certain redox-sensitive trace elements (RSTEs) is found during part of the anoxic event, confirming more uniform and constant oxygen-depleted conditions. This interval is also characterized by a significant enrichment in biogenic barium and elevated	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Palaeogeography, palaeoclimatology, palaeoecology	10.1016/j.palaeo.2016.01.035
17748766	Exploring arsenic adsorption at low concentration onto modified leonardite	1/4/2016	Sole Sardans, M. Montserrat;Gamisans Noguera, Xavier;Dorado Castaño, Antonio David;Lao Luque, Concepcion	The removal of As(V) from aqueous solutions by leonardite loaded with ferric ions (Fe-leonardite) has been investigated. The influence of pH, contact time, and arsenate concentration on the adsorption process were evaluated. Batch kinetic studies showed that equilibrium time was reached at 24 h of contact time. Equilibrium data obtained with low initial arsenate concentrations (10-400 ppb) were fitted to both Langmuir and Freundlich models, and the maximum adsorption capacity was estimated to be 322 μg g-1. Arsenic sorption was evaluated in continuous mode to reproduce industrial applications and to determine the conditions where the process was controlled by either mass transfer or reaction rate. A maximum sorption capacity of 905 μg g-1 was obtained in continuous experiments. These results indicate that Fe-leonardite is a great potential material for removing arsenate at low initial concentrations from contaminated water. © Springer	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water, air and soil pollution	10.1007/s11270-016-2827-x
17700326	Recycling of tailings from the Barruecopardo tungsten deposit for the production of glass	26/2/2016	Alfonso Abella, María Pura;Castro López, David;García-Vallès, Maite;Tarragó Aymerich, Mariona;Tomasa Guix, Oriol;Martínez Manent, Salvador	Tailings from tungsten mining activities in the vicinity of Barruecopardo (Salamanca) represent high environmental pollution. In this paper we present a study of the use of these wastes as raw materials for the manufacture of glass. This procedure aims to contribute to environmental remediation of mining areas through vitrification, a process which offers an alternative for stabilization of hazardous wastes. In addition, the marketing of the obtained product would provide an additional income to the mining areas. The chemical composition of the tailings to be used as raw materials was determined by X-ray fluorescence and their mineralogy by X-ray diffraction. Wastes are of granitic composition enriched in potentially toxic elements. For this study, a representative sample of mining wastes of sandy grain size was used to make the glass. On the basis of its composition, glass was formulated by adding 29.28 mass% of CaCO3 and 14.03 mass% of Na2CO3 and a green	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of thermal analysis and calorimetry	10.1007/s10973-016-5332-y

17556903	Phosphate removal and recovery from water using nanocomposite of immobilized magnetite nanoparticles on cationic polymer	17/2/2016	Abo Markeb, Ahmad;Alonso, Amanda;Dorado Castaño, Antonio David;Sanchez Ferrer, Antoni;Font Segura, Xavier	A novel nanocomposite (NC) based on magnetite nanoparticles (Fe3O4-NPs) immobilized on the surface of a cationic exchange polymer, C100, using a modification of the co-precipitation method was developed to obtain magnetic NCs for phosphate removal and recovery from water. High-resolution transmission electron microscopy-energy-dispersive spectroscopy, scanning electron microscopy, X-ray diffraction, and inductively coupled plasma optical emission spectrometry were used to characterize the NCs. Continuous adsorption process by the so-called breakthrough curves was used to determine the adsorption capacity of the Fe3O4-based NC. The adsorption capacity conditions were studied under different conditions (pH, phosphate concentration, and concentration of nanoparticles). The optimum concentration of iron in the NC for phosphate removal was 23.59 mgFe/gNC. The sorption isotherms of this material were performed at pH 5 and 7. Taking	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental technology	10.1080/09593330.2016.1141999
19770500	Respirometric characterization of aerobic sulfide, thiosulfate and elemental sulfur oxidation by S-oxidizing biomass	1/2/2016	Mora Garrido, Mabel;López de León, Luís Rafael;Lafuente Sancho, Francisco Javier;Pérez Gascón, Julio;Kleerebezem, Robbert;van Loosdrecht, Mark C.M.;Gamisans Noguera, Xavier;Gabriel Buguña, David	Respirometry was used to reveal the mechanisms involved in aerobic biological sulfide oxidation and to characterize the kinetics and stoichiometry of a microbial culture obtained from a desulfurizing biotrickling filter. Physical?chemical processes such as stripping and chemical oxidation of hydrogen sulfide were characterized since they contributed significantly to the conversions observed in respirometric tests. Mass transfer coefficient for hydrogen sulfide and the kinetic parameters for chemical oxidation of sulfide with oxygen were estimated. The stoichiometry of the process was determined and the different steps in the sulfide oxidation process were identified. The conversion scheme proposed includes intermediate production of elemental sulfur and thiosulfate and the subsequent oxidation of both compounds to sulfate. A kinetic model describing each of the reactions observed during sulfide oxidation was calibrated and validated. The	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water research (Oxford)	10.1016/j.watres.2015.11.061
17362921	Mineralogy, geochemistry and sulfur isotope characterization of Cerro de maimón (Dominican Republic), San Fernando and Antonio (Cuba) lower cretaceous VMS deposits: formation during subduction initiation of the proto-Caribbean lithosphere within a fore-arc	1/1/2016	Torró Abat, Lisard;Proenza Fernandez, Joaquim;Melgarejo Draper, Joan Carles;Alfonso Abella, María Pura;Farré de Pablo, Júlia;Colomer Calsina, Josep Maria;García Casco, Antonio;Gubern Burset, Albert;Gallardo Saborido, Emilio. J;Cazañas, Xiomara;Chávez, Cevero;Del Carpio, Ricardo;León, Paulo;Nelson, Carl E.;Lewis, John	The volcanic-arc Lower Cretaceous Maimón (Dominican Republic) and Los Pasos (Cuba) Fm, representative of the oldest magmatism recorded in the Caribbean island arc, host most of the known VMS deposits in the Greater Antilles. Basalts of the Maimón Formation are classified as fore arc basalts (FAB), boninites and less abundant low-Ti (LOTI) and normal island-arc tholeiites (IAT), and those of the Los Pasos Formation as LOTI and IAT. Felsic volcanics from the two formations are geochemically analogous and present mantle-type (M-type), boninitic and tholeiitic signatures, classifying as FIV-type, typical of post-Archaean VMS-bearing juvenile volcanic suites. This lithogeochemical data is indicative of formation in a fore-arc environment just after subduction initiation in association with initial extensional regimes and associated boninitic and tholeiitic melts that originated in the shallow mantle. Within this tectonic framework, rocks of the Los Pasos Fm and	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2015.09.017
19770401	Assessment of the water chemical quality improvement based on human health risk indexes: Application to a drinking water treatment plant incorporating membrane technologies	1/1/2016	López Roldán, Ramón;Rubalcaba Mauri, Alicia;Martín Alonso, Jordi;Gonzalez Blanco, Susana;Marti Gregorio, Vicenç;Cortina Pallas, Jose Luis	A methodology has been developed in order to evaluate the potential risk of drinking water for the health of the consumers. The methodology used for the assessment considered systemic and carcinogenic effects caused by oral ingestion of water based on the reference data developed by the World Health Organisation (WHO) and the Risk Assessment Information System (RAIS) for chemical contaminants. The exposure includes a hypothetical dose received by drinking this water according to the analysed contaminants. An assessment of the chemical quality improvement of produced water in the Drinking Water Treatment Plant (DWTP) after integration of membrane technologies was performed. Series of concentration values covering up to 261 chemical parameters over 5 years (2008?2012) of raw and treated water in the Sant Joan Despí DWTP, at	R2EM - Resource Recovery and Environmental Management	Science of the total environment	10.1016/j.scitotenv.2015.04.045

16832234	Labdane-type diterpenoids from Juniperus communis needles	15/12/2015	Basas Jaumandreu, Josep;López Fernandez, Jordi;de las Heras Cisa, F. Xavier	The chemical composition of lipophilic extractives from Juniperus communis used for cosmetic, medicinaland food additives was studied. Herein we report the extraction of labdane-type diterpenoids from theneedles of the common juniper (Juniperus communis ssp. communis var. communis L.), and identification ofthem as the major class of compounds in this species. Furthermore, and to the best of our knowledge weprovide the first-ever report some of these compounds (nor-16- imbricatolic, nor-16-acetylimbricatolicand acetylimbricatolic acids) as natural compounds. Imbricataloic and imbricatolic acids were the mostabundant compounds, accounting for 65% of the total extract. We also found long-chain secondary alco-hols (n-alkan-10-ols) and secondary/secondary alkanediols (4,10-, 5,10-, 6,10-, 7,10-), which we reporthere for the first time ever in the genus Juniperus. In total, we identified 127 compounds: of these,48 (nonacosan-10-	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Industrial crops and products	10.1016/j.indcrop.2015.07.005
17281241	Análisis de la siniestralidad laboral en la minería española entre los años 2008 y 2013	27/11/2015	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla	En este estudio se evaluan los accidentes laborales no mortales ocurridos durante el período 2008 al 2013 en la mineria espanyola. Los datos fueron extraidos de las publicacions del Instituto Nacional de Estdística (INE), de la Encuesta de Población Activa (EPA) y del Ministerio de Empleo y Seguridad Social. La discusión y conclusions nos indican que el personal de la mineria espanyola ha sufrido menos siniestralidad año trás año entre el 2008 y el 2013, però aunque esta siniestralidad ha desminuido, los accidentados han tardado más tiempo en recuperarse , así pues, la duración media de baja en el 2007 fue 25,48 y de 43,41 en el 2013.	LRG - Lightning Research Group	ORP Journal	
17420352	Fungal biodegradation of anthracene-polluted cork: a comparative study	5/11/2015	Jové, Patricia;Olivella Costa, Maria Àngels;Camarero Fernández, Susana;Caixach Gamisans, Josep;Planas Pastor, Carles;Cano, Laura;de las Heras Cisa, F. Xavier	The efficiency of cork waste in adsorbing aqueous polycyclic aromatic hydrocarbons (PAHs) has been previously reported. Biodegradation of contaminated cork using filamentous fungi could be a good alternative for detoxifying cork to facilitate its final processing. For this purpose, the degradation efficiency of anthracene by three ligninolytic white-rot fungi (Phanerochaete chrysosporium, Irpex lacteus and Pleurotus ostreatus) and three non-ligninolytic fungi which are found in the cork itself (Aspergillus Niger, Penicillium simplicissimum and Mucor racemosus) are compared.Anthracene degradation by all fungi was examined in solid-phase cultures after 0, 16, 30 and 61 days. The degradation products of anthracene by P. simplicissimum and I. lacteus were also identified by GC-MS and a metabolic pathway was proposed for P. simplicissimum. Results show that all the fungi tested degraded anthracene. After 61 days of incubation,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of environmental science and health. Part A, Toxic/hazardous substances & environmental engineering	10.1080/10934529.2015.1079114
16673558	Carbonatitic lavas in Catanda (Kwanza Sul, Angola): mineralogical and geochemical constraints on the parental melt	1/9/2015	Campeny Grego, Marc;Kamenetsky, Vadim S;Melgarejo Draper, Joan Carles;Mangas, José;Manuel, José;Alfonso Abella, María Pura;Kamenetsky, Maya;Bambi, Aurora Cuaiela João Mateus;Gonçalves, Antonio Olimpio	A set of small volcanic edificeswith tuff ring and maar morphologies occur in the Catanda area, which is the only localitywith extrusive carbonatites reported in Angola. Four outcrops of carbonatite lavas have been identified in this region and considering the mineralogical, textural and compositional features, we classify them as: silicocarbonatites (1), calciocarbonatites (2) and secondary calciocarbonatites produced by the alteration of primary natrocarbonatites (3). Even with their differences, we interpret these lava types as having been a single carbonatite suite related to the same parental magma. We have also estimated the composition of the parental magma from a study of melt inclusions hosted in magnetite microphenocrysts from all of these lavas. Melt inclusions revealed the presence of 13 different alkali-rich phases (e.g., nyerereite, shortite, halite and sylvite) that argues for an alkaline composition of the Catanda parental melts. Mineralogical, textural,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Lithos	10.1016/j.lithos.2015.06.016

16870267	Establishing nanoscale heterogeneity with nanoscale force measurements	13/8/2015	Chang, Yun-Hsiang, Yun-Hsiang;Olukan, Tuza;Lai, Chia-Yun;Santos Hernandez, Sergio;Lin, Tze-Yu;Apostoleris, Harry;Font Teixido, Jose;Barcons Xixons, Victor;Chiesa, Matteo	Establishing the presence or absence of nanoscale compositional heterogeneity with nanoscale resolution is becoming instrumental for the development of many fields of science. Force versus distance measurements and parameters directly or indirectly derived from these profiles can be potentially employed for this purpose with sophisticated instruments such as the atomic force microscope (AFM). On the other hand, standards are necessary to reproducibly and conclusively support hypothesis from experimental data and these standards are still emerging. Here, we define a set of standards for providing data originating from atomic force measurements to be employed to compare between sample properties, parameters, or, more generally, compositional heterogeneity. We show that reporting the mean and standard deviation only might lead to inconsistent conclusions. The fundamental principle behind our investigation deals with	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	The journal of physical chemistry. Part C, nanomaterials and interfaces	10.1021/acs.jpcc.5b04456
17504064	Ventilation management system for underground environments	1/8/2015	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Oliva Moncunill, Josep	The management of the ventilation system is crucial to deal with efficiency, health and safety issues in an underground environment. This paper presents the design of a geographic information system - also known as GIS - capable to store, manipulate and extract results from the data collected regarding the ventilation features of an underground mine. The GIS can also be adapted to other types of underground infrastructures or include any additional parameter required.; A database of these parameters, in a case study, has been created taking into account two conditions: The changeable layout of the ventilation system during the evolution of the mine and the location of the control points, so the information can be analysed with the GIS in many different ways and purposes. Therefore, the system can control the underground conditions in the long term and evaluate any change applied to the ventilation circuit.; The study has given insight of the most sensitive parts	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Tunnelling and underground space technology	10.1016/j.tust.2015.09.001
17501928	Kaolin from Acoculco (Puebla, Mexico) as raw material: mineralogical and thermal characterization	1/8/2015	García-Vallès, Maite;Alfonso Abella, María Pura;Canet Miquel, Carles;Martínez Manent, Salvador;Jiménez Franco, Abigail;Tarragó Aymerich, Mariona;Hernández Cruz, Berenice	The present study determined the mineralogy and thermal properties of kaolin from Acoculco (Puebla), at the eastern Trans-Mexican Volcanic Belt and compared it with the nearby deposits of Agua Blanca (Hidalgo) and Huayacocotla (Veracruz). The mineralogy of the kaolins was determined by X-ray diffraction, infrared spectroscopy and scanning electron microscopy. Thermal behaviour was studied by differential thermal analysis, dilatometry and hot-stage microscopy. The Acoculco deposit is composed mainly of kaolinite and SiO2 minerals. In the case of Agua Blanca and Huayacocotla, alunite is abundant in places and minor anatase is also present locally. The Acoculco kaolins are Fe-poor and relatively rich in some potentially toxic elements (Zr, Sb, Pb). They undergo a relatively small amount of shrinkage (3?4 vol.%), during firing at 20?1300°C and cooling down to 20°C, except when >10 wt.% alunite is present. These kaolins are a suitable raw material	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Clay minerals	10.1180/claymin.2015.050.3.12
16615024	Application of a novel respirometric methodology to characterize mass transfer and activity of H2S-oxidizing biofilms in biotrickling filter beds	15/7/2015	Bonilla Blanca, Wenceslao;Mora Garrido, Mabel;Revah Moissev, Sergio;Baeza Labat, Juan Antonio;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David;González Sanchez, Armando	The elimination capacity of gaseous H2S biofiltration can be limited either by mass transfer or bioreaction in the biofilm. Assessment of the biological activity of immobilized cells (biofilm) usually implies morphological and physiological changes during the adaptation of cells to respirometric devices operated as suspended cultures. In this study, respirometry of heterogeneous media is advised as a valuable technique for characterizing mass transport and biological activity of H2S-oxidizing biofilms attached on two packing materials from operative biotrickling filters. Controlled flows of liquid and H2S-containing air were recirculated through a closed heterogeneous respirometer allowing a more realistic estimation of the biofilm activity by the experimental evaluation of the oxygen uptake rate (OUR). Specific maximum OUR of 23.0 and 38.5 mmol O-2 (g biomass min)(-1) were obtained for Pall rings and polyurethane foam, respectively. A mathematical model for	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Biochemical engineering journal	10.1016/j.bej.2015.02.030

15432122	Study of Spanish mining accidents using data mining techniques	1/6/2015	Sanmiquel Pera, Lluis;Rossell Garriga, Josep Maria;Vintro Sanchez, Carla	Mining is an economic sector with a high number of accidents. Mines are hazardous places and workers can suffer a wide variety of injuries. Utilizing a database composed of almost 70,000 occupational accidents and fatality reports corresponding to the decade 2003?2012 in the Spanish mining sector, the paper analyzes the main causes of those accidents. To carry out the study, powerful statistical tools have been applied, such as Bayesian classi¿ers, decision trees or contingency tables, among other data mining techniques. Statistical analyses have been performed using Weka software and behavioral patterns based on certain rules have been obtained. From these rules, some conclusions are extracted which can help to develop suitable prevention policies to reduce injuries and fatalities. Mining is an economic sector with a high number of accidents. Mines are hazardous places and workers can suffer a wide variety of injuries. Utilizing	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Safety science	10.1016/j.ssci.2015.01.016
15847288	The early Cambrian Chahmir shale-hosted Zn-Pb deposit, Central Iran: an example of vent-proximal SEDEX mineralization	1/6/2015	Rajabi, Abdorrahman;Rastad, Ebrahim;Canet Miquel, Carles;Alfonso Abella, María Pura	The Chahmir zinc-lead deposit (1.5 Mt @ 6 % Zn + 2 % Pb) in Central Iran is one among several sedimentary-exhalative Zn-Pb deposits in the Early Cambrian Zarigan-Chahmir basin (e.g., Koushk, Darreh-Dehu, and Zarigan). The deposit is hosted by carbonaceous, fine-grained black siltstones, and shales interlayered with volcaniclastic sandstone beds. It corresponds to the upper part of the Early Cambrian volcano-sedimentary sequence (ECVSS), which was deposited on the Posht-e-Badam Block during back-arc rifting of the continental margin of Central Iran. Based on crosscutting relationships, mineralogy, and texture of sulfide mineralization, four different facies can be distinguished: stockwork (feeder zone), massive ore, bedded ore, and distal facies (exhalites with barite). Silicification, carbonatization, sericitization, and chloritization are the main wall-rock alteration styles; alteration intensity increases toward the proximal feeder zone. Fluid inclusion	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralium deposita	10.1007/s00126-014-0556-x
16697066	Biofiltration of WWTP sludge composting emissions at contact times of 2?10 s by structured/unstructured packing materials	29/5/2015	Dorado Castaño, Antonio David;Gabriel Buguña, David;Gamisans Noguera, Xavier	The performance of a biotrickling filter for the abatement of composting emissions was evaluated at short gas contact times of 2?10 s with a structured and an unstructured packing material. The effect of the gas contact time, pH control and water make-up flowrate were also evaluated during 8 months. The average elimination capacity was 13 g N m-3 h-1 and 3.3 g C m-3 h-1 for NH3 and VOCs, respectively. Maximum capacities obtained during an inlet concentration spiking experiment were 45 g N m-3 h-1 and 20 g C m-3 h-1 at a removal efficiency of 92.5 and 46.7%, respectively. A decrease of 40% was detected in the nitrification capacity when the hydraulic residence time increased from 2 to 5 h. Thus, water renewal was identified as a critical parameter to avoid substrate inhibition by nitrite and NH3 accumulation.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Process biochemistry	10.1016/j.procbio.2015.05.023
15467288	Role of activated carbon properties in atrazine and paracetamol adsorption equilibrium and kinetics	20/5/2015	Llado Valero, Jordi;Lao Luque, Concepcion;Ruiz, Begoña;Fuente Alonso, Enrique;Sole Sardans, M. Montserrat;Dorado Castaño, Antonio David	Adsorption of two widespread emerging water contaminants (atrazine and paracetamol) onto three different activated carbons was investigated. The carbons were characterized and the influence of their physicochemical properties on the adsorption performance of atrazine and paracetamol was evaluated. The adsorption equilibrium data were fitted to different adsorption isotherm models (Langmuir, Freundlich, and Dubinin-Radushkevich) while the adsorption rates were described using three different kinetic models (pseudo second order, intraparticle diffusion and a new approach based on diffusion-reaction models). The results indicated that hydrophobic character of the compounds does not affect the sorption capacity of the tested carbons but does influence the uptake rate. The model proposed, based on mass balances, lead to interpret and compare the kinetic of different adsorbents in contrast to classical empirical models. The model is	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Process safety and environmental protection	10.1016/j.psep.2015.02.013

15551464	Profiling of oxygen in biofilms using individually addressable disk microelectrodes on a microfabricated needle	1/4/2015	Moya Lara, Ana;Guimera Villalba, Xavier;Del Campo, Francisco Javier;Prats-Alfonso, Elisabet;Dorado Castaño, Antonio David;Baeza Labat, Mireia;Villa, Rosa;Gabriel Buguña, David;Gamisans Noguera, Xavier;Gabriel Buguña, Gemma	A novel microelectrode array sensor was fabricated using MEMS technology on a needle, and then applied to real-time measurement of dissolved oxygen (DO) inside biofilms. The sensor consists of eleven gold disk microelectrodes and a rectangular auxiliary electrode along them and an external & internal reference electrode. Three kinds of sensors were designed and their responses were characterized and evaluated under various environmental conditions. The arrays exhibit a linear response to DO in the 0 - 8 mg L-1 concentration range in water, high sensitivity, repeatability, and low limits of detection (< 0.11 mg L-1) and quantification (0.38 mg L-1). The sensors were then validated against a commercial Clark-type microelectrode and applied to profiling of DO in a heterotrophic biofilm cultivated in a flat-plate bioreactor. It is shown that the sensor array can provide a multipoint, simultaneous snapshot profile of DO inside a biofilm with high spatial resolution due to its	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Microchimica acta	10.1007/s00604-014-1405-4
15429444	A novel mathematical approach for the understanding and optimization of two-phase partitioning bioreactors devoted to air pollution control	1/3/2015	Dorado Castaño, Antonio David;Dumont, Eric;Muñoz Torre, Raul;Quijano, Guillermo	Two-phase partitioning bioreactors (TPPBs) support the removal of volatile organic compounds (VOCs) from contaminated gaseous emissions at unprecedented rates and concentrations. TPPBs are biological multiphase systems provided with a non-aqueous phase (NAP) with high affinity for the target VOC. Although modeling of TPPBs is a research field that has rapidly evolved, recent experimental findings such as the direct VOC uptake from liquid NAPs and the quantification of simultaneous partial mass transfer coefficients have not been incorporated yet in a comprehensive mathematical description. In this work, a mathematical description of TPPBs, including continuous aqueous phase renewal and potential VOC uptake directly from the NAP, was developed. Model simulations indicated that TPPB performance can be enhanced by improving the partial mass transfer coefficient between the gas and the NAP (by increasing the contact between	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2014.11.014
15620832	Researches and applications on geostatistical simulation and laboratory modeling of mine ventilation network and gas drainage zone	1/3/2015	Zhang, Hao;Sanmiquel Pera, Lluis;Zhao, Yaojiang;Vintro Sanchez, Carla	The mine disaster of gas at working face and goaf creates a risky working environment for miners, and causes a mass of casualties in mining industry around the world. The key points of resolving the gas problem are to properly increase fresh air volume in ventilation network, exactly determining the gas emission zone, and implementing a reasonable gas drainage plan. This article provides multiple gas control methods with the aim of improving the gas drainage knowledge and techniques. Both of the CFD model and the mini mine gas emission zone based on U + L type ventilation network are established, and the gas distribution and movement rules of working face and goaf are accurately obtained during the numerical and laboratorial simulation experiments are performed. The results reveal that gas problems at working face and goaf cannot be effectively resolved by only increasing the air volume; instead, it must be combined with optimizing the ventilation	CTTC - Heat and Mass Transfer Technological Center	Process safety and environmental protection	10.1016/j.psep.2014.10.003
15578341	Superregenerative reception of narrowband FSK modulations	1/3/2015	Palà Schönwälder, Pere;Bonet Dalmau, Jordi;Lopez Riera, Alexis;Moncunill Geniz, Francisco Javier;del Águila López, Francisco;Giralt Mas, M. Rosa	In this paper we investigate the possibilities of narrowband FSK detection using a superregenerative (SR) receiver. Previous SR FM demodulation techniques rely on detecting the amplitude variations caused by the different frequencies involved in FSK modulation. However, this requires relatively high frequency deviations because the frequency response of SR receivers is not very selective. In this paper we take a different approach, exploiting the distinct phase trajectories of FSK modulations resulting from the transmitted data. The well-known fact that the SR oscillator response preserves the phase information of the received signal is successfully exploited to allow the detection of several FSK modulations. These include the special case of MSK, opening the way to applying the SR principle to several communication standards, such as IEEE 802.15.4. The key ideas for symbol synchronization are also presented. Experimental results on a 10 kbit/s proof-of-concept MSK	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2014.2382192

15259001	Investigating the kinetics of autotrophic denitrification with thiosulfate: modeling the denitritation mechanisms and the effect of the acclimation of SO-NR cultures to nitrite	15/2/2015	Mora Garrido, Mabel;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier;Gabriel Buguña, David	In this work the kinetics of a number of sulfide-oxidizing nitrate-reducing (SO-NR) cultures acclimated and not acclimated to nitrite were characterized. Anoxic respirometry coupled to kinetic modeling of respirometric profiles was the methodology used to study the two-step denitrification associated to thiosulfate oxidation. Autotrophic denitritation was initially studied in a non-acclimated SO-NR culture to confirm that nitrite reduction kinetics could be described through a Haldane-type equation. Afterwards, a kinetic model describing the two-step denitrification (NO3- -> NO2- -> N-2) was calibrated and validated through the estimation of several kinetic parameters from the fitting of experimental respirometric profiles obtained using either nitrate or nitrite as electron acceptors for both acclimated and non-acclimated biomass. The model proposed was a multi-substrate model that considered all the species implicated in the process as well as the stoichiometry	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2014.09.101
17738307	Erratum to: Modeling the effects of biomass accumulation on the performance of a biotrickling filter packed with PUF support for the alkaline biotreatment of dimethyl disulfide vapors in air	1/2/2015	Arellano García, Luis;Dorado Castaño, Antonio David;Morales Guadarrama, Axayacatl;Sacristan, Emilio;Gamisans Noguera, Xavier;Revah Moissev, Sergio	Erratum to the article entitled ?Modeling the effects of biomass accumulation on the performance of a biotrickling filter packed with PUF support for the alkaline biotreatment of dimethyl disulfide vapors in air?. Appl Microbiol Biotechnol (2015) 99:97?107. DOI 10.1007/s00253-014-5929-7 Excess biomass buildup in biotrickling filters leads to low performance. The effect of biomass accumulation in a biotrickling filter (BTF) packed with polyurethane foam (PUF) was assessed in terms of hydrodynamics and void space availability in a system treating dimethyl disulfide (DMDS) vapors with an alkalophilic consortium. A sample of colonized support from a BTF having been operating for over a year was analyzed and it was found that the BTF void bed fraction was reduced to almost half of that calculated initially without biomass. Liquid flow through the examined BTF yielded dispersion		Applied microbiology and biotechnology	10.1007/s00253-015-6424-5
14946253	Effect of different seasonal conditions on the potential of wetland soils for groundwater denitrification	23/1/2015	Ribas Fargas, David;Calderer Perich, Montserrat;Marti Gregorio, Vicenç;Rovira Boixaderas, Miquel	Wetlands, as active riparian areas in denitrification processes, are largely dependent on the environment. The main objective of this paper is to evaluate changes in the denitrification potential of wetland soils at laboratory scale promoted by climatic and seasonal influences. Several batch denitrification tests were performed with fresh wetland soil (peat) from Brynemade (Denmark) under: three different temperatures (20, 10, and 5 degrees C), drought period, and freeze-thaw event. Results show that nitrate was eliminated in all the experiments in percentages over 90%. However, not all the nitrate removed was reduced to nitrogen gas via the denitrification process; dissimilatory nitrate reduction to ammonium (DNRA) was also present. In fact, the percentage of total nitrogen eliminated at the end of the tests was: 79.7% at 20 degrees C, 84.1% at 10 degrees C, 82.9% at 5 degrees C, 41.0% in the dried soil, and 57.0% in the frozen soil. Thus, it can be	R2EM - Resource Recovery and Environmental Management	Desalination and water treatment	10.1080/19443994.2013.871344
17364208	EXPLORE: an action to bring science and technology closer to secondary school	1/1/2015	Torras Melenchon, Núria;Grau Vilalta, Maria Dolors;Font Soldevila, Jose;Freixas Bosch, Josep	This paper presents the experience of an initiative, the EXPLORE courses, designed to bring science and technology closer to secondary school. The EXPLORE courses, organised by ?EXPLORATORI: Natural Resources? project, are particularly addressed to secondary school teachers and are conducted at Catalonia (North East of Spain). The main objective is to provide secondary school teachers with the opportunity to explore the natural resources. Based on a combination of face-to-face and online learning, the programme of the courses uses an interdisciplinary approach, integrating Science, Technology, Engineering, and Mathematics (STEM) and STEAM (STEM + art) fields. Data presented in this paper correspond to the 2012 and 2013 editions. The results, which were obtained from a written questionnaire completed by teacher participants of EXPLORE courses, indicate that more than 70% of secondary school teachers were encouraged to introduce some course	EXPLORATORI - EXPLORATORI Natural Resources	Journal of technology and science education	10.3926/jotse.142

15429400	Modeling the effects of biomass accumulation on the performance of a biotrickling filter packed with PUF support for the alkaline biotreatment of dimethyl disulfide vapors in air	1/1/2015	Arellano García, Luis;Dorado Castaño, Antonio David;Morales Guadarrama, Axayacatl;Sacristan, Emilio;Gamisans Noguera, Xavier;Revah Moissev, Sergio	Excess biomass buildup in biotrickling filters leads to low performance. The effect of biomass accumulation in a biotrickling filter (BTF) packed with polyurethane foam (PUF) was assessed in terms of hydrodynamics and void space availability in a system treating dimethyl disulfide (DMDS) vapors with an alkalophilic consortium. A sample of colonized support from a BTF having been operating for over a year was analyzed and it was found that the BTF void bed fraction was reduced to almost half of that calculated initially without biomass. Liquid flow through the examined BTF yielded dispersion coefficient values of 0.30 and 0.72 m2 h-1, for clean or colonized PUF respectively. 3D images of attached biomass obtained with magnetic resonance imaging allowed to calculate the superficial area, the volume percentage and the biofilm depth as 650 m2 m-3, 35% and 0.6 mm respectively. A simplified geometric approximation of the complex PUF	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied microbiology and biotechnology	10.1007/s00253-014-5929-7
15402328	Biofilm dynamics characterization using a novel DO-MEA sensor: mass transport and biokinetics	1/1/2015	Guimera Villalba, Xavier;Moya Lara, Ana;Dorado Castaño, Antonio David;Villa, Rosa;Gabriel Buguña, David;Gabriel Buguña, Gemma;Gamisans Noguera, Xavier	Biodegradation process modeling is an essential tool for the optimization of biotechnologies related to gaseous pollutant treatment. In these technologies, the predominant role of biofilm, particularly under conditions of no mass transfer limitations, results in a need to determine what processes are occurring within the same. By measuring the interior of the biofilms, an increased knowledge of mass transport and biodegradation processes may be attained. This information is useful in order to develop more reliable models that take biofilm heterogeneity into account. In this study, a new methodology, based on a novel dissolved oxygen (DO) and mass transport microelectronic array (MEA) sensor, is presented in order to characterize a biofilm. Utilizing the MEA sensor, designed to obtain DO and diffusivity profiles with a single measurement, it was possible to obtain distributions of oxygen diffusivity and biokinetic parameters along a biofilm grown in a flat	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied microbiology and biotechnology	10.1007/s00253-014-5821-5
15402292	Conversion of chemical scrubbers to biotrickling filters for VOCs and H2S treatment at low contact times	1/1/2015	Santos, Alfredo;Guimera Villalba, Xavier;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier;Gabriel Buguña, David	The purpose of this work was to evaluate the technical and economical feasibility of converting three chemical scrubbers in series to biotrickling filters (BTFs) for the simultaneous removal of H2S and volatile organic compounds (VOCs). The conversion of the full-scale scrubbers was based on previous conversion protocols. Conversion mainly required replacing the original carrier material and recycle pumps as well as modifying the controls and operation of the reactors. Complete removal of H2S and VOCs on a routine basis was reached at neutral pH in a longer period of time compared to previous conversions reported. Biotrickling filters operated at a gas contact time of about 1.4 s per reactor and at pH controlled between 6.5 and 6.8. Inlet average concentrations below 10 ppmv of H2S and below 5 ppmv for VOCs were often completely removed. The first and second bioreactors played a primary role in H2S removal. Year-round operation of the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied microbiology and biotechnology	10.1007/s00253-014-5796-2
16615205	Basin evolution and stratigraphic correlation of sedimentary-exhalative Zn-Pb deposits of the Early Cambrian Zarigan-Chahmir Basin, Central Iran	1/1/2015	Rajabi, Abdorrahman;Canet Miquel, Carles;Rastad, Ebrahim;Alfonso Abella, María Pura	The Zarigan-Chahmir basin is placed in the southern part of a crustal domain known as the Central Iranian microcontinent, at the northwestern margin of Gondwana. This basin hosts abundant mineral deposits, particularly of the iron oxide-apatite (IOA), Fe-Mn exhalative, and Zn-Pb sedimentary-exhalative (SEDEX) types. The evolution of this basin is governed by the Proto-Tethys oceanic crust subduction beneath the Central Iranian microcontinent and by the resulting continental arc and back-arc. This evolution followed two major stages of rifting: (I) Stage I or syn-rift phase, related to intra-basin extension, is indicated by coarse-grained detrital sedimentary rocks and bimodal volcanism (basis of the Early Cambrian Volcano-Sedimentary Sequence; ECVSS), which filled half-graben systems. During this stage, tuff-hosted stratiform, exhalative Fe-Mn deposits along with Kiruna-type IOA deposits formed. The former deposits (e.g., Narigan) are related to early submarine	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2014.07.013

15070209	Combining ammonium mapping and short-wave infrared (SWIR) reflectance spectroscopy to constrain a model of hydrothermal alteration for the Acoculco geothermal zone, Eastern Mexico	1/1/2015	Canet Miquel, Carles;Hernández Cruz, Berenice;Jiménez Franco, Abigail;Peláez, Berenice;Pi Puig, Teresa;Villanueva Estrada, Ruth Esther;Alfonso Abella, María Pura;González Partida, Eduardo;Salinas, S.	The Acoculco geothermal system is hosted by a caldera complex located at the eastern portion of the Trans-Mexican Volcanic Belt. Surface manifestations are scarce and consist of low temperature, bubbling, acid?sulfate springs that are concentrated in two zones separated from each other by ~1750 m. In the northernmost one, there are conspicuous features suggesting recent, explosive, hydrothermal activity. Most of the rocks that crop out are tuffs and breccias that show pervasive hydrothermal alteration. Six SWIR-active minerals have been revealed by reflectance spectroscopy in the surface altered rocks: Opal, kaolinite, alunite, ammoniojarosite, buddingtonite and interstratified illite?smectite; they are indicative of alteration assemblages comparable to those reported in other geothermal systems and in epithermal deposits. Opal is the most widespread alteration mineral and occurs in association with tridimite and anatase. Kaolinite is also	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geothermics	10.1016/j.geothermics.2014.05.012
15446848	Kinetic and stoichiometric characterization of anoxic sulfide oxidation by SO-NR mixed cultures from anoxic biotrickling filters	1/1/2015	Mora Garrido, Mabel;Fernandez Boizán, Maikel;Gómez Montes de Oca, José Manuel;Cantero, Domingo;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David	Monitoring the biological activity in biotrickling filters is difficult since it implies estimating biomass concentration and its growth yield, which can hardly be measured in immobilized biomass systems. In this study, the characterization of a sulfide-oxidizing nitrate-reducing biomass obtained from an anoxic biotrickling filter was performed through the application of respirometric and titrimetric techniques. Previously, the biomass was maintained in a continuous stirred tank reactor under steady-state conditions resulting in a growth yield of 0.328 +/- 0.045 g VSS/g S. To properly assess biological activity in respirometric tests, abiotic assays were conducted to characterize the stripping of CO2 and sulfide. The global mass transfer coefficient for both processes was estimated. Subsequently, different respirometric tests were performed: (1) to solve the stoichiometry related to the autotrophic denitrification of sulfide using either nitrate or nitrite as	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied microbiology and biotechnology	10.1007/s00253-014-5688-5
15847044	Fault-controlled and stratabound dolostones in the Late Aptian-earliest Albian Benassal Formation (Maestrat Basin, E Spain): Petrology and geochemistry constrains	1/1/2015	Martín Martín, Juan Diego;Travé, Anna;Gómez Rivas, Enrique;Alfonso Abella, María Pura;Sizun, Jean Pierre;Vergés Masip, Jaume;Stafford, Sherry L.;Salas Roig, Ramon	Fault-controlled hydrothermal dolomitization of the Late Aptian to earliest Albian Benassal Fm shallow water carbonates resulted in the seismic-scale stratabound dolostone geobodies that characterize the Benicàssim case study (Maestrat Basin, E Spain). Petrological and geochemical data indicate that dolomite cement (DC1) filling intergranular porosity in grain-dominated facies constituted the initial stage of dolomitization. The bulk of the dolostone is formed by a replacive nonplanar-a to planar-s dolomite (RD1) crystal mosaic with very low porosity and characteristic retentive fabric. Neomorphic recrystallization of RD1 to form replacive dolomite RD2 occurred by successive dolomitizing fluid flow. The replacement sequence DC1-RD1-RD2 is characterized by a depletion in the oxygen isotopic composition (mean d18O(V-PDB) values from -6.92, to -8.55, to -9.86?), which is interpreted to result from progressively higher temperature fluids. Clear dolomite	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Marine and petroleum geology	10.1016/j.marpetgeo.2015.03.019
15533190	Resorcinol and m-guaiacol alkylated derivatives and asymmetrical secondary alcohols in the leaves from Tamarix canariensis	1/12/2014	Basas Jaumandreu, Josep;López Fernandez, Jordi;de las Heras Cisa, F. Xavier	In the study of leaves from the halotolerant saltcedar (Tamarix canariensis Willd.) we have found a new abundant source of resorcinolic as well as guaiacolic compounds. A homologous series of 5-n-alkylresorcinols with long side alkyl chain reported previously in the literature almost exclusively in cereals are described here for the first time in Tamaricaceae. These polyketide derived phenolic compounds are characterized by a series ranging from n-C15 to n-C27 and maximizing at n-C21 including non-negligible amounts of the even-numbered homologues. We also have characterized for the first time as natural compounds a homologous series of 5-n-alkylguaiacols similarly constituted by an odd-numbered alkyl chain linked to the benzene ring at position 5. They also include a hydroxyl group at carbon 1 of the phenolic nucleus and a methoxy group at position 3. The homologues are in the range of 13-27 carbon atoms (Cmax at C21). Finally, we firstly report in	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Phytochemistry Letters	10.1016/j.phytol.2014.10.009

15250929	Influence of occupational safety management on the incidence rate of occupational accidents in the Spanish industrial and ornamental stone mining	15/10/2014	Sanmiquel Pera, Lluis;Rossell Garriga, Josep Maria;Vintro Sanchez, Carla;Freijo Alvarez, Modesto	BACKGROUND: Mines are hazardous and workers can suffer many types of accidents caused by fire, flood, explosion or collapse. Injury incidence rates in mining are considerably higher than those registered by other economic sectors. One of the main reasons for this high-level incidence rate is the existence of a large number of dangerous workplaces. OBJECTIVE: This work analyzes the influence that occupational safety management had on the accidents that took place in Spanish mining of industrial and ornamental stone during the period 2007?2008. METHODS: Primary data sources are: (a) Results from a statistical study of the occupational health and safety management practices of 71 quarries defined by a questionnaire of 41 items; and (b) Occupational accidents registered in	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Work: a journal of prevention, assessment and rehabilitation	10.3233/WOR-141854
15342000	Human Health Risk Assessment of a landfill based on volatile organic compounds emission, immission and soil gas concentration measurements	1/10/2014	Marti Gregorio, Vicenç;Jubany Güell, Irene;Perez Cruz, Consol;Rubio, Xavier;Pablo Ribas, Joan de;Gimenez Izquierdo, Francisco Javier	A Human Health Risk Assessment (HHRA) was required for a closed landfill located in Cerdanyola del Valles (Barcelona, Spain). The FIHRA had two objectives, to evaluate the present risk of the identified receptors in the area and to safely develop the future urban planning of the area, therefore 3 scenarios for the current situation and 4 for the future situation were developed.; After reviewing the existing data and exploring the needs of information, the assessment in this study was focused on the measurement of volatile organic compounds (VOCs) fluxes from the subsoil (emission from the landfill at 5 points), concentrations of VOCs in the air (immission in 4 urban sites) and concentration of VOCs in soil-gas (measurements at 5 m below ground surface outside the landfill at 8 sites). Around 70 VOCs were analyzed by using multi-sorbent tubes and Thermal Desorption Gas Chromatography (TD-GC-MS). The VOCs that were detected and quantified	R2EM - Resource Recovery and Environmental Management	Applied geochemistry	10.1016/j.apgeochem.2014.06.018
15142825	Examining thiosulfate-driven autotrophic denitrification through respirometry	1/10/2014	Mora Garrido, Mabel;Guisasola, Albert;Gamisans Noguera, Xavier;Gabriel Buguña, David	Anoxic respirometry was applied to characterize a sulfide-oxidizing nitrate-reducing (SO-NR) culture obtained from an anoxic biogas desulfurizing biotrickling filter treating high loads of H2S. Immobilized biomass extracted from the biotrickling filter was grown in a suspended culture with thiosulfate as electron donor to obtain the biomass growth yield and the S2O32-/NO3- consumed ratio. Afterward, respirometry was applied to describe thiosulfate oxidation under anoxic conditions. A pure culture of Thiobacillus denitrificans was also used as a control culture in order to validate the procedure proposed in this work to characterize the SO-NR biomass. Respirometric profiles obtained with this microbial culture showed that nitrite was formed as intermediate during nitrate reduction and revealed that no competitive inhibition appeared when both electron acceptors were present in the medium. Although final bioreaction products depended on the initial S2O32-	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2014.03.083
15228968	Aerobic desulfurization of biogas by acidic biotrickling filtration in a randomly packed reactor	15/9/2014	Montebello, Andrea M.;Mora Garrido, Mabel;López de León, Luís Rafael;Bezerra, Tercia;Gamisans Noguera, Xavier;Lafuente Sancho, Francisco Javier;Baeza Labat, Mireia;Gabriel Buguña, David	Biotrickling filters for biogas desulfurization still must prove their stability and robustness in the long run under extreme conditions. Long-term desulfurization of high loads of H2S under acidic pH was studied in a lab-scale aerobic biotrickling filter packed with metallic Pall rings. Reference operating conditions at steady-state corresponded to an empty bed residence time (EBRT) of 130s, H2S loading rate of 52gS-H2Sm-3h-1 and pH 2.50-2.75. The EBRT reduction showed that the critical EBRT was 75s and the maximum EC 100gS-H2Sm-3h-1. Stepwise increases of the inlet H2S concentration up to 10,000ppmv lead to a maximum EC of 220gS-H2Sm-3h-1. The H2S removal profile along the filter bed indicated that the first third of the filter bed was responsible for 70-80% of the total H2S removal. The oxidation rate of solid sulfur accumulated inside the bioreactor during periodical H2S starvation episodes was verified under acidic operating conditions. The performance	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of hazardous materials	10.1016/j.jhazmat.2014.07.075

14946241	Effects of enhanced denitrification on hydrodynamics and microbial community structure in a soil column system	1/9/2014	Calderer, Montserrat;Marti Gregorio, Vicenç;Pablo Ribas, Joan de;Guivernau Ribalta, Miriam;Prenafeta Boldú, Francesc Xavier;Viñas Canals, Marc	Enhanced heterotrophic denitrification by adding glucose was investigated by means of a soil column experiment which simulated the groundwater flow. The carbon-to-nitrogen ratio was the main factor determining denitrification potential under experimental conditions. The influence of stimulated denitrification on the autochthonous microbial community was investigated by quantitative PCR (qPCR), and denaturing gradient gel electrophoresis (DGGE). The qPCR detection of the nosZ genes encoding nitrous oxide reductase, and the comparison of the abundances of 16S rRNA genes revealed that the addition of glucose enhanced denitrification leading to an increase in both the total eubacteria and, in particular, in the ratio of denitrifying bacteria, which represented the 21% of the total native eubacteria on the basis of nosZ/16S rRNA gene ratio. Microbial community profiling by DGGE indicated that ribotypes closely related to the genera	R2EM - Resource Recovery and Environmental Management	Chemosphere	10.1016/j.chemosphere.2014.03.033
15643446	Determination of the friction factors in potash mines	1/9/2014	Bascompta Massanes, Marc;Sanmiquel Pera, Lluis;Oliva Moncunill, Josep	The friction factor is an essential parameter to take into account for modelling the ventilation system. One of the principal features that define the friction factor is the roughness, which not only does it have influence on the airway resistance, but it has also a direct bearing on the rate of heat transfer between the rock and the airstream. In this paper, the characteristic friction factors of a potash mine exploited using a room and pillar method has been determined by means of the Chezy-Darcy and Atkinson equations. The results give an impulse to achieve standardized friction factor values in potash mines very useful for future mining ventilation surveys. The friction factor is an essential parameter to take into account for modelling the ventilation system. One of the principal features that define the friction factor is the roughness, which not only does it have influence on the airway resistance, but it has also a direct bearing on the rate of heat	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of mining science	10.1134/S1062739114050159
15075739	Coupling respirometry and titrimetry for the characterization of the biological activity of a SO-NR consortium	1/9/2014	Mora Garrido, Mabel;López de León, Luís Rafael;Gamisans Noguera, Xavier;Gabriel Buguña, David	Determining growth rates and kinetic mechanisms of microbial consortia often needs of combining several tests and techniques. The present work demonstrates that combining titrimetric and respirometric data obtained in a single batch test allows obtaining the stoichiometric coefficients, biomass-substrate yields and biological oxidation rates for sulfide-oxidizing nitrate-reducing consortia obtained from an anoxic biotrickling filter for biogas desulfurization. Thiosulfate oxidation using either nitrate or nitrite was quantified as well as the biological production of proton linked to the process to solve the stoichiometry of the two-step autotrophic denitrification associated to thiosulfate oxidation. To obtain accurate titrimetric data related to the biological activity, carbon dioxide stripping was modeled to improve the sensitivity of titrimetric measurements and also to ensure no carbon source limitation during respirometric tests.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2014.04.024
15072877	Occupational injuries in the mining sector (2000-2010). Comparison with the construction sector	27/8/2014	Felipe Blanch, Jose Juan de;Freijo Alvarez, Modesto;Alfonso Abella, María Pura;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla	This paper compares the incidence of fatal and non-fatal occupational injuries of workers in the mining and construction sectors in Spain between 2000 and 2010. Data on work injuries were obtained from the Spanish Ministry of Labour and Immigration and the denominators were obtained from the available statistics on Social Security registration. We calculated the incidence of fatal and nonfatal occupational injuries, the relative risk (RR) and odds ratio (OR) for a 95% of confidence interval (CI) for the mining Workers compared to the construction workers. The obtained results indicate that mining workers have a higher risk of occupational injuries and lost more working days than the construction workers. This paper compares the incidence of fatal and non-fatal occupational injuries of workers in the mining and construction sectors in Spain between 2000 and 2010. Data on work injuries were obtained from the Spanish Ministry of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Dyna (Medellín)	10.15446/dyna.v81n186.39771

14946270	Water-air volatilization factors to determine volatile organic compound (VOC) reference levels in water	11/6/2014	Marti Gregorio, Vicenç;Pablo Ribas, Joan de;Jubany, Irene;Rovira Boixaderas, Miquel;Orejudo, Emili	The goal of this work is the modeling and calculation of volatilization factors (VFs) from water to air for volatile organic compounds (VOCs) in order to perform human health risk - base d reference levels (RLs) for the safe use of water. The VF models have been developed starting from the	R2EM - Resource Recovery and Environmental Management	Toxics	
14900494	Comparison of the occupational hazards in the Spanish mining sector based on the type of worplace in the period 2003-2012	22/5/2014	Sanmiquel Pera, Lluis;Freijo Alvarez, Modesto;Rossell Garriga, Josep Maria;Bascompta Massanes, Marc		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Archivos de prevención de riesgos laborales	
14900486	Workplace accidents in mining of Catalonia in 2012	22/5/2014	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla		LRG - Lightning Research Group	Archivos de prevención de riesgos laborales	
13699140	The role of cassiterite controlling arsenic mobility in an abandoned stanniferous tailings impoundment at Llallagua, Bolivia	15/5/2014	Martin Romero, Francisco;Canet Miquel, Carles;Alfonso Abella, María Pura;Zambrana Martínez, Rubén Néstor;Soto, Nayelli	The surface water contamination by potentially toxic elements (PTE) leached from mine tailings is a major environmental concern. However, the formation of insoluble solid phases can control the mobility of PTE, with subsequent decrease of the risk that tailings suppose to the environment. We characterized the tailings from a tin inactive mine in Llallagua, Bolivia in order to assess the risk for surface water quality. These tailings contain high concentrations of PTE, with up to 94,344 mg/kg Fe, 9135 mg/kg Sn, 4606 mg/kg As, 1362 mg/kg Cu, 1220 mg/kg Zn, 955 mg/kg Pb and 151 mg/kg Cd. Oxidation of sulfide minerals in these tailings generates acid leachates (pH = 2.5?3.5), rich in SO42 - and dissolved PTE, thereby releasing contaminants to the surface waters. Nevertheless, the concentrations of dissolved Sn, As and Pb in acid leachates are low (Sn < 0.01 mg/L; As = 0.25?2.55 mg/L; Pb < 0.05 mg/L). This indicates that, for the most part, Sn, As and Pb are being retained	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Science of the total environment	10.1016/j.scitotenv.2014.02.002

14737779	Biotrickling filters for biogas sweetening: Oxygen transfer improvement for a reliable operation	1/5/2014	Mary Rodriguez, Ginesta;Dorado Castaño, Antonio David;Fortuny Picornell, Marc;Gabriel Buguña, David;Gamisans Noguera, Xavier	An industrial-scale biotrickling filter for the removal of high concentrations of H2S is described in this work. The system has been operating at H2S inlet concentrations between 1000 and 3000 ppmv at acidic conditions. A decrease of pH from 2.6 to 1.8 did not affect the biological activity inside the biofilter while reducing the water make-up consumption up to 75%. The current oxygen supply system, based on direct injection of air to the liquid phase, has demonstrated to be inefficient for a long-term operation leading to elemental sulfur accumulation in the packing material (i.e. promoting clogging episodes). The present study demonstrates it is possible to partially remove (40.3%) the deposited elemental sulfur by bio-oxidation when biogas is not fed. In normal operation conditions, the implementation of an aeration system based on jet-venturi devices has shown quite promising results in terms of oxygen transfer efficiency and robustness. Such improvement of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Process safety and environmental protection	10.1016/j.psep.2013.02.002
15115227	Extreme F activities in late pegmatitic events as a key factor for LILE and HFSE enrichment: the Angel Pegmatite, Central Argentina	1/4/2014	Demartis, Manuel;Melgarejo Draper, Joan Carles;Colombo, Fernando;Alfonso Abella, María Pura;Coniglio, Jorge Enrique;Pinotti, Lucio Pedro;D'Eramo, Fernando Javier	The Angel pegmatite forms part of the Comechingones pegmatitic field, in central Argentina, which is made up of pegmatites characterized by low to intermediate degrees of fractionation, classified as beryl-columbite-phosphate subtype pegmatites. These pegmatites are syntectonic with a regional shear zone. The Angel pegmatite contains associations with quartz, microcline, plagioclase, a first generation of muscovite (Muscovite I), beryl, members of the columbite group, triplite, and montebrasite. This association is locally affected by two stages of replacement. The first replacement stage is characterized by early albitization, followed by the development of associations of cleavelandite, quartz, Fe-rich elbaite (elbaite I), a second generation of muscovite (muscovite II), topaz, lacrobdte, fluorapatite, pollucite, columbite-(Mn), and Hf-rich zircon. Muscovite II replaces montebrasite and muscovite I, and is characterized by slight enrichments in F,	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Canadian mineralogist	10.3749/canmin.52.2.247
13861732	The Catanda extrusive carbonatites (Kwanza Sul, Angola): an example of explosive carbonatitic volcanism	1/4/2014	Campeny Grego, Marc;Mangas, José;Melgarejo Draper, Joan Carles;Bambi, Aurora Cuaiela João Mateus;Alfonso Abella, María Pura;Gernon, Thomas;Manuel, José	Carbonatitic lavas and pyroclastic rocks are exposed in the volcanic area of Catanda representing the only example of extrusive carbonatites in Angola. A new detailed geological map of the area is presented in this study as well as six different stratigraphic sections formed by carbonatitic pyroclastic rocks and lava flows. Carbonatitic lavas outcrop in the SE part of the Catanda area, forming massive layers interbedded within pyroclastic materials. At least 4 different types of carbonatitic lavas have been distinguished considering its mineral association and textural features. Calcite is the most common mineral in the lavas but other accessory minerals such as fluorapatite, magnetite, phlogopite, pyrochlore, baddeleyite, monticellite, perovskite, cuspidine or periclase has been also identified. Pyroclastic rocks form extensive layers ranging in thickness from several centimetres to several metres. They are basically lapilli tuffs occasionally comprising pelletal lapilli	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Bulletin of volcanology	10.1007/s00445-014-0818-6
14143287	Unlocking higher harmonics in atomic force microscopy with gentle interactions	11/3/2014	Santos Hernandez, Sergio;Barcons Xixons, Victor;Font Teixido, Jose;Verdaguer Prats, Albert	In dynamic atomic force microscopy, nanoscale properties are encoded in the higher harmonics. Nevertheless, when gentle interactions and minimal invasiveness are required, these harmonics are typically undetectable. Here, we propose to externally drive an arbitrary number of exact higher harmonics above the noise level. In this way, multiple contrast channels that are sensitive to compositional variations are made accessible. Numerical integration of the equation of motion shows that the external introduction of exact harmonic frequencies does not compromise the fundamental frequency. Thermal fluctuations are also considered within the detection bandwidth of interest and discussed in terms of higher-harmonic phase contrast in the presence and absence of an external excitation of higher harmonics. Higher harmonic phase shifts further provide the means to directly decouple the true topography from that induced by compositional	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Beilstein Journal of Nanotechnology	10.3762/bjnano.5.29

13028329	Cr(III) removal from aqueous solutions: a straaightforward model approaching of the adsorption in a fixed-bed column	7/2/2014	Dorado Castaño, Antonio David;Gamisans Noguera, Xavier;Valderrama Angel, Cesar Alberto;Sole Sardans, M. Montserrat;Lao Luque, Concepcion	Prediction of breakthrough curves for continuous sorption characterization is generally performed by means of simple and simplified equations. These expressions hardly have any physical meaning and, also do not allow extrapolation. A novel and simple approach, based on unsteady state mass balances, is presented herein for the simulation of the adsorption of Cr(III) ions from aqueous onto a low-cost adsorbent (leonardite). The proposed model overcomes the limitations of the commonly used analytical solution-based models without the need for complex mathematical methods. A set of experimental breakthrough curves obtained from lab-scale, fixed-bed columns was used to calibrate and validate the proposed model with a minimum number of parameters to be adjusted. Prediction of breakthrough curves for continuous sorption characterization is generally performed by means of simple and simplified equations. These	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of environmental science and health. Part A, Toxic/hazardous substances & environmental engineering	10.1080/10934529.2013.838855
13028389	Inventory and treatment of compost maturation emissions in a municipal solid waste treatment facility	1/2/2014	Dorado Castaño, Antonio David;Husni, Shakik;Pascual, Guillem;Puigdellivol, Carles;Gabriel Buguña, David	Emissions of volatile organic compounds (VOCs) from the compost maturation building in a municipal solid waste treatment facility were inventoried by solid phase microextraction and gas chromatography?mass spectrometry. A large diversity of chemical classes and compounds were found. The highest concentrations were found for n-butanol, methyl ethyl ketone and limonene (ppmv level). Also, a range of compounds exceeded their odor threshold evidencing that treatment was needed. Performance of a chemical scrubber followed by two parallel biofilters packed with an advanced packing material and treating an average airflow of 99,300 m3 h-1 was assessed in the treatment of the VOCs inventoried. Performance of the odor abatement system was evaluated in terms of removal efficiency by comparing inlet and outlet abundances. Outlet concentrations of selected VOCs permitted to identify critical odorants emitted to the atmosphere. In	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Waste management (Elmsford)	10.1016/j.wasman.2013.10.044
15301001	Environmental sustainability in the mining sector: evidence from Catalan companies	8/1/2014	Vintro Sanchez, Carla;Sanmiquel Pera, Lluis;Freijo Alvarez, Modesto	This paper examines the adoption of environmental practices in small and medium sized companies inthe surface mining industry in Catalonia (Spain). To fulfill this aim, a survey of 41 items concernint environmental management systems and environmentally sustainable practices has been conducted. Results show that companies have committed themselves to environmental and sustainable issues. The majority of companies claim to understand the effects of their activities on the environment and they care for responsible access and management of natural resources. Restoration plans and the annual waste declaration are mandatory in Catalonia, and rational resources exploitation practices have been adopted by a high percentage of mines. Finally, some examples of good environmentally sustainable practices are introduced.	OPE-PROTHIUS - Production and Business Management	Journal of cleaner production	10.1016/j.jclepro.2013.12.069
15202553	Biofilm oxygen profiling using an array of microelectrodes on a microfabricated needle	1/1/2014	Moya Lara, Ana;Guimera Villalba, Xavier;del Campo, F.J.;Prats-Alfonso, Elisabet;Dorado Castaño, Antonio David;Baeza Labat, Mireia;Villa, Rosa;Gabriel Buguña, David;Gamisans Noguera, Xavier;Gabriel Buguña, Gemma	A novel microelectrode array (DO-MEA) sensor was designed and fabricated using microelectromechanical systems technology on a needle for real time measurement of dissolved oxygen (DO). The sensor consisted of eleven gold disk microelectrodes and a rectangular auxiliary electrode along them. The sensor can also be operated with an integrated reference system. Three different sensor designs were fabricated, and their responses were fully characterized and evaluated. The DO-MEA sensor presented a linear response in the 0-8 mg DO·L-1 concentration range in water, displaying high sensitivity and repeatability. Knowledge of bacterial activity inside biofilms is key to the optimization of applied biotechnologies. The developed sensor was validated against a commercial Clark-type microelectrode overcoming its drawbacks, by profiling a heterotrophic biofilm cultivated in a flat-plate bioreactor. The DO-MEA sensor provided a multipoint, simultaneous	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Procedia engineering	10.1016/j.proeng.2014.11.654

16886420	An innovative process for groundwater green remediation by a circular air flow: on site applications, setup at bench scale and software simulation	1/1/2014	Jubany Güell, Irene;Calderer, Montserrat;Riera Colom, Maria Dolores;Marti Gregorio, Vicenç	SmartStripping is an innovative on-site process for green remediation that reduces concentrations of volatile and semi-volatile organic compounds (VOC, sVOC) from unsaturated soils and groundwater. It differs from other technologies as it generates a 'closed circular air flow? in the underground that reduces contaminants concentrations, cutting out environmental impacts, as it doesn?t need groundwater extraction, water discharge, gas emissions or introduction of chemicals.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Procedia Environmental Science, Engineering and Management	
15070090	A compilation of field surveys on gaseous elemental mercury (GEM) from contrasting environmental settings in Europe, South America, South Africa and China: separating fads from facts	1/1/2014	Higueras Higueras, Pablo León;Oyarzun, Roberto;Kotnik, Joze;Esbri, José Maria;Martínez Coronado, Alba;Horvat, Milena;López Berdonces, Miguel Angel;Llanos Lazcano, Willians;Vaselli, Orlando;Nisi, Barbara;Mashyanov, Nikolay;Ryzov, Vladimir;Spiric, Zdravko;Panichev, Nikolay;McCrindle, Rob;Feng, Xinbin;Fu, Xuewu;Lillo, Javier;Loredo, Jorge;García, María Eugenia;Alfonso Abella, María Pura;Villegas Flores, Karla Stephanie;Palacios Ubach,	Mercury is transported globally in the atmosphere mostly in gaseous elemental form (GEM, Hggas 0), but still few worldwide studies taking into account different and contrasted environmental settings are available in a single publication. This work presents and discusses data from Argentina, Bolivia, Bosnia and Herzegovina, Brazil, Chile, China, Croatia, Finland, Italy, Russia, South Africa, Spain, Slovenia and Venezuela. We classified the information in four groups: (1) mining districts where this contaminant poses or has posed a risk for human populations and/or ecosystems; (2) cities, where the concentration of atmospheric mercury could be higher than normal due to the burning of fossil fuels and industrial activities; (3) areas with natural emissions from volcanoes; and (4) pristine areas where no anthropogenic influence was apparent. All the surveys were performed using portable LUMEX RA-915 series atomic absorption spectrometers. The results	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental geochemistry and health	10.1007/s10653-013-9591-2
15075466	Applied research of u-shape ventilation network in underground mine. Badania stoswane sicie wentylacyjej w ksztalcie,, u'' w kopalni podziemmej	1/1/2014	Zhang, Haoran;Sanmiquel Pera, Lluis;Vintro Sanchez, Carla;Yaojiang, Zhao	For the purpose of fully and systematically observe, research and optimize the U-sharp ventilation system in Vilafruns mine, a simulation model based on the principles of geometric, kinematic and dynamic similarity is stablished in the simulation laboratory. By simulating a U-shape ventilation network, the air volume distribution and wind velocity in different sections of the model were measured and compared with practical data obtained in Vilafruns mine. Results show that the lowest wind velocity in the models is higher than 0,42 m/s, thus it is in a turbulent flow state, which satisfies the kinematical and dynamic similarity principles. The characteristic of air volume distribution and wind velocity in Vilafruns mine are basically simulated by the experimental model through the obtained data and figures, which reflects the establishment of the model is correct and successful, and the experimental data is accurate and reliable. Moreover, this model provides useful	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Archives of Mining Sciences	
13365359	A superregenerative QPSK receiver	1/1/2014	Palà Schönwälder, Pere;Bonet Dalmau, Jordi;Moncunill Geniz, Francisco Javier;del Águila López, Francisco;Giralt Mas, M. Rosa	In this paper we present a description and experimental verification of a superregenerative receiver (SR) for QPSK signals. Exploiting the fact that a conventional SR generates pulses which preserve the input phase information, we take N 1-bit samples of each generated pulse. A suitable choice of the sampling frequency gives as a result a bit vector containing a sub-sampled version of each PSK pulse. Extremely simple digital processing of the vectors from two consecutive pulses allows symbol decision, together with information on signal quality and frequency displacements. Although presented for the QPSK case, the principle may be applied to the M-PSK case with obvious changes. Experimental results on a 20 kbit/s proof-of concept receiver in the 27 MHz band, achieving a sensitivity of-103 dBm, with an FPGA-based implementation of the digital part, validate the proposed approach.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2013.2268313

12905596	Paleozoic bedded barite deposits from Sonora (NW Mexico): evidence for a hydrocarbon seep environment of formation	1/1/2014	Canet Miquel, Carles;Anadón Monzón, Pere;González Partida, Eduardo;Alfonso Abella, María Pura;Rajabi, Abdorrahman;Pérez Segura, Efrén;Alba Aldave, Leticia A.	The Mazatán barite deposits, Sonora, NW Mexico, represent an outstanding example of Paleozoic bedded barite, a poorly understood type of mineral deposit of major economic interest. The deposits of this type commonly occur hosted by shales and are characterized by the lack of base-metal sulfide mineralization, in contrast to classic sedimentary-exhalative (or SEDEX) deposits. A throughout study of the Mazatán barite deposits, based on petrography, fluid inclusions analyses and isotope geochemistry, confirmed the link between bedded barite and fossil hydrocarbon seeps, thereby leaving hydrothermal vent-related processes ruled out. Hence, modern cold seeps in continental margins would account for the geological setting and genetic aspects of this type of deposit. The Mazatán barite deposits, Sonora, NW Mexico, represent an outstanding example of Paleozoic bedded barite, a poorly understood type of mineral	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2013.06.009
13608018	Life cycle and human health risk assessments as tools for decision making in the design and implementation of nanofiltration in drinking water treatment plants	1/1/2014	Ribera, G;Clarens Blanco, Frederic;Martínez Lladó, Xavier;Jubany Güell, Irene;Marti Gregorio, Vicenç;Rovira Boixaderas, Miquel	A combined methodology using life cycle assessment (LCA) and human health risk assessment (HHR) is proposed in order to select the percentage of water in drinking water treatment plants (DWTP) that should be nanofiltered (NF). The methodological approach presented here takes into account environmental and social benefit criteria evaluating the implementation of new processes into conventional ones. The inclusion of NF process improves drinking water quality, reduces HHR but, in turn, increases environmental impacts as a result of energy and material demand. Results from this study lead to balance the increase of the impact in various environmental categories with the reduction in human health risk as a consequence of the respective drinking water production and consumption. From an environmental point of view, the inclusion of NF and recommended pre-treatments to produce 43% of the final drinking water means that the	R2EM - Resource Recovery and Environmental Management	Science of the total environment	10.1016/j.scitotenv.2013.06.085
12441640	Characterization of chromium (III) removal from aqueous solutions by an immature coal (leonardite). Toward a better understanding of the phenomena involved	1/1/2014	Lao Luque, Concepcion;Sole Sardans, M. Montserrat;Gamisans Noguera, Xavier;Valderrama Angel, Cesar Alberto;Dorado Castaño, Antonio David	Removal of chromium (III) from aqueous solutions by leonardite (a low-cost adsorbent) was studied in a series of batch experiments. Stabilization of the adsorbent material with alginate beads was also investigated. The extent of adsorption was evaluated as a function of the solution pH, contact time, and the adsorbate concentration. Cr(III) removal was pH dependent, reaching a maximum at a pH range of 4?5. Kinetic studies allowed gives relevant information regarding mass transfer processes involved during the sorption process. Equilibrium data fitted well to both the Langmuir and Freundlich isotherm models and the maximum adsorption capacity turned out to be 75.2 mg Cr(III) g-1. Encapsulation of leonardite in alginate beads resulted in a slightly lower adsorption capacity. This is a post-peer-review, pre-copyedit version of an article published in Clean technologies and environmental policyB. The final authenticated	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Clean technologies and environmental policy	10.1007/s10098-013-0610-x
12918547	Ecological screening indicators of stress and risk for the Llobregat river water	15/12/2013	López Roldán, Ramón;Jubany Güell, Irene;Marti Gregorio, Vicenç;Gonzalez Blanco, Susana;Cortina Pallas, Jose Luis	The objective of this article is to develop and apply several simple and rough indicators for river aquatic ecosystems assessment in order to screen potential chemical stressors. Several indicators, based on toxicity (PNEC) and on legislation levels (EQS) have been developed. All these indicators are ratios that were calculated by using public and private data of concentrations of a large list of compounds during a period of five years, including metals and organic compounds in the lower part of the Llobregat river basin at the intake of the drinking water treatment plant. Additionally, new campaigns were executed for increasing the information available on the presence of compounds not routinely analyzed, such as some other pesticides and pharmaceuticals. In the case of inorganic pollutants, the indicators obtained in this river section showed significant risk especially for zinc, but also for copper, nickel and barium. For organic pollutants, the pesticides	R2EM - Resource Recovery and Environmental Management	Journal of hazardous materials	10.1016/j.jhazmat.2013.07.008

12898438	Single cycle and transient force measurements in dynamic atomic force microscopy	21/11/2013	Gadelrab, Karim Raafat;Santos Hernandez, Sergio;Font Teixido, Jose;Chiesa, Matteo	The monitoring of the deflection of a micro-cantilever, as the end of a sharp probe mounted at its end, i.e. the tip, interacts with a surface, forms the foundation of atomic force microscopy AFM. In a nutshell, developments in the field are driven by the requirement of obtaining ever increasing throughput and sensitivity, and enhancing the versatility of the instrument to simultaneously map the topography and quantify nanoscale processes and properties. In the most common dynamic mode of operation, the motion of the driven cantilever is monitored at a single point on its longitudinal axis. Here, we show that from this single point a waveform is obtained that contains all the details about conservative and dissipative interactions. Then a formalism that accounts for multiple arbitrary flexural modes is developed for an indirectly driven cantilever. The formalism is shown to allow recovery of the details of the interaction even in the presence of complex and relevant	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Nanoscale	10.1039/c3nr03338d
12825504	Operational aspects, pH transition and microbial shifts of a H2S desulfurizing biotrickling filter with random packing material	1/10/2013	Montebello, Andrea M.;Bezerra, Tercia;Rovira, Roger;Rago, Laura;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Campoy, Susana;Baeza Labat, Mireia;Gabriel Buguña, David	Pall rings, a common random packing material, were used in the biotrickling filtration of biogas with high H2S. Assessment of 600 d of operation covered the reactor start-up, the operation at neutral pH and the transition from neutral to acid pH. During the start-up period, operational parameters such as the aeration rate and the trickling liquid velocity were optimized. During the steady-state operation at neutral pH, the performance of the random packing material was investigated by reducing the gas contact time at both constant and increasing H2S loads. The random packing material showed similar elimination capacities and removal efficiencies in comparison with previous studies with a structured packing material, indicating that Pall rings are suitable for biogas desulfurization in biotrickling filters. The diversity of Eubacteria and the structure of the community were investigated before and after the pH transition using the bacterial tag-encoded FLX amplicon	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2013.08.052
12796851	Single-cycle atomic force microscope force reconstruction: Resolving time-dependent interactions	1/8/2013	Santos Hernandez, Sergio;Gadelrab, Karim Raafat;Font Teixido, Jose;Chiesa, Matteo	Here, we enhance the capabilities of the atomic force microscope (AFM) to show that force profiles can be reconstructed without restriction by monitoring the wave profile of the cantilever during a single oscillation cycle. Two approaches are provided to reconstruct the force profile in both the steady and transient states in what we call single-cycle measurements. The robustness of the formalism is tested numerically to recover complex but relevant interactions. With single-cycle measurements, we add high temporal resolution (possibly microsecond range) to the spatial resolution of AFM. The access to simultaneous high throughput and high sensitivity further opens the door to a variety of feedback options for imaging. Here, we enhance the capabilities of the atomic force microscope (AFM) to show that force profiles can be reconstructed without restriction by monitoring the wave profile of the cantilever during a single oscillation cycle.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	New journal of physics	10.1088/1367-2630/15/8/083034
13709504	A low in-band radiation superregenerative oscillator	27/5/2013	Palà Schönwälder, Pere;Bonet Dalmau, Jordi;Moncunill Geniz, Francisco Javier;del Águila López, Francisco;Giralt Mas, M. Rosa	This brief describes a superregenerative (SR) voltage-controlled oscillator as a building block for SR receivers where most of the oscillator spectrum components are outside the reception frequency band. This allows overcoming one of the main drawbacks of SR receivers, i.e., the potential interference to nearby receivers operating at the same frequency due to oscillator reradiation. We perform a qualitative analysis of the solution of the circuit equations, describe the most relevant parameters for design, and provide some numerical simulation results. Experimental results on a proof-of-concept implementation validating the described principle and a discussion of the observed behavior are provided. This brief describes a superregenerative (SR) voltage-controlled oscillator as a building block for SR receivers where most of the oscillator spectrum components are outside the reception frequency band. This allows	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems II: express briefs	10.1109/TCSII.2013.2258254

12673216	Uranium speciation studies at alkaline pH and in the presence of hydrogen peroxide using time-resolved laser-induced fluorescence spectroscopy	1/5/2013	Martinez Torrents, Albert;Meca, Sandra;Baumann, Nils;Marti Gregorio, Vicenç;Gimenez Izquierdo, Francisco Javier;Pablo Ribas, Joan de;Casas Pons, Ignasi	Time-resolved laser-induced fluorescence spectroscopy (TRLFS) was used to study the speciation of uranium(VI) at very alkaline pH (11-13), at room temperature and in the absence of CO2. In this case, at pH = 11, two different fluorescence lifetimes appeared, which were attributed to the species UO2(OH)(3)(-) and (UO2)(3)(OH)(7)(-). At pH = 13, no fluorescence was detected, indicating that the predominant species, UO2(OH)(4)(2-), is not fluorescent. At pH = 12, the lifetime obtained is attributed to the predominant species UO2(OH)(3). Because of the absence of fluorescence of the UO2(OH)(4)(2-) species at room temperature, measurements at 10 K were made, obtaining two different lifetimes in the pH range between 12 and 13.5, indicating the presence of two different species: UO2(OH)(3)(-) and UO2(OH)(4)(2-). The	R2EM - Resource Recovery and Environmental Management	Polyhedron	10.1016/j.poly.2013.02.075
13065862	Olianatrivia riberai n. gen., n. sp. (Mollusca, Caenogastropoda), une Ovulidae singulière du Bartonien (Éocène moyen) de Catalogne (Espagne)	1/1/2013	Dolin, Luc;Biosca Munts, Jose;Parcerisa Duocastella, David	Shells of an Ovulidae species with unusual morphological features have been collected in the axial part of the Oliana anticline, Catalonia: Olianatrivia riberai n. gen., n. sp. (Mollusca, Caenogastropoda) whose shape and ornamentation remind some Triviinae. According to the chronostratigraphy of the South-Pyrenean basin, it belongs to a subrecifal facies, reworked by storm dynamics, of a Late Bartonian age (Middle Eocene). It is proposed to place O. riberai n. gen., n. sp. within the Pediculariinae, a subfamily of Ovulidae (Cypraeoidea), close to Cypropterina ceciliae (De Gregorio, 1880) from the Veronese Early Lutetian. Les coquilles d?une espèce d?Ovulidae aux caractères totalement inhabituals ont été récoltés dans la partie axiale de l?anticlinal d?Oliana, en Catalogne: Olianatrivia riberai n. gen., n. sp. (Mollusca, Caenogastropoda), dont la formeet l?ornementation rappellent certaines Triviinae. En accord avec les	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geodiversitas	10.5252/g2013n4a3
12775730	Stability, resolution, and ultra-low wear amplitude modulation atomic force microscopy of DNA: small amplitude small set-point imaging	1/1/2013	Santos Hernandez, Sergio;Barcons Xixons, Victor;Christenson, Hugo K.;Billingsley, Daniel J.;Bonass, William A.;Font Teixido, Jose;Thomson, Neil H.	A way to operate fundamental mode amplitude modulation atomic force microscopy is introduced which optimizes stability and resolution for a given tip size and shows negligible tip wear over extended time periods (~24¿h). In small amplitude small set-point (SASS) imaging, the cantilever oscillates with sub-nanometer amplitudes in the proximity of the sample, without the requirement of using large drive forces, as the dynamics smoothly lead the tip to the surface through the water layer. SASS is demonstrated on single molecules of double-stranded DNA in ambient conditions where sharp silicon tips (R¿~¿2?5¿nm) can resolve the right-handed double helix. A way to operate fundamental mode amplitude modulation atomic force microscopy is introduced which optimizes stability and resolution for a given tip size and shows negligible tip	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied physics letters	10.1063/1.4817906
12718187	Obtención de vidrio a partir de residuos de la minería del estaño en Bolivia	1/1/2013	Arancibia Balderrama, Jhony Roger Hanz;Alfonso Abella, María Pura;García-Vallès, Maite;Martínez Manent, Salvador;Parcerisa Duocastella, David;Canet Miquel, Carles;Martin Romero, Francisco	Los residuos generados por las actividades mineras en Bolivia representan graves problemas de contaminación ambiental. En las proximidades de las minas de estaño de Llallagua, en el Departamento de Potosí, existen escombreras y colas de grandes dimensiones. Para el presente trabajo se ha estudiado la utilización de estos residuos como materias primas para la fabricación de vidrio. Con ello se pretende contribuir a la remediación ambiental, ofreciendo con la vitrificación una alternativa para la estabilización de residuos potencialmente peligrosos. Además, la comercialización del producto obtenido podría proporcionar un beneficio económico adicional de la actividad minera. En este estudio se han utilizado tres muestras de residuos con granulometría entre arena y limo. Su composición química, determinada por fluorescencia de rayos X, es granítica, con un elevado contenido en metales pesados. Sobre la base de su	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Cerámica y Vidrio	10.3989/cyv.192013

11910697	Gas-seep related carbonate and barite authigenic mineralization in the northern Gulf of California	1/1/2013	Canet Miquel, Carles;Anadón Monzón, Pere;Alfonso Abella, María Pura;Prol Ledesma, Rosa Maria;Villanueva Estrada, Ruth Esther;García-Vallès, Maite	Authigenic barite and carbonates (dolomite, high-Mg calcite and aragonite) have been recovered from active gas seep sites of the pull-apart Consag and Wagner basins, the northernmost and shallowest (~225 m deep) active basins in the Gulf of California. This gulf encompasses a transform?spreading ridge transitional plate boundary; while seafloor spreading is known to take place in a few basins of the central and southern gulf, in the northern basins mantle upwelling is only suspected. Despite of their tectonic framework, the studied authigenic deposits show fabrics, minerals and isotope compositions similar to those reported for common gas seeps in passive continental margins and in accretionary active margins, and suggest that methane accompanied by Ba- and Sr-rich basinal cold fluids is released to the seafloor. Authigenic carbonates occur as centimeter-sized concretions scattered within silty sands. These concretions consist of cryptocrystalline carbonate pervasive	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Marine and petroleum geology	10.1016/j.marpetgeo.2013.02.011
11703455	Optimization of oxygen transfer through membrane diffusers for biological sweetening of biogas	1/1/2013	Mary Rodriguez, Ginesta;Dorado Castaño, Antonio David;Bonsfills Pedros, Ana;Gabriel Buguña, David;Gamisans Noguera, Xavier	Biological techniques for the removal of gaseous pollutants such as hydrogen sulfide (H2S) have proved to be effective, environmentally friendly, and economically viable. However, when high concentrations of H2S are treated, the process is severely restricted by the oxygen deficit in the liquid phase. The oxygen transfer efficiency provided by a membrane diffuser is evaluated under typical pressure and salinity conditions used for the biological treatment of H2S in biogas. The optimal operating parameters for enhanced oxygen transfer were determined. The addition of pure oxygen with a membrane diffuser to increase the oxygen transfer rate and the use of a nonaqueous phase to improve oxygen transfer in a bioscrubber system are also evaluated. Biological techniques for the removal of gaseous pollutants such as hydrogen sulfide	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering and technology	10.1002/ceat.201200603
11235464	The additive effect of harmonics on conservative and dissipative interactions	1/12/2012	Santos Hernandez, Sergio;Gadelrab, Karim Raafat;Barcons Xixons, Victor;Font Teixido, Jose;Stefancich, M.;Chiesa, Matteo	Multifrequency atomic force microscopy holds promise as a tool for chemical and topological imaging with nanoscale resolution. Here, we solve the equation of motion exactly for the fundamental mode in terms of the cantilever mean deflection, the fundamental frequency of oscillation, and the higher harmonic amplitudes and phases. The fundamental frequency provides information about the mean force, dissipation, and variations in the magnitude of the attractive and the repulsive force components during an oscillation cycle. The contributions of the higher harmonics to the position, velocity, and acceleration can be added gradually where the details of the true instantaneous force are recovered only when tens of harmonics are included. A formalism is developed here to decouple and quantify the viscous term of the force in the short and long range. It is also shown that the viscosity independent paths on tip approach and tip retraction can also be	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of applied physics	10.1063/1.4769434
11212262	Biomass accumulation in a biofilter treating toluene at high loads ? Part 2: Model development, calibration and validation	15/10/2012	Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David;Gamisans Noguera, Xavier	In this work, a dynamic model describing volatile organic compounds abatement and the corresponding biomass accumulation is developed, calibrated and validated. The mathematical model is based on detailed mass balances which include the main processes involved in the system: advection, absorption, adsorption, diffusion, biodegradation and biomass growth. The model overcomes common assumptions considered in classical biofiltration models such as uniform, constant biomass distribution. The model was calibrated and validated using experimental data obtained from a biofilter packed with clay pellets during its operation from inoculation to clogging. The model was able to predict satisfactorily experimental data by calibrating only a minimum number of parameters such as the half-saturation constant for toluene and the volumetric maximum growth rate of microorganisms. Kinetic parameters were fitted by means of an optimization routine using toluene	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2012.08.019

11212248	Biomass accumulation in a biofilter treating toluene at high loads ? Part 1: Experimental performance from inoculation to clogging	15/10/2012	Dorado Castaño, Antonio David;Baeza Labat, Juan Antonio;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David;Gamisans Noguera, Xavier	Peer Reviewed Postprint (author's final draft)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2012.08.018
10839474	GREDIQ-RIMA: the evolution of a teaching project of experimentation in chemistry	1/9/2012	Grau Vilalta, Maria Dolors;Guaus Guerrero, Ester;Martínez Martínez, María R.;Calvet Tarragona, Aurelio;Farran Marsa, Adriana;Salán Ballesteros, Mª Núria;Alvarez Del Castillo, M. Dolores;Gorchs Altarriba, Roser;Almajano Pablos, Maria Pilar;Morillo Cazorla, Margarita;Garrido Soriano, Nuria	Authors of this project belong to the Resources Chemistry Teaching Group (GReDiQ) involved in RIMA (Research and innovation in learning methodologies). The audiovisual and multimedia material productions realized have been grouped into three themes: Basic Techniques of Experimentation in Chemistry, Safety in Chemistry Laboratories and Advanced Techniques of Experimentation in Chemistry. This work has been awarded a prize of the Universitat Politècnica de Catalunya (UPC?BARCELONATECH), one of the Autonomous Region of Catalunya and another one of a State scope Postprint (author?s final draft)	CITES - Sustainability Science and Technology Research Group	Procedia: social & behavioral sciences	10.1016/j.sbspro.2012.05.213
10909822	Investigation of nanoscale interactions by means of subharmonic excitation	16/8/2012	Chiesa, Matteo;Gadelrab, Karim Raafat;Stefancich, M.;Armstrong, P.;Li, G.;Souier, T.;Thomson, Neil H.;Barcons Xixons, Victor;Font Teixido, Jose;Verdaguer, Albert;Phillips, M.A.;Santos Hernandez, Sergio	Multifrequency atomic force microscopy holds promise as a method to provide qualitative and quantitative information about samples with high spatial resolution. Here, we provide experimental evidence of the excitation of subharmonics in ambient conditions in the regions where capillary interactions are predicted to be the mechanism of excitation. We also experimentally decouple a second mechanism for subharmonic excitation that is highly independent of environmental conditions such as relative humidity. This implies that material properties could be mapped. Subharmonic excitation could lead to experimental determination of surface water affinity in the nanoscale whenever water interactions are the mechanism of excitation. Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	The journal of physical chemistry letters	10.1021/jz300576p
10772430	Stable isotope geochemistry of the Ulldemolins Pb-Zn-Cu deposit (SW Catalonian Coastal Ranges, Spain)	1/7/2012	Alfonso Abella, María Pura;Canet Miquel, Carles;Melgarejo Draper, Joan Carles;Mata Perello, Jose Maria;Fallick, Anthony E.	Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geologica acta	10.1344/105.000001707

10120038	Biogenic hydroxypatite (Apatite II TM) dissolution kinetics and metal removal from acid mine drainage	30/4/2012	Oliva Moncunill, Josep;Cama Robert, Jordi;Ayora Ibañez, Carlos;Cortina Pallas, Jose Luis;Pablo Ribas, Joan de	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of hazardous materials	10.1016/j.jhazmat.2012.01.027
10292466	Humic acid derivatives as tanning and retanning agents	2/4/2012	Bacardit Dalmases, Anna;Morera Prat, Josep Maria;Shendrik, Alexander;Jorge Sanchez, Juan;Olle Otero, Luis	This study examines the behaviour of three types of humic acids (natural humic acids, regenerated humic acids, and sulphited humic acids) with regard to their capacity to be used as tans and retans. The study makes use of conditions set out in a previous study (See Determination of penetration and fixation curves of leather using humic derivatives). Additionally, subsequent complementary tests were carried out using other retans that are commonly used in the tanning industry in order to compare and improve on the physical properties assessed here Postprint (published version)	Càtedra A3 - A3 Chair	Journal of the Society of Leather Technologists and Chemists	
10253945	Characteristics of the 3 most common types of occupational accident in Spanish sub-surface and surface mining, from 2003?2008	1/4/2012	Sanmiquel Pera, Lluis;Vintro Sanchez, Carla;Freijo Alvarez, Modesto	The rate for work related accidents in Spanish mining has decreased during recent years. However, the incidence rate per 100,000 workers in the Spanish mining sector in 2007 was significantly higher than the ones reported in the mining industry of other countries. This result implies that studies and research should be carried out in order to reveal the nature of the factors influencing the high incidence rates of the Spanish mining sector. Thus, this article offers features of the 3 most common types of accident of the Spanish mining industry during the period of 2003?2008. For each type of accident, the analysis proceeds as follows: 1) Modeling of the adjusted exponential distribution in terms of workdays lost; 2) Calculation of the risk index adjusted by age group of injured workers; 3) Identification of the 3 main deviations or immediate causes.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Dyna (Medellín)	
10221303	Nanoscale capillary interactions in dynamic atomic force microscopy	16/3/2012	Barcons Xixons, Victor;Verdaguer, Albert;Font Teixido, Jose;Santos Hernandez, Sergio;Chiesa, Matteo		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	The journal of physical chemistry. Part C, nanomaterials and interfaces	10.1021/jp2107395

9913567	Uranium speciation in river sediments contaminated by phosphate ores	1/3/2012	Meca, S.;Gimenez Izquierdo, Francisco Javier;Casas Pons, Ignasi;Marti Gregorio, Vicenç;Pablo Ribas, Joan de	Large amounts of phosphate ores with high concentrations of uranium were dumped by a phosphate plant into the Flix water reservoir in the Ebre River, Catalonia, NE Spain. These phosphate wastes have been mixed over the years with effluents from other industries as well as with the sediments of the river, resulting in a complex mixture of solid wastes and sediments. No investigations on uranium speciation in such sediments were made because of the complexity of the sediments composition as well as the relatively low uranium content. However, these studies are necessary in order to predict the release of the uranium to the river waters. Here, we studied uranium speciation in sediments from two sampling points	R2EM - Resource Recovery and Environmental Management	Environmental chemistry letters	10.1007/s10311-011-0327-1
8703455	Is corporate social responsibility possible in the mining sector? Evidence from catalan companies	1/3/2012	Vintro Sanchez, Carla;Fortuny Santos, Jordi;Sanmiquel Pera, Lluis;Freijo Alvarez, Modesto;Edo Tomas, Joaquin Jesus	Peer Reviewed Postprint (published version)	OPE-PROTHIUS - Production and Business Management	Resources policy	10.1016/j.resourpol.2011.10.003
9516059	A high-resolution UWB IR superregenerative receiver front end with an SRD quench shaper	3/2/2012	Moncunill Geniz, Francisco Javier;Bonet Dalmau, Jordi;Palà Schönwälder, Pere;del Águila López, Francisco;Giralt Mas, M. Rosa	We present a simple receiver front end that makes use of the baseband superregeneration principle to detect ultrawideband (UWB) impulse radio signals. The UWB antenna is directly connected to the core circuit consisting of a resistor-capacitor (RC) network coupled to a negative resistance that varies under the control of an external quench generator. Due to a step-recovery-diode quench shaper, 50-ps time-domain sensitivity windows are generated that filter the received pulses and reject noise and interference. The circuit achieves high gain, exhibits automatic gain control, and directly demodulates binary phase modulations. Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems II: express briefs	10.1109/TCSII.2012.2184373
9516051	Frequency domain analysis of superregenerative receivers in the linear and the logarithmic modes	3/2/2012	Bonet Dalmau, Jordi;Moncunill Geniz, Francisco Javier;Palà Schönwälder, Pere;del Águila López, Francisco;Giralt Mas, M. Rosa		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2012.2185296

10473864	Optimization of oxygen transfer through venturi-based systems applied to the biological sweetening of biogas	1/2/2012	Mary Rodriguez, Ginesta;Dorado Castaño, Antonio David;Bonsfills Pedros, Ana;Sanahuja Moliner, Ricard;Gabriel Buguña, David;Gamisans Noguera, Xavier	BACKGROUND: Dissolved oxygen is a key parameter in the biological removal of gaseous H2S since sulfide-oxidizing bacteria convert H2S into elemental sulfur instead of sulfate under limiting dissolved oxygen concentrations. Elemental sulfur is insoluble in water and accumulates in the packing material in biotrickling filters, increasing the pressure drop and operating costs. A set of mass transfer tests was performed in a versatile pilot plant to supply the necessary oxygen for the biological oxidation of H2S. The plant can be operated with three different commercial gas?liquid contactor devices: a venturi ejector, a jet-venturi and a diffuser. The effects of different geometric and operating parameters have been tested for each device (including pressure rise and sulfate content to mimic real wastewater treatment plant conditions).	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of chemical technology & biotechnology	10.1002/jctb.3731
11533924	The knowledge fair: an activity for high school students	1/2/2012	Grau Vilalta, Maria Dolors;Font Soldevila, Jose;Torras Melenchon, Núria		CITES - Sustainability Science and Technology Research Group	Procedia: social & behavioral sciences	10.1016/j.sbspro.2012.05.244
10221319	Spatial horizons in amplitude and frequency modulation atomic force microscopy	26/1/2012	Font Teixido, Jose;Santos Hernandez, Sergio;Barcons Xixons, Victor;Verdaguer, Albert;Thomson, Neil H.;Chiesa, Matteo	In dynamic atomic force microscopy (AFM) the cantilever is vibrated and its dynamics are monitored to probe the sample with nanoscale and atomic resolution. Amplitude and frequency modulation (AM and FM) atomic force microscopy have established themselves as the most powerful, robust and reliable techniques in the field. Nevertheless, it is still debatable whether one or the other technique is preferred in a given medium or experiment. Here, we quantitatively establish the limitations in resolution of one and the other technique by introducing the concept of space horizon	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Nanoscale	10.1039/c2nr12012g
10962294	Effect of pH and Fe(III) ions on chalcopyrite bioleaching by an adapted consortium from biogas sweetening	1/1/2012	Dorado Castaño, Antonio David;Sole Sardans, M. Montserrat;Lao Luque, Concepcion;Alfonso Abella, María Pura;Gamisans Noguera, Xavier	Particle size, pH and Fe(III) ions affect the process of bioleaching of copper from chalcopyrite ores. In the study presented herein a copper sulfide ore was subjected to bioleaching process using a mixed microbial consortium obtained from a biotrickling filter treating high loads of H2S at different mineral particle size, distinct medium pH and various additional Fe(III) ion concentrations as leaching agent. After 1300 h of operation, the total copper recovery achieved a value of 50% in the most acidic conditions. A decrease of 2.5 units of pH implied an increase in the efficiency of 35%. It was also observed an optimal particle size (between 2 and 3 mm), considerably higher than previous reported studies, meaning a decrease in operational cost to mill material. Finally, results indicate that there is a threshold concentration of ferric ion from which the system is not sensitive (500 ppm) Particle size, pH and Fe(III) ions affect the process of bioleaching of copper	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minerals engineering	10.1016/j.mineng.2012.06.009

10806232	Interaction between sorption and biodegradation in a biofilter packed with activated carbon	1/1/2012	Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David;Gamisans Noguera, Xavier	The main objective of this study is to evaluate qualitatively and quantitatively the effect of starvation periods in the biodegradation capacity of microorganisms when the support media is a material with high sorption capacity. Pollutant sorption and biodegradation, which occur simultaneously in the biofilter, describe the overall behavior of the air treatment system during normal operation and during starvation periods. Results obtained in the present study demonstrate that sorption capacity of the material not only plays an important role during the start-up of operation, but it is also important in the steady operation. Simultaneously, as biomass grows on the support, biodegradation becomes more decisive in the performance. It was found that zones of packing material with low moisture content are controlled by the sorption mechanism, at expenses of biodegradation, and they are essential as pollutant reservoir during starvation periods. In the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water science and technology	10.2166/wst.2012.384
10772440	Geology, ore facies and sulphur isotopes of the Koushk vent-proximal sedimentary-exhalative deposit, Posht-e-Badam Block, Central Iran	1/1/2012	Rajabi, Abdorrahman;Rastad, Ebrahim;Alfonso Abella, María Pura;Canet Miquel, Carles		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International geology review	10.1080/00206814.2012.659106
13078095	Las areniscas de Manresa y su valor como patrimonio geológico y arquitectónico	1/1/2012	Parcerisa Duocastella, David;Alfonso Abella, María Pura;Cobo Escamilla, Albert;Fernández, D	Las canteras de arenisca de Manresa tienen un elevado valor patrimonial desde un punto de vista geológico. En la cantera abandonada del Mal Balç se pueden observar los procesos costeros marinos acaecidos durante el Bartoniense y también es un buen ejemplo de la antigua actividad minera. La cosnervación de este patrimonio es necesaria no solamente por su valor geológico sino también para la preservación del patrimonio arquitectónico y minero de la zona. Además, sería necesario considerar la preservación de itinerarios gelógicos en futuras tareas de restauración en las canteras aún activas actualmente. Las canteras de arenisca de Manresa tienen un elevado valor patrimonial desde un punto de vista geológico. En la cantera abandonada del Mal Balç se pueden observar los procesos costeros marinos acaecidos durante el Bartoniense y también es un buen ejemplo de la antigua actividad minera. La	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geotemas (Madrid)	
13078083	El alabastro de Fuentes de Jiloca: patrimonio geológico e histórico	1/1/2012	Alfonso Abella, María Pura;Parcerisa Duocastella, David;Grané, M;Novoa, G	La cantera La Soledad, ubicada en las proximidades de Fuentes de Jiloca, explota alabastro de gran valor ornamental. Existen cuatro variedades: Blanco, Champan, Tabaco y Bardillo. El área está constituida por materiales evaporíticos del Miocenoinferior en los que el alabastro se encuentra formando estructuras bandeadas y meganódulos de unos 2 m de diámetro, intrecalados entre arcilla sy materiales carbonatados. La cantera La Soledad permite la observación de estructuras singulares del yeso por lo que este lugar constituye parte del patrimonio geológico de Aragón. este alabastro se ha utilizado en la contrucción de numerosos monumentos de la zona, lo que hace aumentar su interés patrimonial. La cantera La Soledad, ubicada en las proximidades de Fuentes de Jiloca, explota alabastro de gran valor ornamental. Existen cuatro variedades: Blanco, Champan, Tabaco y Bardillo. El área está constituida por materiales	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geotemas (Madrid)	

10911446	Exploratory analysis of Spanish energetic mining accidents	1/1/2012	Sanmiquel Pera, Lluis;Freijo Alvarez, Modesto;Rossell Garriga, Josep Maria	Using data on work accidents and annual mining statistics, the paper studies work-related accidents in the Spanish energetic mining sector in 1999-2008. The following 3 parameters are considered: age, experience and size of the mine (in number of workers) where the accident took place. The main objective of this paper is to show the relationship between different accident indicators: risk index (as an expression of the incidence), average duration index for the age and size of the mine variables (as a measure of the seriousness of an accident), and the gravity index for the various sizes of mines (which measures the seriousness of an accident, too). The conclusions of this study could be useful to develop suitable prevention policies that would contribute towards a decrease in work-related accidents in the Spanish energetic mining industry.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of occupational safety and ergonomics	10.1080/10803548.2012.11076929
8703444	Estudio de los accidentes laborales en la industria minera y en la construcción en España en la última década	1/12/2011	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Edo Tomas, Joaquin Jesus;Vintro Sanchez, Carla	Postprint (published version)	LRG - Lightning Research Group	Dyna ingenieria e industria	
9420774	Operational aspects of the desulfurization process of energy gases mimics in biotrickling filters	1/11/2011	Fortuny Picornell, Marc;Gamisans Noguera, Xavier;Deshusses, Marc A.;Lafuente Sancho, Francisco Javier;Casas Alvero, Carles;Gabriel Buguña, David	Biological removal of reduced sulfur compounds in energy-rich gases is an increasingly adopted alternative to conventional physicochemical processes, because of economical and environmental benefits. A lab-scale biotrickling filter reactor for the treatment of high-H2S-loaded gases was developed and previously proven to effectively treat H2S concentrations up to 12,000 ppmv at gas contact times between 167 and 180 s. In the present work, a detailed study on selected operational aspects affecting this system was carried out with the objective to optimize performance. The start-up phase was studied at an inlet H2S concentration of 1000 ppmv (loading of 28 g H2S m-3 h-1) and inoculation with sludge from a municipal wastewater treatment plant. After reactor startup, the inlet H2S concentration was doubled and the influence of different key process parameters was tested. Results showed that there was a significant reduction of the removal efficiency at gas contact times below	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water research (Oxford)	10.1016/j.watres.2011.08.029
7728703	Removal of cadmium, copper, nickel, cobalt and mercury from water by Apatite IITM: column experiments	30/10/2011	Oliva Moncunill, Josep;Pablo Ribas, Joan de;Cortina Pallas, Jose Luis;Cama Robert, Jordi;Ayora Ibañez, Carlos	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of hazardous materials	10.1016/j.jhazmat.2011.07.104

5891521	How localized are energy dissipation processes in nanoscale interactions?	29/7/2011	Santos Hernandez, Sergio;Barcons Xixons, Victor;Verdaguer, Albert;Font Teixido, Jose;Thomson, Neil H.;Chiesa, Matteo	We describe fundamental energy dissipation in dynamic nanoscale processes in terms of the localization of the interactions. In this respect, the areal density of the energy dissipated and the effective area of interaction in which each process occurs are calculated for four elementary dissipative processes. It is the ratio between these two, which we term M that provides information about how localized the interactions are. We show that neither the phase lag, nor the magnitude of the energy dissipated alone provide information about energy localization but M has to be considered instead. Postprint (author?s final draft)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Nanotechnology	10.1088/0957-4484/22/34/345401
5412783	Sorption and mobility of Sb(V) in calcareous soils of Catalonia (NE Spain): Batch and column experiments	15/1/2011	Martínez Lladó, Xavier;Valderrama Angel, Cesar Alberto;Rovira Boixaderas, Miguel Arcangel;Marti Gregorio, Vicenç;Gimenez Izquierdo, Francisco Javier;Pablo Ribas, Joan de	The sorption of Sb(V) onto natural calcareous soils was studied in batch and column experiments as a function of physicochemical properties of the soil, namely: organic matter, the active fraction of Fe and Al and the pH of the soils. Batch experiments were performed in order to determine the sorption capacity and the kinetic rate of the sorption. Freundlich isotherm described properly the equilibrium experimental data and the kinetic results show that the sorption was very slow in all the soils studied (equilibrium after 7 days) when compared with literature data for Sb(V) sorption onto soils with higher iron content. Column experiments were carried out in order to determine the mobility of Sb(V) in the soils. The Thomas model can describe partially the breakthrough curves obtained for the Sb(V) sorption on the soils. The fitting of the model to the experimental data would indicate that transport and kinetic parameters also affected the dynamic	R2EM - Resource Recovery and Environmental Management	Geoderma	10.1016/j.geoderma.2010.10.017
5979153	The Cretaceous sediment-hosted copper deposits of San Marcos (Coahuila, Northeastern Mexico):an approach to ore-forming processes from mineral assemblages	1/1/2011	García Alonso, Donaji;Canet Miquel, Carles;González Partida, Eduardo;Villanueva Estrada, Ruth Esther;Prol Ledesma, Rosa Maria;Alfonso Abella, María Pura;Caballero Martínez, Juan Antonio;Lozano Santa Cruz, Rufino		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of south american Earth sciences	10.1016/j.jsames.2011.02.012
5906672	Determination of the equilibrium formation constants of two U(VI)-peroxide complexes at alkaline pH	1/1/2011	Meca, S.;Martinez Torrents, Albert;Marti Gregorio, Vicenç;Gimenez Izquierdo, Francisco Javier;Casas Pons, Ignasi;Pablo Ribas, Joan de	The formation of uranyl-peroxide complexes was studied at alkaline media by using UV-Visible spectrophotometry and the STAR code. Two different complexes were found at a H2O2/U(VI) ratio lower than 2. A graphical method was used in order to obtain the formation constants of such complexes and the STAR program was used to refine the formation constants values because of its capacity to treat multiwavelength absorbance data and refining equilibrium constants. The values obtained for the two complexes identified [...] At hydrogen peroxide concentrations higher than 10-5 mol dm-3, and in the absence of carbonate, the UO2(O2)2(OH)2 4- complex is predominant in solution, indicating the significant peroxide affinity of peroxide ions for uranium and the strong complexes of uranium(VI) with peroxide. Peer Reviewed	R2EM - Resource Recovery and Environmental Management	Dalton transactions	10.1039/c0dt01672a

5983847	The intrinsic resolution limit in the atomic force microscope: implications for heights of nano-scale features	1/1/2011	Santos Hernandez, Sergio;Barcons Xixons, Victor;Christenson, Hugo K.;Font Teixido, Jose;Thomson, Neil H.	Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	PloS one	10.1371/journal.pone.0023821
9520992	Geochemical characterization of a spanish leonardite coal	1/1/2011	Olivella Costa, Maria Àngels;Sole Sardans, M. Montserrat;Gorchs Altarriba, Roser;Lao Luque, Concepcion;de las Heras Cisa, F. Xavier	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Archives of Mining Sciences	
9368905	El método por transferencia: una alternativa de explotación sostenible para el Pólo Gesseiro do Araripe - Brasil	1/1/2011	Macêdo Filho, Gregório Isaque de;Alfonso Abella, María Pura;Souza, Júlio César de	La explotación de yeso en el Pólo Gesseiro do Araripe es el mayor generador de desarrollo social y económico en esta región de Brasil, pero es también uno de los grandes proveedores de impactos negativos al medio ambiente. Una alternativa de exploración sostenible de este recurso mineral puede ser la aplicación de un método de laboreo minero que ofrezca menos impactos ambientales, y permita la recuperación ambiental o la adecuación del área explorado de forma que continúe contribuyendo, de forma positiva, al ecosistema y al desarrollo regional. Este trabajo compara el método de explotación por Cortas tradicionalmente utilizado en el Pólo, con el método tipo Transferencia que permite la recuperación del hueco al mismo tiempo que se desarrolla la mina, el cual resulta menos impactante desde el punto de vista ambiental y por tanto, considerado aquí como alternativa sostenible.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Holos	
4468890	The use of apatite II (TM) to remove divalent metal ions zinc (II), lead (II), manganese (II) and iron (II) from water in passive treatment systems: column experiments	15/12/2010	Oliva Moncunill, Josep;Pablo Ribas, Joan de;Cortina Pallas, Jose Luis;Cama Robert, Jordi;Ayora Ibáñez, Carlos	Postprint (author?s final draft)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of hazardous materials	10.1016/j.jhazmat.2010.08.045

4460401	Study of cross-linking reactions on butadiene binders in aqueous finishing	14/12/2010	Bacardit Dalmases, Anna;Shendrik, Alexander;Combalia Cendra, Felip;Jorge Sanchez, Juan;Olle Otero, Luis	Butadienes, like acrylic binders and polyurethanes, can be cross-linked to improve their wet fastness properties. Nowadays, four types of cross-linkers for leather finishing are available: polyaziridines,polyisocyanates, polycarbodiimides and epoxy compounds. The aim of this study is to compare the mechanism of reaction of these four types of cross-linkers and the possibility of using a polysilane as a cross-linking agent for butadienes. A comparison of results shows that all cross-linkers studied improve wet rub fastness. However, polyaziridine and polysilane emerge as the most effective crosslinkers for butadiene binders. Postprint (published version)	Càtedra A3 - A3 Chair	Journal of the Society of Leather Technologists and Chemists	
3306889	Study of the effect of temperature, relative humidity and UV radiation on wet-white leather ageing	1/10/2010	Bacardit Dalmases, Anna;Cobos López, Mireia;Font Vallès, Joaquim;Jorge Sanchez, Juan;Olle Otero, Luis	Since upholstery leather is considered a very high-tech product, a long service life is expected by the costumer. However, this type of leather can undergo extreme environmental conditions that may cause premature ageing. This work deals with the study of the effect of temperature, relative humidity, and UV radiation on leather ageing. Leathers with wet-white tannage were exposed to weathering effects using a climatic chamber in order to identify the most important variables affecting this weathering process and to check for interactions. Both a multilevel centralized factorial experimental design and an analysis of variance (ANOVA) have been employed as statistical tools for estimating the effects of the parameters.	Càtedra A3 - A3 Chair	Journal of the American Leather Chemists Association	
2603844	The role of water in the performance of biofilters: parameterization of pressure drop and sorption capacities for common packing materials	15/8/2010	Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David	The presence of water in a biofilter is critical in keeping microorganisms active and abating pollutants. In addition, the amount of water retained in a biofilter may drastically affect the physical properties of packing materials and packed beds. In this study, the influence of water on the pressure drop and sorption capacities of 10 different packing materials were experimentally studied and compared. Pressure drop was characterized as a function of dynamic hold-up, porosity and gas flow rate. Experimental data were fitted to a mathematical expression based on a modified Ergun correlation. Sorption capacities for toluene were determined for both wet and dry materials to obtain information about the nature of interactions between the contaminant, the packing materials and the aqueous phase. The experimental sorption capacities of materials were fitted to different isotherm models for gas adsorption in porous materials. The corresponding	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of hazardous materials	10.1016/j.jhazmat.2010.04.093
2748771	Bacterial community analysis of a gas-phase biotrickling filter for biogas mimics desulfurization through the rRNA approach	1/8/2010	Maestre, Juan Pablo;Rovira, Rosario;Álvarez Hornos, Francisco Javier;Fortuny Picornell, Marc;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier;Gabriel Buguña, David		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2010.05.019

2589004	Cantilever dynamics in amplitude modulation AFM: continuous and discontinuous transitions	21/6/2010	Santos Hernandez, Sergio;Barcons Xixons, Victor;Font Teixido, Jose;Thomson, Neil H.	Transitions between the attractive and the repulsive force regimes for amplitude modulation atomic force microscopy (AFM) can be either discontinuous, with a corresponding jump in amplitude and phase, or continuous and smooth. During the transitions, peak repulsive and average forces can be up to an order of magnitude higher when these are discrete. Under certain circumstances, for example, when the tip radius is relatively large (e.g. R > 20?30 nm) and for high cantilever free amplitudes (e.g. A0 > 40?50 nm), the L state can be reached with relatively low set-points only (e.g. Asp/A0 < 0.30). We find that these cases do not generally lead to higher resolution but increase the background noise instead. This is despite the fact that the imaging can be non-contact under these conditions. The appearance of background noise is linked to increasing cantilever mean deflection and tip?surface proximity with increasing free amplitude in the L state.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of physics D. Applied physics	10.1088/0022-3727/43/27/275401
2556538	Polysilane cross-linked binders for aqueous finishing	17/6/2010	Olle Otero, Luis;Shendrick, Alexander;Combalia Cendra, Felip;Jorge Sanchez, Juan;Bacardit Dalmases, Anna	This study explores the cross-linking reaction between an epoxy functional alkoxysilane and both the leather industry, it can be used in finishing processes. A comparison of results indicates that such cross-linker presents a better cross-linking reaction rate than polyaziridine, polyisocyanate, epoxy resin and polycarbodiimide Postprint (published version)	Càtedra A3 - A3 Chair	Journal of the Society of Leather Technologists and Chemists	
2531619	Bi-stability of amplitude modulation AFM in air: deterministic and stochastic outcomes for imaging biomolecular systems	4/6/2010	Santos Hernandez, Sergio;Barcons Xixons, Victor;Font Teixido, Jose;Thomson, Neil H.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Nanotechnology	10.1088/0957-4484/21/22/225710
2317738	Cooperación en el campo de la pequeña minería en Sudamérica: el papel de las ONGs	21/4/2010	Mesa Vílchez, Claudia;Alfonso Abella, María Pura;Monterde Ruiz, Eva;Costa Monrós, Marc	A lo largo de la historia de la cooperación la trayectoria de las ONGs ha ido evolucionando y el papel vertical de las organizaciones asistencialistas del siglo pasado ha dado paso a una nueva generación de ONGs que trabajan para y con las comunidades con las que cooperan. En la actualidad, un proyecto, desde su nacimiento hasta su ejecución, tiene que formar parte de la comunidad en la que se trabaja. De todos los campos de actuación de la cooperación internacional en Sudamérica, la minería es uno de los sectores en el que menos se invierte, ya sea por su desconocimiento como por la imagen negativa que de ella posee parte de la población, especialmente en países desarrollados. Sin embargo, las ONGs técnicas pueden colaborar con la pequeña minería según las necesidades requeridas en cada una de las fases del ciclo mismo de la exploración y explotación minera: fases de exploración e investigación, el	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Geológica Mexicana	10.18268/BSGM2010v62n1a6

1235191	Albitization related to the triassic unconformity in ingenous rocks of the Morvan Massif (France)	1/4/2010	Parcerisa Duocastella, David;Thiry, Médard;Schmitt, Jean-Michel	The Carboniferous Morvan Massif, in the northern part of the French Massif Central, consists of granite and some rhyolite. A Triassic erosional unconformity has developed on the massif which is covered by Mesozoic sediments of the Paris Basin. The igneous rocks of the Morvan Massif show a strong alteration with pseudomorphic replacement of the primary plagioclases into albite, pseudomorphic replacement of primary biotite into chlorite and minor precipitation of neogenic minerals like albite, chlorite, apatite, haematite, calcite and titanite. The geometry and arrangement of these alterations give significant constraints about their development. Some of the altered facies develop in a pervasive manner; others are restricted to centimetric to metric-wide joints that imply fluid-flow phenomena. Moreover, the alteration facies are arranged in a clear succession with strongly altered facies at the top and weakly altered facies towards the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of Earth sciences	10.1007/s00531-008-0405-1
2516273	Periglacial geomorphological evolution of the Fontainebleau Massif (France)	1/3/2010	Thiry, Médard;Parcerisa Duocastella, David;Liron, Marie Nieves	The Fontainebleau Sand contains tightly cemented sandstone lenses, which form spectacular elongated ridges that are up to 10 km long and 0.5 km wide. Denudation of the sandstone pans leads to a highly contrasted landscape, with sandstone ridges towering over sandy depressions. However, little is known about the erosion processes that have built up this landscape. Periglacial processes, including aeolian ones, appear to have been significant in the development of the massif's physiography. The topography of the massif has played an important role in controlling the aeolian processes. The upwind westerly front face of the massif displays numerous deflation features, such as blowout hollows, high sandstone scarps with numerous overhangs and spectacular talus screen, and a wide uncovered sandstone plateaux. In the eastern downwind district the landforms are more subdued and the sandstone plateaux and their scarps are partly sanded up. Sand	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Zeitschrift für Geomorphologie	10.1127/0372-8854/2010/0054-0005
2165710	Behavior of leather as a protective heat barrier and fire resistant material	11/2/2010	Bacardit Dalmases, Anna;Borràs Fillat, Maria Dolors;Soler Solé, Jaume;Herrero, Vicente;Jorge Sanchez, Juan;Olle Otero, Luis	Leather is a natural material with many applications: automotive, domestic upholstery, buildings, aviation, maritime, personal safety, etc. For each of these sectors, fire behavior is a field of particular interest. Unfortunately, there are many testing methods and different flammability standards depending on material application and end use. Therefore, there are different ways of approaching the whole flammability issue. In this work, different approaches for analyzing the fire resistance of leather are examined: (i) influence of the type of tannage, (ii) influence of the type of leather, (iii) influence of the type of retannage, (iv) influence of the type of fatliquor, and (v) influence of the use of flame retardants. The results indicate that leather presents natural fire resistance. However, the type of leather, type of tannage, retannage and fatliquor effect the flammability behavior of leather. In addition, the use of flame retardants slightly improves the	Càtedra A3 - A3 Chair	Journal of the American Leather Chemists Association	
2196578	A comparative study based on physical characteristics of suitable packing materials in biofiltration	2/2/2010	Dorado Castaño, Antonio David;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David;Gamisans Noguera, Xavier	In the present work, 10 packing materials commonly used as support media in biofiltration are analysed and compared to evaluate their suitability according to physical characteristics. The nature of the packing material in biofilters is an important factor for the success in their construction and operation. Different packing materials have been used in biofiltration without a global agreement about which ones are the most adequate for biofiltration success. The materials studied were chosen according to previous works in the field of biofiltration including both organic and inorganic (or synthetic) materials. A set of nine different parameters were selected to cope with well-established factors, such as a material-specific surface area, pressure drop, nutrient supply, water retentivity, sorption capacity, and purchase cost. One ranking of packing materials was established for each parameter studied in order to define a relative suitability degree. Since biofiltration success	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental technology	10.1080/09593330903426687

2202125	Analysis of work related accidents in the Spanish mining sector from 1982-2006	1/2/2010	Sanmiquel Pera, Lluis;Freijo Alvarez, Modesto;Edo Tomas, Joaquin Jesus;Rossell Garriga, Josep Maria	The rate for work related accidents in the Spanish mining sector is notably higher than in other countries such as the United States. It produces a very negative impact on the mining industry. This paper is the report of a study on serious and fatal accidents in Spanish mining from 1982-2006. It is based on the reports of 212 accidents (serious or fatal) carried out by the General Management of Energy and Mining of Catalonia (Spain). Method: The high work-related accident rate in the Spanish mining sector makes it necessary to carry out an analysis and research that can shed light on the causes of this high rate; this is the only way that a solution can be found. The study is based on Feyer and Williamson's analysis of accident causes, as they apply to 212 accidents. The types and causes of the accidents are coded according to the coding system used by the Spanish National Institute for Safety and Hygiene in the Workplace, which allows us to identify a series of direct causes and	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of safety research	10.1016/j.jsr.2009.09.008
2196978	Oxidation of biologically produced elemental sulfur under neutrophilic conditions	12/1/2010	Fortuny Picornell, Marc;Guisasola, Albert;Casas Alvero, Carles;Gamisans Noguera, Xavier;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David	BACKGROUND: Previous research on a biotrickling filter for the removal of high loads of H2S showed that accumulation of elemental sulfur (S0) when dealing with high H2S concentrations could lead to reactor clogging. Since S0 can also serve as substrate for sulfur-oxidising bacteria, this study investigates the biological oxidation of S0 as a remediation strategy. RESULTS: Results indicated that biological oxidation of S0 inside a clogged biotrickling filter occurred at a comparable rate to those reported for stirred tank reactors. When biologically produced dried and powdered S0 was manually added as a substrate in stirred tank reactor experiments, significantly lower S0 oxidation rates were found compared to those for biological S0 freshly produced in situ. It was speculated that either the powdered S0 particle size or the surface properties hindered S0	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of chemical technology & biotechnology	10.1002/jctb.2333
2547409	Denitrification in presence of acetate and glucose for bioremediation of nitrate-contaminated groundwater	1/1/2010	Calderer, Montserrat;Gibert Agullo, Oriol;Marti Gregorio, Vicenç;Rovira Boixaderas, Miguel Arcangel;Pablo Ribas, Joan de;Jordana, Salvador;Guimera Sola, Jordi;Bruno Salgot, Jorge		BRCMSE - Barcelona Research Center in Multiscale Science and Engineering	Environmental technology	10.1080/09593331003667741
2587479	Bajo la ciudad: roedores miocenos de muestras de sondeos del subsuelo de Barcelona	1/1/2010	Casanovas Vilar, Isaac;Parcerisa Duocastella, David;Gómez Gras, David Manuel;Gámez Torrent, Desiré	Ongoing civil engineering works in the city of Barcelona have allowed getting new data on the stratigraphy of the Pla de Barcelona minor graben. The tectonic evolution of this small basin is divided in a Palaeogene compression phase and a Neogene extensional one. Even though sedimentation already occurred during the compression stage, the bulk of sediments was deposited during the extensional one. The study of several geological cores has shown that the earliest layers deposited during this extensional phase correspond to alluvial fan sediments that were provisionally referred to the early Miocene (Mi-1a unit). The study of the rodent remains recovered from these samples allows refi ning the dating and assign an age of 17 to 14.5 Ma to this lithostratigraphic unit. Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Cidaris: revista ilicitana de paleontología y mineralogía	

4432197	Modelling enhanced groundwater denitrification in batch micrococosm tests	1/1/2010	Calderer, Montserrat;Jubany, Irene;Pérez Magrané, Ramon;Marti Gregorio, Vicenç;Pablo Ribas, Joan de	In the last few years, enhanced in situ denitrification has gained a lot of interest as a reliable bioremediation option to remove nitrate from groundwater. However, denitrification modelling in the subsurface environment is less developed than in other fields like wastewater treatment, due to the complexity of describing microbial processes in natural systems and the lack of proper kinetic and stoichiometric parameters. In this study, a mathematical model describing nitrate, oxygen and organic carbon consumption coupled with the growth and decay of a heterotrophic microbial population was developed. The model has	SIC - Smart Control Systems	Chemical engineering journal	10.1016/j.cej.2010.08.042
2045144	Migration of Mn-rich fluids through normal faults and fine-grained terrigenous sediments during early development of the Neogene Vallès-Penedès half-graben (NE Spain)	1/11/2009	Travé, Anna;Roca Abella, Eduard;Playà Pous, Elisabet;Parcerisa Duocastella, David;Gómez Gras, David Manuel;Martín Martín, Juan Diego	The Miocene siliciclastic sediments infilling the Vallès-Penedès half-graben are affected by two sets of structures developed during the extensional tectonics that created the basin. The first set, represented by extension fractures infilled with mud and sands, is attributed to seismically induced liquefaction. The second set, represented by normal faults, corresponds to a high-permeability horsetail extensional fracture mesh developed near the surface in the hanging walls of normal faults. The incremental character of the vein-fills indicates episodic changes in the tectonic stress state and fault zone permeability. Two episodes of fluid migration are recorded. The first episode occurred prior to consolidation and lithification when shallow burial conditions allowed oxidizing meteoric waters to flow horizontally through the more porous and permeable sandy layers. Development of clastic dikes allowed local upward flow and dewatering of the sandy beds. Liquefaction	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geofluids	10.1111/j.1468-8123.2009.00258.x
2044744	Changes of heavy metal and PCB contents in surficial sediments of the Barcelona harbour after the opening of a new entrance	1/11/2009	Gibert Agullo, Oriol;Marti Gregorio, Vicenç;Diez Berart, Sergio;Romo García, Javier;Bayona Termens, Josep Maria;Pablo Ribas, Joan de;Martínez Lladó, Xavier	The Barcelona harbour is one of the biggest and most important in commercial and passenger traffic in the Mediterranean Sea. In 2003, construction works for the enlargement of the port were carried out with the opening of a new entrance for large boats in the northern area. Following the opening of this new mouth, the redistribution of heavy metals (Hg, Cd, Pb, Cu, Zn, Ni and Cr), As and polychlorinated biphenyls (PCBs) was investigated to discuss their origin and to evaluate the environmental implications. A previous study of the sediments provided a first picture of high levels of heavy metals and PCBs in the innermost harbour (Port Vell). Then, the opening of the northern mouth led to a remarkable decline in the	R2EM - Resource Recovery and Environmental Management	Water, air and soil pollution	10.1007/s11270-009-0044-6
2555659	Technical and economical study of a full-scale biotrickling filter for H2S removal from biogas	16/9/2009	Tomàs Vives, Maria;Fortuny Picornell, Marc;Lao Luque, Concepcion;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier	The present study evaluates the technical and economical feasibility of the H2S elimination from an energy-rich gas using a full-scale biotrickling filter installed in a municipal waste water treatment plant. The study analyzes the continuous operation of a 4.5 months period, treating 80 m3 h-1 of biogas with an average H2S concentration of 3000 ppmv. The bioreactor was operated at a gas contact time of 180 seconds and maximum elimination capacities of 170 g H2S m-3 h-1 were obtained without any occurrence of neither biological nor mass transfer limitation. Elemental sulfur and sulfate were the main detected byproducts of the H2S treatment. The main drawback observed during the studied period was related to the air flow supply. This caused a removal efficiency decrease and an excess of sulfur production. A comparative cost-benefit analysis of the more applied chemical oxidation processes with the biological treatment was performed. Savings	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water practice and technology	10.2166/wpt.2009.026

1647762	Baseband superregenerative amplification	9/9/2009	Palà Schönwälder, Pere;Moncunill Geniz, Francisco Javier;Bonet Dalmau, Jordi;del Águila López, Francisco;Giralt Mas, M. Rosa		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2008.2010153
2076575	Evaluation of mass transfer coefficients in biotrickling filters: experimental determination and comparison to correlations	1/9/2009	Dorado Castaño, Antonio David;Ribera Simon, Gemma;Mary Rodriguez, Ginesta;Bonsfills Pedros, Ana;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier	Overall mass transfer coefficients (KGa and KLa) were determined experimentally for four different-nature packing materials used in gas-phase biotrickling filters. A simple methodology based on overall mass balances and following a standard procedure allowed to calculate the mass transfer coefficients under different operating conditions corresponding to usual biotrickling filtration situations. Results showed an increase of mass transfer resistance when increasing the empty bed residence time (EBRT) of the reactor for all packing materials. Experimental results were fitted to existing and well-accepted correlations used in conventional biofilter or biotrickling filter modeling. The comparison of experimental and theoretical data showed huge discrepancies. Simple correlations for the experimental data obtained in this study were also suggested. This is the pre-peer reviewed version of the following article: Dorado, A.D. [et	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering and technology	10.1002/ceat.200900275
678737	Oxidation by Fenton's reagent combined with biological treatment applied to a creosote-comtaminated soil	1/7/2009	Valderrama Angel, Cesar Alberto;Alessandri, R;Aunola, T;Cortina Pallas, Jose Luis;Gamisans Noguera, Xavier;Tuhkanen, T	In this study, we investigated the feasibility of using Fenton oxidation to remove sorbed polycyclic aromatic hydrocarbons (PAHs) in aged soil samples with creosote oil from a wood preserving site. The optimal dosage of reagents was determined by a statistical method, the central composite rotatable experimental design. The maximum PAH removal was 80% with a molar ratio of oxidant/catalyst equal to 90:1. In general low molecular weight PAHs (3 rings) were degraded more efficiently than higher molecular weight PAHs (4 and 5 rings). The hydrogen peroxide decomposition kinetic was studied in the presence of KH2PO4 as stabilizer. The kinetic data were fitted to a simple model, the pseudo-first-order which describes the hydrogen peroxide decomposition. The PAH kinetic degradation was also studied, and demonstrated that non-stabilized hydrogen peroxide was consumed in less than 30 min, whilst PAH removal continued for up to 24 h. In a second part of	R2EM - Resource Recovery and Environmental Management	Journal of hazardous materials	10.1016/j.jhazmat.2008.11.108
776962	Mineral assemblages of the Francisco I. Madero Zn-Cu-Pb-(Ag) deposit, Zacatecas, Mexico: implications for ore deposit genesis	1/6/2009	Canet Miquel, Carles;Camprubí Cano, Antoni;González Partida, Eduardo;Linares, Carlos;Alfonso Abella, María Pura;Piñeiro-Fernández, Fernando;Prol Ledesma, Rosa Maria	The Francisco I. Madero deposit, central Mexico, occurs in the Mesozoic Guerrero Terrane, which hosts many ore deposits, both Cretaceous (volcanogenic massive sulfides) and Tertiary (epithermal and skarn deposits). It is hosted by a 600 m-thick calcareous-pelitic unit, of Lower Cretaceous age, crosscut by porphyritic dikes that strike NW?SE. A thick felsic volcanic Tertiary sequence, consisting of andesites and rhyolitic ignimbrites, unconformably overlies the Cretaceous series. At the base, the mineralization consists of several mantos developed within calcareous beds. They are dominantly composed of sphalerite, pyrrhotite and pyrite with minor chalcopyrite, arsenopyrite and galena. At the top of the orebody, there are calcic skarns formed through prograde and retrograde stages. The resulting mineral assemblages are rich in manganoan hedenbergite (Hd75?28Di40?4Jh40?20), andraditic garnets (Adr100?62Grs38?0), epidote (Ep95?36Czo60?5Pie8?0),	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ore geology reviews	10.1016/j.oregeorev.2009.02.004

759773	Long-term ammonia removal in a coconut fiber-packed biofilter: analysis of N fractionation and reactor performance under steady-state and transient conditions	1/5/2009	Baquerizo, Guillermo;Maestre, Juan Pablo;Machado, Vc;Gamisans Noguera, Xavier;Gabriel Buguña, David	A comprehensive study of long-term ammonia removal in a biofilter packed with coconut fiber is presented under both steady-state and transient conditions. Low and high ammonia loads were applied to the reactor by varying the inlet ammonia concentration from 90 to 260 ppmv and gas contact times ranging from 20 to 36 s. Gas samples and leachate measurements were periodically analyzed and used for characterizing biofilter performance in terms of removal efficiency (RE) and elimination capacity (EC). Also, N fractions in the leachate were quantified to both identify the experimental rates of nitritation and nitratation and to determine the N leachate distribution. Results showed stratification in the biofilter activity and, thus, most of the NH3 removal was performed in the lower part of the reactor. An average EC of 0.5 kg N-NH3 m-3 d-1 was obtained for the whole reactor with a maximum local average EC of 1.7 kg N-	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water research (Oxford)	10.1016/j.watres.2009.02.031
759800	Characterization of the bacterial community in a biotrickling filter treating high loads of H2S by molecular biology tools	1/4/2009	Maestre, Juan Pablo;Rovira, Roger;Gamisans Noguera, Xavier;Kinney, Kerry A.;Kirisits, Mary Jo;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David	The diversity and spatial distribution of bacteria in a lab-scale biotrickling filter treating high loads of hydrogen sulfide (H2S) were investigated. Diversity and community structure were studied by terminal-restriction fragment length polymorphism (T-RFLP). A 16S rRNA gene clone library was established. Near Full-length 16S rRNA gene sequences were obtained, and clones were clustered into 24 operational taxonomic units (OTUs). Nearly 74% and 26% of the clones were affiliated with the phyla Proteobacteria and Bacteroidetes, respectively. Beta-, epsilon- and gamma-proteobacteria accounted for 15, 9 and 48%, respectively. Around 45% of the sequences retrieved were affiliated to bacteria of the sulfur cycle including Thiothrix spp., Thiobacillus spp. and Sulfurimonas denitrificans. Sequences related to Thiothrix lacustris accounted for a 38%. Rarefaction curve demonstrated that clone library constructed can be sufficient to describe the vast majority of the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water science and technology	10.2166/wst.2009.111
759785	Development of a kinetic model for elemental sulfur and sulfate formation from the autotrophic sulfide oxidation using respirometric techniques	1/4/2009	González Sanchez, Armando;Tomas Ozalla, Miguel;Dorado Castaño, Antonio David;Gamisans Noguera, Xavier;Guisasola, Albert;Lafuente Sancho, Francisco Javier;Gabriel Buguña, David	A kinetic model for the elemental sulfur and sulfate production from the autotrophic sulfide oxidation has been proposed. It is based on two kinetic equations able to describe the simultaneous microbial consumption of oxygen and sulfide (OUR and SUR) as a function of a particular sulfide-oxidizing microorganism or its physiological state, these can be characterized by the assessment of their kinetic constants. The respirometric technique allowed to estimate the dynamic experimental OUR and SUR profiles, which were used to calibrate the kinetic model. The ratio OUR/SUR was proposed to predict the sulfide oxidation extent and then the fate of sulfide to elemental sulfur and sulfate. ©IWA Publishing 2009. The definitive peer-reviewed and edited version of this article is published in Water science and technology, vol. 59, núm. 7, p. 1323-1329, 2009. DOI: 10.2166/wst.2009.110 and is available at	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water science and technology	10.2166/wst.2009.110
716311	Sorption of Th(IV) onto Iron Corrosion Products: EXAFS Study	1/4/2009	Seco Olivella, Ferran;Hennig, C;Pablo Ribas, Joan de;Rovira Boixaderas, Miguel Arcangel;Rojo, I;Marti Gregorio, Vicenç;Gimenez, Javier;Duro Pérez, Lara;Grive, M;Bruno Salgot, Jordi		R2EM - Resource Recovery and Environmental Management	Environmental science and technology	10.1021/es803608a

716296	Thorium sorption onto magnetite and ferrihydrite in acidic conditions	1/3/2009	Rojo, I;Seco Olivella, Ferran;Rovira Boixaderas, Miguel Arcangel;Gimenez, Javier;Cervantes, Gemma;Marti Gregorio, Vicenç;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Journal of nuclear materials	
678729	Evaluation of polyaromatic hydrocarbon removal from aqueous solutions using activated carbon and hyper-crosslinked polymer (Macronet MN200)	1/2/2009	Valderrama Angel, Cesar Alberto;Gamisans Noguera, Xavier;Cortina Pallas, Jose Luis;Farran Marsa, Adriana;de las Heras Cisa, F. Xavier	BACKGROUND: Sorption of polycyclic aromatic hydrocarbons (PAHs) on activated carbon and the Macronet polymeric sorbent MN200 was investigated to determine the effectiveness of each sorbent for removal of pollutants from aqueous solution and their possible use as sorbent materials for groundwater. Experiments were carried out to determine the loading capacities of a family of PAHs (acenaphthene, anthracene, fluoranthene, fluorene, naphthalene and pyrene). RESULTS: Activated carbon was the more effective sorbent, with maximum loadings of PAHs between 90 and 230 g kg-1, while MN200 resin showed values of 25?160 g kg-1. Loading isotherms based on the Langmuir, Freundlich and Redlich?Peterson models were determined. The hydrophobic character of the pollutants appeared as an important parameter related to	R2EM - Resource Recovery and Environmental Management	Journal of chemical technology & biotechnology	10.1002/jctb.2030
23581753	On és la química? Com podem aprendre a descobrir-la	1/1/2009	Grau Vilalta, Maria Dolors	A l?Escola Politècnica Superior d?Enginyeria de Manresa (Departament d?Enginyeria Minera i Recursos Naturals), fa sis anys, es va començar la iniciativa de l?exposició «On és la química?», amb l?objectiu de mostrar als estudiants de secundària que la química es troba en tot allò que ens envolta. L?experiència va ser molt ben rebuda i es va ampliar amb el taller «Què és l?enginyeria química?», en el qual els estudiants prenen una part més activa. Finalment, s?ha completat amb l?edició d?una taula periòdica digital. A l?Escola Politècnica Superior d?Enginyeria de Manresa (Departament d?Enginyeria Minera i Recursos Naturals), fa sis anys, es va començar la iniciativa de l?exposició «On és la química?», amb l?objectiu de mostrar als estudiants de secundària que la química es troba en tot allò que ens envolta. L?experiència va ser molt ben rebuda i es va ampliar amb el taller «Què és l?enginyeria química?», en el qual els estudiants prenen una part més activa.	CITES - Sustainability Science and Technology Research Group	EduQ	10.2436/20.2003.02.31
11703700	Thorium sorption onto magnetite and ferrihydrate in acidic conditions	1/1/2009	Rojo, I.;Seco Olivella, Ferran;Rovira, M.;Gimenez Izquierdo, Francisco Javier;Cervantes, Gemma;Marti Gregorio, Vicenç;Pablo Ribas, Joan de	Sorption of Th(IV) onto two-line ferrihydrite and magnetite in NaClO4 solutions has been studied as a function of pH and ionic strength revealing that sorption onto both solids increases with pH while it is independent on ionic strength. Sorption capacity of both solids is high, the maximum sorption (almost 100% of Th(IV)) occurs at pH higher than 3.5 for ferrihydrite, and higher than 3.0 for magnetite. Sorption variation with pH was modeled with three different models using the FITEQL 4.0 code: non-electrostatic model, constant capacitance model, and diffuse-double layer model. In all cases, good fit to the experimental data is obtained with one-species: a corner-sharing bidentate-mononuclear surface complex, (triple bond; length of mdashFeO)2Th2+, which coincides with the surface complex postulated on these solids surface in previous spectroscopic studies; however, the monodentate species triple bond; length of mdashFeOThOH2+ also gives a	R2EM - Resource Recovery and Environmental Management	Journal of nuclear materials	10.1016/j.jnucmat.2008.12.014

2196618	Evaluation of sludge-based carbon as packing material in biofiltration in comparison to classic materials	1/1/2009	Dorado Castaño, Antonio David;Hernández, Jerónimo;Ribera, Gemma;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier;Gamisans Noguera, Xavier	Postprint (author?s final draft)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water practice and technology	10.2166/wpt.2009.025
2517712	Zonación del pirocloro primario en carbonatitas de Angola	1/1/2009	Bambi, Aurora Cuaiela João Mateus;Melgarejo Draper, Joan Carles;Gonçalves, Antonio Olimpio;Alfonso Abella, María Pura;Costanzo, Alessandra	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Macla: revista de la Sociedad Española de Mineralogía	
2170217	Sulfur-isotope variations in sulfide minerals from massive sulfide deposits of the northern Apennine ophiolites: inorganic and biogenic constraints	1/1/2009	Garuti, Giorgio;Alfonso Abella, María Pura;Proenza Fernandez, Joaquim;Zaccarini, Federica	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ofioliti	
2514598	Sequence of crystallisation of pegmatites: the Angola case	1/1/2009	Gonçalves, Antonio Olimpio;Melgarejo Draper, Joan Carles;Alfonso Abella, María Pura	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Estudios geológicos	

1235063	Estratigrafía y petrología del subsuelo precuaternario del sector SW de la depresión de Barcelona (Cadenas Costeras Catalanas, NE de Iberia)	1/12/2008	Parcerisa Duocastella, David;Gámez Torrent, Desiré;Gómez Gras, David Manuel;Usera, J;Simó Marfá, Juan Antonio;Carrera Ramírez, Jesús	Las numerosas obras de Ingeniería Civil que se han realizado en los últimos años en la depresión de Barcelona (ampliación del aeropuerto, ampliación del metro y AVE fundamentalmente) han permitido recabar mucha información sobre el subsuelo de esta área. En este trabajo se caracterizan las distintas unidades de subsuelo precuaternarias que aparecen en los numerosos sondeos realizados recientemente en la zona SW de la depresión de Barcelona. Se ha identificado un sustrato triásico formado por areniscas del Buntsandstein y dos unidades de edad Miocena, una basal de carácter continental y otra superior depositada en un ambiente marino. Todas estas unidades fueron fracturadas debido a una tectónica extensiva y, posteriormente, fueron fosilizadas en primer lugar por los sedimentos del Plioceno, que recubren la superficie de erosión messiniense, y finalmente, por el Cuaternario. El análisis de las distintas unidades permite obtener datos	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Revista de la Sociedad Geologica de Espa¿a	
678692	Sorption kinetics of polycyclic aromatic hidrocarbons removal using granular activated carbon: intraparticle difussion coefficients	1/9/2008	Valderrama Angel, Cesar Alberto;Gamisans Noguera, Xavier;de las Heras Cisa, F. Xavier;Farran Marsa, Adriana;Cortina Pallas, Jose Luis	Granular activated carbon (GAC) was evaluated as a suitable sorbent for polycyclic aromatic hydrocarbons (PAHs) removal from aqueous solutions. For this purpose, kinetic measurements on the extraction of a family of six PAHs were taken. A morphology study was performed by means of a scanning electron microscopy (SEM) analysis of GAC samples. Analyses of the batch rate data for each PAH were carried out using two kinetic models: the homogenous particle diffusion model (HPDM) and the shell progressive model (SPM). The process was controlled by diffusion rate the solutes (PAHs) that penetrated the reacted layer at PAH concentrations in the range of 0.2?10 mg L?1. The effective particle diffusion coefficients (Deff) derived from the two models were determined from the batch rate data. The Weber and Morris intraparticle diffusion model made a double contribution to the surface and pore diffusivities in the	R2EM - Resource Recovery and Environmental Management	Journal of hazardous materials	10.1016/j.jhazmat.2007.12.119
675034	UO2 dissolution in the presence of hydrogen peroxide at pH>11	1/9/2008	Meca, S;Marti Gregorio, Vicenç;Pablo Ribas, Joan de;Gimenez Izquierdo, Francisco Javier;Casas Pons, Ignasi		R2EM - Resource Recovery and Environmental Management	Radiochimica acta	
776815	Geology, fluid inclusion and sulphur isotope characteristics of the El Cobre VHMS deposit, Southern Cuba	1/9/2008	Cazañas, Xiomara;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Proenza Fernandez, Joaquim;Fallick, Anthony E.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralium deposita	10.1007/s00126-008-0197-z

759754	Modeling of a bacterial and fungal biofilter applied to toluene abatement: kinetic parameters estimation and model validation	1/7/2008	Dorado Castaño, Antonio David;Baquerizo, Guillermo;Maestre, Juan Pablo;Gamisans Noguera, Xavier;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier	Biofiltration has been established as a promising alternative to conventional air pollution control technologies. However, gas biofilters modeling has been less developed than experimental research due to the complexity of describing the fundamental processes and the lack of globally accepted physical, chemical and biological parameters. In addition, biofiltration modeling based on degradation activity of fungi has been rarely considered. For this reason, in this work, a dynamic model describing toluene abatement by a bacterial and fungal biofilter is developed, calibrated and validated. The mathematical model is based on detailed mass balances which include the main processes involved in the system: convection, absorption, diffusion and biodegradation. The model was calibrated and validated using experimental data obtained from two equal lab-scale biofilters packed with coconut fiber and pine leaves, respectively. Both reactors were operated under similar	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2007.09.004
680964	Antimony(V) sorption and mobility in calcareous soils	1/7/2008	Marti Gregorio, Vicenç;Rovira Boixaderas, Miguel Arcangel;Martínez Lladó, Xavier;Gimenez Izquierdo, Francisco Javier;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Geochimica et cosmochimica acta	
716240	Trace Element distribution in topsoils of Catalonia: Background and Reference Values and Relationship with Regional Geology	1/7/2008	Marti Gregorio, Vicenç;Vilà, M;Martínez Lladó, Xavier;Rovira Boixaderas, Miguel Arcangel;Domènech, J A;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Environmental engineering science	
678682	Characterization of azo dye (Acid Red 14) removal with granular activated carbon: equilibrium and kinetic data	1/6/2008	Valderrama Angel, Cesar Alberto;Cortina Pallas, Jose Luis;Farran Marsa, Adriana;Marti Gregorio, Vicenç;Gamisans Noguera, Xavier;de las Heras Cisa, F. Xavier	The work describes the sorption of an azo dye (Acid red 14) from aqueous solution onto Granular activated carbon (GAC) in order to characterize the sorption properties. Batch experiments were performed to determine loading isotherms at different pH values and evaluate the effect of the surface functional groups of the sorbent and the dye acid-base properties. The loading equilibrium data were modelled with Langmuir, Freundlich, and Redlich-Peterson isotherms. The maximum dye sorption capacity of GAC was determined as 31 g kg(-1) at neutral and basic pH values. Kinetic experiments were carried out at different pH values and Acid Red 44 (AR14) concentrations. Three theoretical models (Pseudo first, pseudosecond order reaction models, and the Elovich model) were used to describe the dye sorption kinetics. The sorption rate constants were determined by graphical analysis of the proposed models. The study showed that sorption followed a	R2EM - Resource Recovery and Environmental Management	Solvent extraction and ion exchange	10.1080/07366290802053504

680953	Sorption of antimony (V) onto synthetic goethite in carbonate medium	1/6/2008	Martínez Lladó, Xavier;Pablo Ribas, Joan de;Gimenez Izquierdo, Francisco Javier;Ayora Ibáñez, Carlos;Marti Gregorio, Vicenç;Rovira Boixaderas, Miguel Arcangel	The sorption kinetics of antimony(V) on synthetic goethite is very fast compared to the sorption of other metals on goethite (e.g. arsenic and selenium) and depends on temperature, with an activation energy of 49+9 kJ . mol21 in the temperature range 15?358C. Sorption isotherms have been developed at different temperatures and ionic strength values. The results have been modelled using a Langmuir isotherm and there is not a considerable influence of neither the temperature in the range studied (158C?358C), nor the ionic strength (between 0.001 and 0.01 mol . dm23). Sorption is very high at pH values lower than 8, at more alkaline pH, the sorption decreases with pH, as expected considering the Antimony(V) predominating complex in solution, Sb(OH)6	R2EM - Resource Recovery and Environmental Management	Solvent extraction and ion exchange	10.1080/07366290802053637
776822	Fluid evolution in the zoned rare-element pegmatite field at Cap de Creus, Catalonia, Spain	1/6/2008	Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles	The Cap de Creus LCT granitic pegmatites, in Catalonia, northeastern Spain, belong to the beryl ? columbite and beryl ? columbite ? phosphate subtypes and to the albite type. Fluid inclusions have been studied in all these types of pegmatite to determine the nature of the fluids involved in their formation. Beryl ? columbite pegmatites are zoned; border, wall, intermediate zones and a quartz core and albite-dominant replacement bodies are distinguished. Beryl ? columbite ? phosphate pegmatites, in addition, feature veins of albite and quartz?muscovite. In the albite pegmatites, phosphate and albite?chlorite veins also occur. Five types of fluid inclusions have been identified: hypersaline aqueous?carbonic fluid inclusions (type A), low-salinity aqueous? carbonic inclusions (type B), carbonic inclusions (type C), multiphase aqueous fluid inclusions (type D), and late multiphase aqueous?carbonic fluid inclusions (type E). In the early stages of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Canadian mineralogist	10.3749/canmin.46.3.597
1215034	Causas de los accidentes eléctricos en la minería	1/5/2008	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Edo Tomas, Joaquin Jesus		LRG - Lightning Research Group	Canteras y explotaciones	
759766	Biological sweetening of energy gases mimics in biotrickling filters	1/3/2008	Fortuny Picornell, Marc;Baeza, Juan A.;Gamisans Noguera, Xavier;Casas Alvero, Carles;Lafuente Sancho, Francisco Javier;Deshusses, Marc A.;Gabriel Buguña, David	Removal of hydrogen sulfide from waste and energy-rich gases is required, not only because of environmental health and safety reasons, but also because of operational reasons if such gases have to be used for energy generation. A biotrickling filter for the removal of ultra-high concentrations of H2S from oxygen-poor gases is proposed and studied in this work. Two laboratory-scale biotrickling filters were used to study the startup period and to determine the long-term performance of the gas sweetening process. The inlet H2S concentration ranged from 900 to 12000 ppmv and two different packing materials were investigated. There was no toxicity effect observed even at a the highest H2S concentration, and maximum elimination capacities of 280 and 250 g H2S m 3 h 1 were obtained at gas contact times of 167 and 180 s, respectively. Elemental sulfur and sulfate were found to be the most abundant end-	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2007.10.072

678664	Evaluation of hyper-cross-linked polymeric sorbents (Macronet MN200 and MN300) on dye (Acid red 14) removal process	1/3/2008	Valderrama Angel, Cesar Alberto;Cortina Pallas, Jose Luis;Farran Marsa, Adriana;Gamisans Noguera, Xavier;de las Heras Cisa, F. Xavier	Polymeric supports are presented as an alternative to granular activated carbon (GAC) for organic contaminants removal from waste waters from industrial processes. The present work describes the sorption of an azo dye (Acid red 14) from aqueous solution onto Macronet polymeric sorbent MN200 and MN300. Batch experiments were performed to determine loading isotherms and loading rates at different pH. The behaviour of a non-functionalized Macronet support MN200 was compared with Macronet MN300 containing tertiary amine groups. The loadings achieved were 65 g kg 1 for MN200 and 108 g kg 1 for MN300. The influence of the acidity on dye removal was notable; the decrease of pH provides an increase on the loading around 100% of the value reported at neutral pH. Equilibrium data were modelled with Langmuir, Freundlich and	R2EM - Resource Recovery and Environmental Management	Reactive and functional polymers	10.1016/j.reactfunctpolym.2007.11.005
678656	Kinetic study of acid red dye" removal by activated carbon and hyper-cross-linked polymeric sorbents Macronet Hypersol MN200 and MN300"	1/3/2008	Valderrama Angel, Cesar Alberto;Cortina Pallas, Jose Luis;Farran Marsa, Adriana;Gamisans Noguera, Xavier;de las Heras Cisa, F. Xavier	The search for suitable sorbents for persistent organic pollutants (like dyes) removal from aqueous solutions has prompted the evaluation of polymeric resins incorporating new properties that solve many of the existing problems when using granular activated carbon (GAC). A new type of non-functionalized macroporous hyper-cross-linked polymers Hypersol Macronet (MN200 and MN300) has been evaluated and kinetics measurements on the extraction of azo dye (Acid red 14) were made. Analyses of the respective batch rate data with two kinetic models, the homogenous particle diffusion model (HPDM)and the shell progressive model (SPM) were carried out. Sorbent phase was confirmed as the rate-determining step of the dye sorption process. Effective particle diffusion coefficients (Deff) were determined from the rate data proposed by both	R2EM - Resource Recovery and Environmental Management	Reactive and functional polymers	10.1016/j.reactfunctpolym.2007.11.013
680938	Sorption of selenium(IV) and selenium(VI) onto natural iron oxides: Goethite and hematite	1/1/2008	Rovira Boixaderas, Miguel Arcangel;Gimenez Izquierdo, Francisco Javier;Martínez Martínez, María R.;Marti Gregorio, Vicenç;Pablo Ribas, Joan de;Martínez Lladó, Xavier;Duro Pérez, Lara	Selenium is a toxic element with a relatively high mobility in the natural waters. Iron oxy-hydroxides might play an important role in the migration of this element as well as on its removal from contaminated water. In this work we study the interaction of Se(IV), and Se(VI) with natural iron oxides hematite and goethite through two series of batch experiments at room temperature. In the first series, sorption as a function of initial selenium concentration is studied and the results have been fitted with Langmuir isotherms. In a second series of experiments, sorption is studied as a function of pH, being the main trend an increase of the sorption at acidic pH. The variation of the sorption with pH has been modelled with a triple layer surface complexation model and using the FITEQL program. The experimental data have been modelled considering for the Se(IV) the formation of the FeOSe(O)O? complex onto the hematite surface,	R2EM - Resource Recovery and Environmental Management	Journal of hazardous materials	10.1016/j.jhazmat.2007.04.098
678641	Kinetics of polycyclic aromatic hydrocarbons removal using hyper-cross-linked polymeric sorbents Macronet Hypersol MN200	1/12/2007	Valderrama Angel, Cesar Alberto;Gamisans Noguera, Xavier;de las Heras Cisa, F. Xavier;Cortina Pallas, Jose Luis;Farran Marsa, Adriana	The search for suitable sorbents for polycyclic aromatic hydrocarbons (PAHs) removal from aqueous solutions prompted the evaluation of polymeric resins incorporating new properties that solve many of the existing problems when using granulated-activated carbon. A new type of non-functionalized macroporous hyper cross-linked resin, Hypersol Macronet (MN200) has been evaluated. Analyses of the respective batch rate data, for a family of six PAHs, with two kinetic models, the homogenous diffusion model (HDM) and the shell progressive model (SPM) were carried out. The process is controlled by the rate of diffusion of the solutes (PAHs) penetrating the reacted layer at PAH concentrations for the range 0.1-10 mg L-1. Effective particle-diffusion coefficients (D-eff) were determined from the rate data proposed by both models. The D-eff values from both HMD and SPM equations varied from 5 x 10(-13) -4 x 10(-15) m(2) s(-1). Pore diffusion is considered to be the	R2EM - Resource Recovery and Environmental Management	Reactive and functional polymers	10.1016/j.reactfunctpolym.2007.07.020

1235075	Evolución diagenética de la plataforma carbonatada Aptiense Superior del sector Benicàssim-Oropesa, Cuenca del Maestrat, Cadena Ibérica	1/11/2007	Tomás, S;Parcerisa Duocastella, David;Travé, Anna	The upper Aptian carbonate platform of Benicàssim-Orpesa area contains reefal facies that are affected by a complex diagenetic evolution including: (1) Calcite 1, (2) Calcite 2, (3) Calcite 3, (4) Silica and dolomite, and (5) Dedolomite and Calcite 4. Cc1 with low Fe content indicates an early marine environment in which the replacement of the coral walls occurred together with precipitation of this cement in the primar y porosity. Cc2 with high Fe content and cross- cutting mosaic geometries are interpreted as indicative of a sea level drop resulting in the alteration of the corals in a meteoric-phreatic environment and the formation of dissolution cavities. Cc3 with low Fe and high Sr content indicates a new episode of marine influence probably related with a sea level rise and resulting in the precipitation of this cement in the secondary porosity. Silica precipitated contemporaneously to dolomite rhombohedra crystals. The later Cc4, with high Fe and low Sr content, also	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geogaceta	
814367	Analysis of essential oils from chemotypes of thymus vulgaris in Catalonia	1/9/2007	Torras Grane, Josep;Grau Vilalta, Maria Dolors;López Fernandez, Jordi;de las Heras Cisa, F. Xavier		ERNMA - Engineering of the Natural Resources and Environment	Journal of the science of food and agriculture	
759743	Characterisation and performance of coconut fibre as packing material in the removal of ammonia in gas-phase biofilters	1/8/2007	Gabriel Buguña, David;Maestre, Juan Pablo;Martin, L;Gamisans Noguera, Xavier;Lafuente Sancho, Francisco Javier	Data from the regular monitoring of a full-scale biofilter, filled with coconut fibre as packing material at a municipal solid waste treatment facility, were analysed to assess potential operational problems and to evaluate reactor performance in terms of ammonia removal, the target compound at the facility. Performance from year-round data was assessed based on ammonia removal efficiency (RE) and elimination capacity (EC). Reduced efficiencies were related to a low water content in the packed bed of the biofilter. Thus, a pilot-scale biofilter filled with coconut fibre as packing material was investigated for the treatment of ammonia. Biological activity of coconut fibre and biofilter performance were assessed during the operation of the pilot-scale biofilter under steady-state and transient conditions at inlet ammonia concentrations in the range of 45?300 ppmv and gas contact times of 36?19 s. A maximum EC of 12 g [NH3] m?3 h?1 at an 80% RE was found for	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Biosystems engineering	10.1016/j.biosystemseng.2007.03.038
759733	A dynamic model for ammonia abatement by gas-phase biofiltration including pH and leachate modelling	1/8/2007	Baquerizo, Guillermo;Gamisans Noguera, Xavier;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Biosystems engineering	

716184	Uptake of U(VI) by hydrated and degraded cement	1/8/2007	Colas, E;Grive, M;Gaona, X;Duro Pérez, Lara;Rojo Cort, Isabel;Rovira Boixaderas, Miguel Arcangel;Marti Gregorio, Vicenç;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Geochimica et cosmochimica acta	
1235092	Triassic magnetic overprints related to albitization in granites from the Morvan massif (France)	1/8/2007	Ricordel-Prognon, Caroline;Parcerisa Duocastella, David;Thiry, Médard;Moreau, Marie G.;Gómez Gras, David Manuel	The Morvan massif, located in the northern part of the French Massif Central, shows widespread unusual deep alteration profiles in the Palaeozoic basement rocks (gneisses, granites and rhyolites). They are characterised by overall albitization, chloritisation and haematisation. Albite and chlorite constitute their characteristic mineral paragenesis. Haematite pigmentation comes with this paragenesis and gives an overall pink coloration to the weathered rocks. A paleomagnetic analysis was conducted after detailed petrographical and mineralogical studies of the alteration that lead to the albitized profiles. Special attention was devoted to the occurrence of haematite, the main paleomagnetism carrier, with the though to date this palaeoweathering event. Petrographical checking after heating treatments showed that	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Palaeogeography, palaeoclimatology, palaeoecology	10.1016/j.palaeo.2007.04.001
716171	Distribution of polycyclic aromatic hydrocarbons (PAHs) and tributyltin (TBT) in Barcelona harbour sediments and their impact on benthic communities	1/7/2007	Marti Gregorio, Vicenç;Gibert Agullo, Oriol;Martínez Lladó, Xavier;Diez, S;Romo García, Javier;Bayona Termens, Josep Maria;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Environmental pollution	
1647738	A discrete-time technique for the steady-state analysis of nonlinear class E amplifiers	11/6/2007	del Águila López, Francisco;Palà Schönwälder, Pere;Molina Gaudó, Pilar;Mediano Heredia, Arturo	Switched circuits are widely used, particularly for power electronic applications in which efficiency is important. Of these applications, the class-E amplifier has been given particular attention, since it is theoretically a 100%-efficient switched circuit that has been successfully demonstrated in applications such as ballasts, converters, frequency multipliers, and communication amplifiers at frequencies as high as 10 GHz. However, with increasing power or frequency, nonlinearities become extremely important, for instance, in order to achieve actual class-E operation and even to avoid destruction of the switching device. In this paper, a new method for determining the steady-state response of nonlinear circuits containing ideal switches is proposed. While the method is more general, the description is based on the class-E amplifier because of its inherent interest. The method is based on a time-domain Gear discretization of the circuit equations. A	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2007.896741

678633	Kinetics of sorption of polyaromatic hydrocarbons onto granular activated carbon and Macronet hyper-cross-linked polymers (MN200)	1/6/2007	Valderrama Angel, Cesar Alberto;Cortina Pallas, Jose Luis;Farran Marsa, Adriana;Gamisans Noguera, Xavier;Lao Luque, Concepcion	Polymeric supports are presented as an alternative to granular activated carbon (GAC) for organic contaminant removal from groundwater using permeable reactive barriers (PRB). The search for suitable polymeric sorbents for hydrocarbon extraction from aqueous streams has prompted the synthesis of new resins incorporating new functionalities or modifying the polymer network properties that solve many of the existing problems. Between them, the new type of polymeric sorbents Macronet Hypersol containing a styrene-divinylbenzene macroporous hyperreticulated network has been evaluated. Because of their potential sorptive properties, tests were conducted to determine the feasibility of using them as a low-cost reactive material for groundwater applications. The present work describes the sorption of six polycyclic hydrocarbons (PAHs) from aqueous solution onto both Macronet polymeric sorbent MN200 and granular activated carbon.	R2EM - Resource Recovery and Environmental Management	Journal of colloid and interface science	10.1016/j.jcis.2007.01.039
1647730	An 11-Mb/s 2.1-mW synchronous superregenerative receiver at 2.4 GHz	1/6/2007	Moncunill Geniz, Francisco Javier;Palà Schönwälder, Pere;Dehollain, C;Joehl, N;Declercq, M		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on microwave theory and techniques	10.1109/TMTT.2007.896796
759722	Fungal biofilters for toluene biofiltration: evaluation of the performance with four packing materials under different operating conditions	1/3/2007	Maestre, Juan Pablo;Gamisans Noguera, Xavier;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier	Packing materials play a key role in the performance of bioreactors for waste gas treatment and particularly in biofilter applications. In this work, the performance of four differently packed biofilters operated in parallel for the treatment of relatively high inlet concentration of toluene was studied. The reactors were compared for determining the suitability of coconut fiber, digested sludge compost from a waste water treatment plant, peat and pine leaves as packing materials for biofiltration of toluene. A deep characterisation of materials was carried out. Biological activity and packing capabilities related to toluene removal were determined throughout 240 days of operation under different conditions of nutrients addition and watering regime. Also, biofilters recovering after a short shutdown was investigated. Nutrient addition resulted in improved removal efficiencies (RE) and elimination capacities (EC) of biofilters reaching maximum ECs between	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	10.1016/j.chemosphere.2006.11.004
678597	A new time resolved laser-induced fluorescence spectrometry (TRFLS) data adquisitio procedure aplied to the uranyl-phosphate system	1/3/2007	Bonhoure, I;Meca, S;Marti Gregorio, Vicenç;Pablo Ribas, Joan de;Cortina Pallas, Jose Luis		R2EM - Resource Recovery and Environmental Management	Radiochimica acta	

758620	Removal of PAHs from water using an immature coal (leonardite)	1/3/2007	Zeledón Toruño, Zoraida del Carmen;Lao Luque, Concepcion;de las Heras Cisa, F. Xavier;Sole Sardans, M. Montserrat		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemosphere	
1235082	The Upper Oligocene of Montgat (Catalan Coastal Ranges, Spain): new age constraints to the western Mediterranean Basin opening	1/3/2007	Parcerisa Duocastella, David;Gómez Gras, David Manuel;Roca Abella, Eduard;Madurell Malapeira, Joan;Agustí Segarra, Jordi	The Oligocene deposits of Montgat are integrated in a small outcrop made up of Cenozoic and Mesozoic rocks located in the Garraf-Montnegre horst, close to the major Barcelona fault. The Oligocene of Montgat consists of detrital sediments of continental origin mainly deposited in alluvial fan environments; these deposits are folded and affected by thrusts and strike-slip faults. They can be divided in two lithostratigraphic units separated by a minor southwest-directed thrust: (i) the Turó de Montgat Unit composed of litharenites and lithorudites with high contents of quartz, feldspar, plutonic and limestone rock fragments; and (ii) the Pla de la Concòrdia Unit composed of calcilitharenites and calcilithorudites with high contents of dolosparite and dolomicrite rock fragments. The petrological composition of both units indicates that sediments were derived from the erosion of Triassic (Buntsandstein, Muschelkalk and Keuper facies), Jurassic and Lower	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geologica acta	10.1344/105.000000306
701013	Determination of cyanide and related compounds by Capillary Zone Electrophoresis	1/12/2006	Aguilar Sanjuan, Manuel;Farran Marsa, Adriana;Vicens, Martí;Marti Gregorio, Vicenç;Martínez Martínez, María R.		R2EM - Resource Recovery and Environmental Management	Trends in chromatography	
811643	Origin and distribution of biomarkers in the sulphur rich Utrillas coal basin Teruel mining district Spain	1/12/2006	Olivella Costa, Maria Àngels;Gorchs Altarriba, Roser;de las Heras Cisa, F. Xavier	The Utrillas coal facies are located in the Maestrazgo basin in NE Spain. This mining district of Teruel contains sub-bituminous deposits from the Middle Albian (Lower Cretaceous 105 Ma) in areas near a delta estuary with abundant sulphur. The high sulphur content is due to an influx of sulphate caused by the geological recycling of Triassic gypsum from the catchment area into the delta estuary. In some outcrops, the weathered coal reveals leonardite deposits. The depositional environment of the basin originated coals, some of which are currently mined. The organic matter of the coals has been the object of scattered reports. Studies have focused on bulk pyrolysis parameters and microscopic observation in Utrillas samples, as well as the inorganic and insoluble organic fraction. We analysed the organic soluble extract of the Utrillas coals using GC?MS in	ERNMA - Engineering of the Natural Resources and Environment	Organic geochemistry	10.1016/j.orggeochem.2006.07.015

1234570	Nonisothermal thermogravimetry of Spanish fossil fuels	1/11/2006	Olivella Costa, Maria Àngels;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Oil shale	
1215027	Estudio de los riesgos y medidas preventivas en los trabajos topográficos en explotaciones mineras a cielo abierto	1/9/2006	Sanmiquel Pera, Lluis;Freijo Alvarez, Modesto;Edo Tomas, Joaquin Jesus;Comajuncosa Casabella, Josep		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Canteras y explotaciones	
1235162	Fe and Mn in calcites cementing red beds: a record of oxidation-reduction conditions. Examples form the Catalan Coastal Ranges (NE Spain)	1/6/2006	Parcerisa Duocastella, David;Gómez Gras, David Manuel;Travé, Anna;Martín Martín, Juan Diego;Maestro i Maideu, Eudald	Fe and Mn occur in calcite cements depending on the oxidizing?reducing conditions of cementing waters, which may change according to depositional and diagenetic environments. In red beds, Mn and Fe are available from the ferruginous matrix. Thus, it is possible to know the oxidizing?reducing conditions of fluids that precipitated calcite as a function of Mn and Fe content in calcite cement. A detailed petrological (with special attention to cathodoluminescence) and geochemical analysis of these cements is a useful tool to constrain the diagenetic evolution of red beds and the history of the basin where they deposited.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/j.gexplo.2005.11.081
814361	Apropar els estudiants de Secundària al món de la química	1/6/2006	Torra Bitlloch, Immaculada;Grau Vilalta, Maria Dolors		EXPLORATORI - EXPLORATORI Natural Resources	Ciències: revista del professorat de ciències de Primària i Secundària	

1234575	Distribution of polycyclic aromatic hydrocarbons in riverine waters after mediterranean forest fires	1/2/2006	Olivella Costa, Maria Àngels;Ribalta, T G;de Febrer, A R;Mollet Muntaner, Jesus;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Science of the total environment	
1235171	Conditions of kaolin illitization in the permo-triassic sandstones from the SE Iberian Ranges, Spain	1/1/2006	Martín Martín, Juan Diego;Gómez Gras, David Manuel;Santfeliu, Teofilo;Permanyer, Albert;Núñez Genestós, Juan Agustín;Parcerisa Duocastella, David		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/j.gexplo.2005.11.061
1234585	Estudio de las variaciones de los flujos de materia orgánica sedimentaria en las cuencas de Ribesalbes y Orgañá	1/1/2006	Olivella Costa, Maria Àngels;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Afinidad: revista de química teórica y aplicada	
776934	Isotopic evidence for biogenic precipitation as a principal mineralization process in coastal gasohydrothermal vents, Punta Mita, Mexico	15/12/2005	Alfonso Abella, María Pura;Prol Ledesma, Rosa Maria;Canet Miquel, Carles;Melgarejo Draper, Joan Carles;Fallick, Anthony E.	Mineral deposition in shallow submarine gasohydrothermal vents may be triggered by microbial activity according to isotopic data obtained for sulphides and carbonates. Submarine gasohydrothermal vents in Punta Mita, at the western coast of Mexico, discharge a mixture of water and gas (mainly nitrogen and methane) at a temperature of 85 °C. Algal mats cover the areas where thermal fluids are being discharged. The main minerals deposited due to the hydrothermal activity are calcite and pyrite. Moreover, barite, carbonate-hydroxylapatite, cinnabar and Tl-sulphide are actively depositing. Calcite is deposited as fine-scale laminated tufa-like aggregates with interlayered pyrite in thin layers. Cinnabar and Tl-sulphide are present within pyrite layers. In Punta Mita vents, almost all d34S values measured in pyrite range from -	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical geology	10.1016/j.chemgeo.2005.07.016

776927	Stable isotope geochemistry of the Carboniferous Zn-Pb-Cu sediment-hosted sulfide deposits from the Southern Catalonian Coastal Ranges	1/12/2005	Canet Miquel, Carles;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Fallick, Anthony E.	Carboniferous sedimentary rocks in the southwestern Catalonian Coastal Ranges contain stratiform (Zn, Pb, Cu) sulfide deposits. Stable isotope compositions of sulfur, oxygen, and hydrogen were studied in five localities in order to establish the source of hydrothermal fluids and the influence of metamorphism on these deposits. Sulfur isotopes were analyzed in pyrrhotite, pyrite, sphalerite, chalcopyrite, and galena. The d34S(CDT) values lie mostly between -1.0 and +7.0? (average +4.4?). Except for pyrrhotite-pyrite pairs, all the sulfide minerals show isotopic disequilibrium. d34S values suggest that sulfur was derived by thermochemical reduction of seawater sulfate in a deep-circulating convective system. Fluid inclusions were studied in quartz crystals from the sediment-hosted stratiform occurrences. They are two-phase (L-V), with salinity between 1.1	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International geology review	10.2747/0020-6814.47.12.1298
759705	A detailed model of a biofilter for ammonia removal: Model parameters analysis and model validation	1/10/2005	Baquerizo, Guillermo;Maestre, Juan Pablo;Takeyuki, Sakuma;Deshusses, Marc A.;Gamisans Noguera, Xavier;Gabriel Buguña, David;Lafuente Sancho, Francisco Javier	A dynamic model to describe ammonia removal in a gas-phase biofilter was developed. The mathematical model is based on discretized mass balances and detailed nitrification kinetics that include inhibitory effects caused by free ammonia (FA) and free nitrous acid (FNA). The model has been able to predict experimental results for dynamic operation under different loading rates (from 3.2 to 17.2 g NH3 h-1 m-3). In particular the model was capable of predicting the outlet ammonia gas concentrations as well as reproducing satisfactorily the gaseous ammonia concentration profile with time under FA inhibition and under non-inhibitory conditions. A sensitivity analysis showed that pH strongly influences the results of the model.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering journal	10.1016/j.cej.2005.03.003
758597	Sorption of Cd(II) and Pb(II) from aqueous solutions by a low-rank coal (leonardite)	1/10/2005	Lao Luque, Concepcion;Zeledón Toruño, Zoraida del Carmen;Gamisans Noguera, Xavier;Sole Sardans, M. Montserrat		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Separation and purification technology	
1647719	A 2.4-GHz DSSS superregenerative receiver with a simple delay-locked loop	1/8/2005	Moncunill Geniz, Francisco Javier;Palà Schönwälder, Pere;Dehollain, C;Joehl, N;Declercq, M		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE microwave and wireless components letters	10.1109/LMWC.2005.852775

1647713	New superregenerative architectures for direct-sequence spread-spectrum communications	1/7/2005	Moncunill Geniz, Francisco Javier;Palà Schönwälder, Pere;del Águila López, Francisco		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems II: analog and digital signal processing	10.1109/TCSII.2005.850401
776955	Caracterización mineralógica de cloritas de los depósitos hidrotermales de Zn-Pb-Cu de L'Alforja (Cadena Costera Catalana, España)	1/7/2005	Canet Miquel, Carles;Tauler Ferré, Esperança;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Labrador Carrasco, Manuel		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de Mineralogía	
758608	Nickel and copper removal from aqueous solution by an immature coal (leonardite): effect of pH, contact time and water hardness	1/6/2005	Zeledón Toruño, Zoraida del Carmen;Lao Luque, Concepcion;Sole Sardans, M. Montserrat		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of chemical technology & biotechnology	
716200	Gestión de emplazamientos contaminados con hidrocarburos del petróleo basada en la Atenuación Natural Monitorizada (ANM)	1/6/2005	Marti Gregorio, Vicenç;Pablo Ribas, Joan de;Rovira Boixaderas, Miguel Arcangel		R2EM - Resource Recovery and Environmental Management	RETEMA: revista técnica de medio ambiente	

1215019	Estudio de la seguridad y salud en explotaciones de piedra ornamental en Cataluña	1/6/2005	Freijo Alvarez, Modesto;Sanmiquel Pera, Lluis;Edo Tomas, Joaquin Jesus;Comajuncosa Casabella, Josep;Fortuny Santos, Jordi		LRG - Lightning Research Group	Canteras y explotaciones	
8794140	The dissolution of apatite II	1/1/2005	Cama Robert, Jordi;Oliva Moncunill, Josep;Ayora Ibañez, Carlos;Cortina Pallas, Jose Luis;Pablo Ribas, Joan de		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geochimica et cosmochimica acta	
1647707	A generic approach to the theory of superregenerative reception	1/1/2005	Moncunill Geniz, Francisco Javier;Palà Schönwälder, Pere;Mas Casals, Orestes Miquel		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/TCSI.2004.840095
1235205	El metamorfismo de muy bajo grado en sedimentos permo-triásicos de la cordillera ibérica oriental (sierras de Espina y Espadán, Castellón)	1/1/2005	Martín Martín, Juan Diego;Gómez Gras, David Manuel;Sanfeliu, T;Parcerisa Duocastella, David	The central area of the western Iberian Chain (Espina and Espadán ranges) represents the depocentre of the permo-triassic rift basin and registers a sequences of red-beds up to 800-m-thick. The permo-triassic clay mineral assemblage is formed by illite pyrophyllite sudoite in the lower unit (Permian), and illite (95%) in the middle and upper units (Triassic). The existence of authigenic pyrophyllite indicates low-grade metamorphic conditions in that area of the Chain. These conditions are well correlated with the KI mean value meassure in lutites and sandstones, and the development of slaty cleavage. The metamorphism is associated with the heat flow circulation along the extensive fault system inherited from hercynian times and reactivated during the alpine compression.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geotemas (Madrid)	

1235156	A model of early calcite cementation in alluvial fans: evidence from the Burdigalian sandstones and limestones of the Vallès-Penedès half-graben (NE Spain)	1/1/2005	Parcerisa Duocastella, David;Gómez Gras, David Manuel;Travé, Anna	The Vallès-Penedès half-graben developed during a Neogene extensive period as part of the Catalan Coastal Ranges in the northwestern edge of the Valencia Trough. The Neogene deposits of the Vallès-Penedès half-graben consist of, from base to top, three lithostratigraphic complexes: i) a lower continental complex of Aquitanian??early Langhian age; ii) a continental to marine complex with reefal carbonate platforms of Langhian age and; iii) an upper continental complex of middle Serravallian?Tortonian age. This study focuses on the calcite cements of the lower continental complex consisting of red beds (mudstones, sandstones and conglomerates) and lacustrine limestones deposited in alluvial fan environments. The studied materials are cemented by calcite precipitated from meteoric waters that circulated through the sediments during the early diagenesis at	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sedimentary geology	10.1016/j.sedgeo.2005.04.004
1221127	Batch Distillation: simulation and experimental validation	1/10/2004	Bonsfills Pedros, Ana;Puigjaner Corbella, Luis		BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Chemical engineering and processing: Process Intensification	
1249043	Aigües de mina: problemàtica i remediació	1/4/2004	Oliva Moncunill, Josep			El cuele: boletin del Colegio Oficial de la Ingeniería Técnica Minera de Cataluña y Baleares	
776920	Geochemical evidences of sedimentary-exhalative origin of the shale-hosted PGE-Ag-Au-Zn-Cu occurrences of the Prades Mountains (Catalonia, Spain): trace-element abundances and Sm-Nd isotopes	1/4/2004	Canet Miquel, Carles;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Belyatsky, Boris V.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/j.gexplo.2004.01.002

759675	The role of the liquid film on the mass transfer in venturi-based scrubbers	1/3/2004	Gamisans Noguera, Xavier;Sarrà, Montserrat;Lafuente Sancho, Francisco Javier	The mass transfer in a jet?Venturi scrubber has been studied experimentally. Data have been obtained for the absorption of sulphur dioxide into aqueous sodium hydroxide solutions. The effect of the throat length and diameter has been studied. Two types of atomizers have also been tested. The experimental values have been compared with the predictions of a model based on an instantaneous reaction in the liquid phase. The split of the liquid phase into drops and film has been introduced by using an annular flow/boundary layer model. The results showed that the liquid film plays an important role in the overall mass transfer process.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering research and design	10.1205/026387604322870480
759663	The split of the liquid phase in drops and film in an ejector-venturi scrubber	1/3/2004	Gamisans Noguera, Xavier;Sarrà, Montserrat;Lafuente Sancho, Francisco Javier;Azzopardi, B J	Liquid distribution along an ejector-Venturi scrubber was determined experimentally in an industrial-scale pilot plant. The effects of geometry as well as flow rates were studied. The results showed that a significant fraction of the liquid travels as a film. Therefore, it should be taken into consideration in mass transfer studies, where usually it is neglected. The data were used to test a model, that allows for interchange of liquid between drops and film flowing on the Venturi walls. There was good agreement between experiment and predictions.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering communications	10.1080/00986440490272564
759692	Fluid flow and pumping efficiency in an ejector-venturi scrubber	1/2/2004	Gamisans Noguera, Xavier;Sarrà, Montserrat;Lafuente Sancho, Francisco Javier	The air self-entrainment by a liquid jet is investigated in an industrial scale ejector-venturi scrubber. A mathematical model based on steady-state macroscopic mechanical energy balances is formulated and arranged in order to obtain simple equations useful for design purposes. Experiments are carried out in order to evaluate empirical values for the frictional coefficients. Gas entrainment and void pressure measurements are presented by using different geometric combinations for the venturi tube throat and the pressure-swirl atomizer used for inducing the gas flow rate.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering and processing: Process Intensification	10.1016/S0255-2701(03)00104-1
1234561	Preservation of peptide moieties in three Spanish sulfur-rich tertiary kerogens	1/2/2004	Río, J del;Olivella Costa, Maria Àngels;Knicker, H;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Organic geochemistry	

705295	Using NOAA AVHRR and SPOT VGT data to estimate surface parameters: application to a mesoscale meteorological model	1/1/2004	Pineda Rüegg, Nicolau;Jorba Casellas, Oriol;Jorge Sanchez, Juan;Baldasano Recio, Jose M.		GREMS - Sustainable Mining Research Group	International journal of remote sensing	
1235149	Sedimentología de la unidad superior de la formación Fortuna (mioceno inferior) en el NE de Túnez	1/1/2004	Gómez Gras, David Manuel;Zoghlami, Karima;Parcerisa Duocastella, David	La Formación Fortuna (Oligoceno superior-Mioceno inferior) aflora ampliamente en Túnez y está constituida por tres unidades de carácter detrítico. Las dos inferiores se sedimentaron en un ambiente deltaico-lagunar mientras que la unidad superior es fluvial. Este trabajo se centra en la unidad superior de la Formación Fortuna (Aquitaniense-Burdigaliense), que en el noreste de Túnez posee una potencia de 130 m y está constituida por areniscas de tamaño fino a muy grueso con cantos dispersos de cuarzo. Los estratos, de potencias entre 0,5 y 4 m, muestran laminaciones cruzadas, que indican un transporte hacia el NE y E, paralelo a las direcciones estructurales del Atlas tunecino. En estos materiales dominan las facies de canales y de llanuras arenosas propias de un ambiente de sedimentación fluvial arenoso trenzado.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín geológico y minero	
1235144	Sedimentología del mioceno de la ciudad autónoma de Melilla	1/1/2004	Gómez Gras, David Manuel;Parcerisa Duocastella, David	En este trabajo se describen la estratigrafía y las facies de los materiales miocenos del territorio de la Ciudad Autónoma de Melilla y se realiza una correlación con las diferentes unidades cronoestratigráficas descritas en la cuenca que permite asignar una edad más precisa a estos materiales. Se definen tres nuevas unidades estratigráficas. La unidad carbonática inferior consta de dos subunidades. La subunidad inferior arrecifal está formada casi exclusivamente por colonias de corales de tipo Porites (boundstones), con facies bien desarrolladas de núcleo y talud arrecifal. Estas facies arrecifales son muy similares a las descritas en los arrecifes coralinos típicos del Messiniense. Adaptándose a las bioconstrucciones arrecifales se dispone una subunidad carbonática bioclástica compuesta principalmente por calizas (grainstones-packstones) de moluscos y algas rojas. La estratificación de esta subunidad exhibe diferentes grupos de clinoformas que indican una	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Revista de la Sociedad Geologica de Espa¿a	
1249035	Mineria i societat	1/1/2004	Oliva Moncunill, Josep			Informacions	

811621	New aromatic biomarkers in sulfur-rich coal	1/12/2003	Gorchs Altarriba, Roser;Olivella Costa, Maria Àngels;de las Heras Cisa, F. Xavier		ERNMA - Engineering of the Natural Resources and Environment	Organic geochemistry	10.1016/j.orggeochem.2003.08.002
2566704	Comparison of three infrared satellite techniques to estimate accumulated rainfall over the Iberian Peninsula	30/11/2003	Tarruella Boixadera, Ramon;Jorge Sanchez, Juan	Postprint (published version)	GREMS - Sustainable Mining Research Group	International journal of climatology	
776899	Dedolomitization in different alkaline media: application to portland cement paste	1/9/2003	Garcia Vilchez, Encarnacion;Alfonso Abella, María Pura;Labrador Carrasco, Manuel;Galí Medina, Salvador	The dedolomitization reaction kinetics is studied through several long-term experiments consisting of an aqueous dispersion of fine powders of dolomite and portlandite with alkalinity between 0.1 and 1 M KOH, at 25 and 75 °C. The experimental results are numerically simulated to calculate the apparent dissolution constant rates for dolomite, kdol. At low temperature, two dissolution stages were observed. In an early stage, part of dolomite powder dissolves quickly until an apparent steady is reached. After several days, the reaction continues at a lower rate. The calculated dissolution rate for dolomite in the first stage is one order of magnitude higher than that of the second stage. At 75 °C, the kdol is two orders of magnitude higher than at 25 °C. The addition of alkali increases the kdol at high temperature, but reduces it at room temperature.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Cement and concrete research	10.1016/S0008-8846(03)00095-4
776892	Surface alteration of dolomite in dedolomitization reaction in alkaline media	1/9/2003	Garcia Vilchez, Encarnacion;Alfonso Abella, María Pura;Tauler Ferré, Esperança;Galí Medina, Salvador		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Cement and concrete research	10.1016/S0008-8846(03)00096-6

776913	V-rich minerals in contact-metamorphosed silurian sedex deposits in the Poblet area, southwestern Catalonia, Spain	1/6/2003	Canet Miquel, Carles;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Jorge Villar, Susana	The Lower Llandoverian metasedimentary rocks of the Prades Mountains, southwestern Catalonia, Spain, consist of interstratified anorthite-rich beds, chert beds, phosphate beds, sulfide-rich black shale (with mainly pyrrhotite and minor chalcopyrite), massive sulfide lenses and calc-silicate beds. These metasedimentary rocks are anomalously enriched in V and Cr, and have disseminated minerals of precious metals: mainly sperrylite and palladian lo¨llingite. The V- and Cr-rich associations are the result of an isochemical metamorphism of V- and Cr-rich protoliths. The contact metamorphism of V-rich shale produced metapelitic hornfels with V-rich aluminosilicates and V?Cr oxides. The occurrence of V oxides in apparent equilibrium with V-rich silicates suggests a limit for the V and Cr contents in these aluminosilicates at the conditions of thermal metamorphism. On the other hand, metamorphism of anorthite- and V-,Cr-rich sedimentary rocks produced V- and Cr-rich	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Canadian mineralogist	10.2113/gscanmin.41.3.561
776906	PGE-bearing minerals in silurian sedex deposits in the Poblet area, southwestern Catalonia, Spain	1/6/2003	Canet Miquel, Carles;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Jorge Villar, Susana	The Lower Llandoverian metasedimentary series of the Prades Mountains, in southwestern Catalonia, Spain, consists of interbedded massive feldspar beds, composed of almost pure anorthite, with chert, phosphate beds, sulfide-rich black shale, massive sulfides and minor calc-silicate beds. The sulfides mainly consist of pyrrhotite with minor chalcopyrite. The metasedimentary rocks are anomalously V- and Cr-rich and contain disseminated minerals bearing precious metals, e.g., sperrylite and palladian lo¨llingite. On the basis of the geological setting of ore formation and the textural relationships among the minerals, a sedex model is proposed for the primary origin of these deposits and occurrences. However, textural patterns and mineral compositions were modified during several episodes. Firstly, Hercynian deformation and associated regional low-grade metamorphism produced cleavage and small-scale veining in the primary associations. Later, contact	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Canadian mineralogist	10.2113/gscanmin.41.3.581
776871	D, O and C isotopes in podiform chromitites as fluid tracers for hydrothermal alteration processes of the Mayarí-Baracoa Ophiolitic Belt, eastern Cuba	1/5/2003	Proenza Fernandez, Joaquim;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Gervilla Linares, Fernando;Tritlla, J.;Fallick, Anthony E.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/S0375-6742(03)00021-9
758588	Removal of Zn from aqueous solutions by low-rank coal	1/4/2003	Sole Sardans, M. Montserrat;Casas Sabata, Jose Maria;Lao Luque, Concepcion		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Water, air and soil pollution	

758578	Heavy metals and metalloids in sediments from the Llobregat basin, Spain	1/3/2003	Rosas, H;Sole Sardans, M. Montserrat;Casas Sabata, Jose Maria;Lao Luque, Concepcion		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Environmental geology	
776885	Origin of the mineralizing fluids from the Carboniferous sedex deposits of L'Alforja (SW Catalonian Coastal Ranges, Spain)	1/1/2003	Canet Miquel, Carles;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Fallick, Anthony E.	Fluid inclusions were studied in stratiform ore deposits hosted in Namurian sedimentary series near L'Alforja (southernmost part of the Catalonian Coastal Ranges, NE Spain). Primary fluid inclusions in quartz crystals from L'Alforja ore bodies are two-phase (L-V), with salinity between 1.1 and 18.0 wt.% NaCl eq. and homogenization temperature mainly in the range of 220?260 °C. dD values analyzed in chlorite range between - 63and - 33 and d18O values range between +2.7and + 6.8in chlorite, and from + 8.6to + 10.7in quartz. Fluid inclusions and oxygen-hydrogen stable isotopes indicate that the mineralizing fluid of L'Alforja was mainly seawater. The hydrothermal fluid had lower density than seawater, so producing buoyant plumes on debouching at the seafloor, and the metals precipitated with the decrease of temperature. Hydrothermal fluids related to late-Hercynian porphyritic granite dykes produced local recrystallization of the ores, as well	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/S0375-6742(03)00042-6
776878	Sulfur isotope geochemistry of the submarine hydrothermal coastal vents of Punta Mita, Mexico	1/1/2003	Alfonso Abella, María Pura;Prol Ledesma, Rosa Maria;Canet Miquel, Carles;Melgarejo Draper, Joan Carles;Fallick, Anthony E.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/S0375-6742(03)00144-4
776864	Source of ore-forming fluids in El Cobre VHMS deposit (Cuba): evidence from fluid inclusions and sulfur isotopes	1/1/2003	Cazañas, Xiomara;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Proenza Fernandez, Joaquim;Fallick, Anthony E.	The El Cobre deposit, east of Cuba, lies in the intermediate volcanosedimentary sequence of the Sierra Maestra intraoceanic island arc. The structure of the deposit corresponds to that of a volcanogenic-hosted massive sulfide (VHMS) model. It comprises (a) thick stratiform bodies (baryte and anhydrite), (b) three stratabound bodies (formed by silicification and sulfidation of limestones or sulfate strata), (c) stockwork zones, an older anhydrite stockwork and a younger quartz-pyrite stockwork grading downwards to (d) simple veins (quartz with sulfide ores). Pyrite, chalcopyrite and sphalerite are the most abundant sulfides. Fluid inclusions from this deposit have a salinity between 2.3 and 5.7 wt.% NaCl eq., homogenization temperatures range between 177 and 300 °C. Sulfur exhibits a range of d14S values from - 1.4 to +7.3 for sulfides and from + 16 to +21 for sulfates. Fluid inclusions and sulfur isotope data at El Cobre deposit indicate that the	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/S0375-6742(03)00029-3

776857	Fluid evolution in the beryl-columbite-phosphate pegmatites of Cap de Creus (Catalonia, Spain)	1/1/2003	Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles	In the Cap de Creus peninsula (NE Spain), four granite pegmatite types are distinguished: microcline-rich; beryl- columbite;beryl- columbite-phosphate; and albite. Beryl -columbite-phosphate pegmatites are zoned, with border, wall, intermediate zones and a quartz core. In addition, albitic and quartz-muscovite replacement bodies occur. The intermediate zones are mainly constituted by quartz, microcline, albite, beryl, NbTa minerals and phosphates. In early stages, crystallization takes place from a volatile-saturated magma and a hypersaline (39?46 wt.% NaCl eq.), CO2-rich fluid exsolved from the magma. In the last stages of the crystallization of the intermediate zones, this fluid produced unmixing in two fluids: one CO2-rich, salts-poor (3?5 wt.% NaCl eq.) and the other saline (up to 34 wt.% NaCl eq.) and CO2-poor. The first fluid formed a quartz core at	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/S0375-6742(03)00059-1
776850	Geochemistry of feldspars and muscovite in granitic pegmatite from the Cap de Creus field, Catalonia, Spain	1/1/2003	Alfonso Abella, María Pura;Velasco Morente, Francisco;Yusta, Iñaki;Melgarejo Draper, Joan Carles	The Cap de Creus pegmatite field exhibits a well-defined regional zonation of four types of granitic pegmatite: barren K-feldspar-rich pegmatites (type I), beryl?columbite-subtype pegmatites (type II), beryl?columbite?phosphate-subtype pegmatites (type III) and albite-type pegmatites (type IV). There is an increase in the albite content, relative to K-feldspar, with increasing pegmatite evolution. Type-I microcline-rich pegmatites have low contents of albite, whereas in type IV, albite is the only feldspar. The K/Rb value in K-feldspar decreases progressively from type-I to type-III pegmatites. In addition, there is a progressive enrichment in P, Rb, Cs, Y, Sr, Ga, Ce, W and Sn from type-I to type-IV pegmatites. Concentrations of Pb and Zr decrease in K-feldspar from type-I to type-III pegmatites. K-feldspar from the Cap de Creus pegmatites exhibits higher contents in Ba, Rb, Cs, Nb, Y, Sn, V and Cr than albite. Albite is richer in Sr, Zr, Cu, As, Ce and Ga. Pb, Zn, W, Co and Ni	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Canadian mineralogist	10.2113/gscanmin.41.1.103
759648	Influencia de la solubilidad del soluto gaseoso en la absorción mediante lavadores jet-venturi	1/11/2002	Gamisans Noguera, Xavier;Montserrat, Sarrà Adroguer;Lafuente Sancho, Francisco Javier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Afinidad: revista de química teórica y aplicada	
758569	Lead accumulation in roadside soils in Barcelona province (Spain)	1/9/2002	Casas Sabata, Jose Maria;Sole Sardans, M. Montserrat;Lao Luque, Concepcion		EXPLORATORI - EXPLORATORI Natural Resources	Afinidad: revista de química teórica y aplicada	

1234556	Kinetic analysis in the maximum temperature of oil generation by thermogravimetry in Spanish fossil fuels	1/9/2002	Olivella Costa, Maria Àngels;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Energy and fuels	
759634	The hydrodynamics of ejector-Venturi scrubbers and their modelling by an annular flow/boundary layer model	1/7/2002	Gamisans Noguera, Xavier;Sarrà, Montserrat;Lafuente Sancho, Francisco Javier;Azzopardi, B J	The performance of ejector-Venturi scrubbers has been studied experimentally. Data have been obtained on overall pressure drop, axial pressure profiles and droplet sizes. The effect of throat diameter, length and spray angle was investigated. Empirical models for pressure drop across Venturis have been tested against the data. Only when the model is tuned to the experimental data they are successful. The model of Azzopardi et al. which incorporates all the important physical mechanisms, has been successfully adapted to handle ejector-Venturi. It has been found to give accurate predictions.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Chemical engineering science	10.1016/S0009-2509(02)00171-9
814335	Comparative study of two chemical reactions with different behaviour in batch and semibatch reactors	1/7/2002	Grau Vilalta, Maria Dolors;Nougues Artigas, Jose Maria;Puigjaner Corbella, Luis		CITES - Sustainability Science and Technology Research Group	Chemical engineering journal	
716209	Análisis de riesgo para la salud humana en emplazamientos contaminados	1/6/2002	Marti Gregorio, Vicenç;Rovira Boixaderas, Miguel Arcangel;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Tecno ambiente	

811652	Lacustrine basin dynamics and organosulphur compound origin in a carbonate-rich lacustrine system (late oligocene Mequinenza formation, SE Ebro basin, NE Spain)	1/4/2002	Cabrera Perez, Luis;Cabrera Ortega, Miquel;Gorchs Altarriba, Roser;de las Heras Cisa, F. Xavier		ERNMA - Engineering of the Natural Resources and Environment	Sedimentary geology	10.1016/S0037-0738(01)00223-8
759625	Gas pollutants removal in a single and two-stage ejector-venturi scrubber	1/3/2002	Gamisans Noguera, Xavier;Sarrà, Montserrat;Lafuente Sancho, Francisco Javier	The absorption of SO2 and NH3 from the flue gas into NaOH and H2SO4 solutions, respectively has been studied using an industrial scale ejector?venturi scrubber. A statistical methodology is presented to characterise the performance of the scrubber by varying several factors such as gas pollutant concentration, air flowrate and absorbing solution flowrate. Some types of venturi tube constructions were assessed, including the use of a two-stage venturi tube. The results showed a strong influence of the liquid scrubbing flowrate on pollutant removal efficiency. The initial pollutant concentration and the gas flowrate had a slight influence. The use of a two-stage venturi tube considerably improved the absorption efficiency, although it increased energy consumption.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of hazardous materials	10.1016/S0304-3894(01)00352-1
1234551	Study of the reactivities of chars from sulfur rich Spanish coals	1/2/2002	Olivella Costa, Maria Àngels;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Thermochimica acta	
1234541	A study of the sulfur functionalities in fossil fuels using destructive- (ASTM and Py-GC-MS) and non-destructive- (SEM-EDX, XANES and XPS) techniques	1/2/2002	Olivella Costa, Maria Àngels;Palacios Latasa, José M.;Vairavamurthy, A;Río, J C del;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Fuel	

814344	Parameter estimation with genetic algorithm in control of fed-batch reactors	1/2/2002	Nougues Artigas, Jose Maria;Grau Vilalta, Maria Dolors;Puigjaner Corbella, Luis		CEPIMA - Centre d'Enginyeria de Processos i Medi Ambient	Chemical engineering and processing: Process Intensification	
1234610	Characterization of humic acid from leonardite: an integrated study of Py-GC-MS, XPS and XANES techniques	1/1/2002	Olivella Costa, Maria Àngels;Palacios Latasa, José M.;Vairavamurthy, M A;Río, J C del;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of analytical and applied pyrolysis	
776948	El yacimiento volcanogénico de Cu-Zn-Pb (Au+Ag) El Cobre: inclusiones fluidas	1/1/2002	Cazañas, Xiomara;Melgarejo Draper, Joan Carles;Alfonso Abella, María Pura	El depósito El Cobre se localiza al NO de Santiago de Cuba y encaja en la Secuencia Media del Grupo El Cobre, en el arco del Paleógeno. Se estudiaron inclusiones fluidas primarias y pseudosecundarias en cristales de cuarzo, anhidrita, esfarelita y calcita, correspondientes a los principales tipos de mineralización: stockwork silíceo, filones silíceos, filones anhídritico-epidóticos y mineralizaciones estratiforme de barita. Las inclusiones se clasificaron en bifásicas L-V, que presentan tamaño entre 5 y 40 micras, y el grado de relleno es de 0,7 a 0,8. Se obtuvieron temperaturas de fusión del hielo entre -1,1 y -6,7ºC, y les correspondieron salinidades entre 1,9 y 10,1 % en peso de NaCl eq., mientras que la temperatura de homogenización oscula entre 150 y 299ºC. durante los ensayos microtermométricos no se observó la formación de clatratos y las investigaciones mediante Raman no detectaron otros gases en la fase vapor, lo que indica un componente mayoritario de	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Minería y geología	
776843	Sulphur isotope composition of Silurian shale-hosted PGE-Ag-Au-Zn-Cu occurrences of the Prades Mountains (Catalonia, Spain)	1/1/2002	Alfonso Abella, María Pura;Canet Miquel, Carles;Melgarejo Draper, Joan Carles;Fallick, Anthony E.	Several Silurian metamorphosed shale-hosted sulphide occurrences have been studied in the Prades Mountains, southern part of the Coastal Catalonian Ranges. Most of the sulphides are found as stratiform or shale-disseminated occurrences. Pyrrhotite is the most abundant sulphide mineral. Chalcopyrite and arsenopyrite are less common. Gold, Pd-bearing löllingite (partly replaced by arsenopyrite), sperrylite, hessite, clausthalite, altaite, galena, sphalerite, molybdenite, scheelite, and V-Cr oxides and silicates are minor components. Sulphur isotopic analyses were made on three outcrops (Roca de Ponent, Coma Fosca and Sant Miquel) and in the Silurian black shales of the Sant Bernat series, in order to determine the origin of the sulphur which formed these deposits. The Coma Fosca and Sant Miquel outcrops yield a narrow range of d34S values (?11.3 to ?4.6?), whereas the Roca de Ponent and Sant Bernat series have a wider range (?19.9 to ?7.6? in	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralium deposita	10.1007/s00126-001-0217-8

1235126	Proposition d'un modèle de silicification superficielle des grès néogènes de Montjuïc, Barcelona (Espagne): paragenèses minérales, environments géochimiques et circulation des fluides	1/11/2001	Parcerisa Duocastella, David;Thiry, Médard;Gómez Gras, David Manuel;Calvet Rovira, Francesc	The Montjuic hill is part of the Neogene horst and graben system of the Catalan Coastal Ranges at the northwestern edge of the Valencia Trough. It is located to the SE of Barcelona City and consists of a 200 m thick strongly silicified detrital succession (mainly conglomerate and sandstone units alternating with lutitic units) of Miocene age. The geological constraints of this area (young age, shallow depositional environment and no evidence of burial processes) ensure that authigenic minerals formed during silicification have not been modified by further diagenetic processes and allow to constrain the age and nature of the silicification. Silicification has strongly increased the hardness of the original sediment. Textural effects of mechanical compaction are rare, testifying that burial processes had no effect on diagenesis and pointing towards an early and/or shallow cementation. Two main diagenetic facies with characteristic associations of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Bulletin de la Société Géologique de France	10.2113/172.6.751
758556	Salinitat i contaminació en la conca del Llobregat	1/10/2001	Casas Sabata, Jose Maria;Rosas, H;Lao Luque, Concepcion		EXPLORATORI - EXPLORATORI Natural Resources	Dovella	
776836	Genesis of sulfide-rich chromite ores by the interaction between chromitite and pegmatitic olivine-norite dikes in the Potosí Mine (Moa-Baracoa ophiolitic massif, eastern Cuba)	1/10/2001	Proenza Fernandez, Joaquim;Gervilla Linares, Fernando;Melgarejo Draper, Joan Carles;Vera, O.;Alfonso Abella, María Pura;Fallick, Anthony E.	The Potosí Mine is located in the Moa-Baracoa massif in the easternmost part of the Cuban Ophiolitic Belt. Chromite mineralization occurs within the mantle?crust transition zone. Two events of magma intrusion overprint the chromitite bodies: one gave rise to the crystallization of pegmatitic olivine?norite dikes, and the other produced pegmatitic gabbro dikes. Sulfide-poor chromite ores, brecciated chromite ores, and sulfide-rich chromite ores can be distinguished in the different chromitite bodies. Sulfide-poor ores represent more than 80 vol% of the chromitites. This type occurs far from the zones intruded by pegmatitic gabbro dikes and shows petrographic and chemical features similar to other chromitite bodies described in the Moa-Baracoa massif. Brecciated chromite ores occur within pegmatitic gabbro dikes. In this type, chromite crystals occur included within chromian diopside and plagioclase. These silicates often contain droplet-like sulfide aggregates.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralium deposita	10.1007/s001260100193
678672	Recuperación y eliminación de colorantes presentes en efluentes textiles mediante resinas adsorbentes	1/6/2001	Marti Gregorio, Vicenç;Rovira Boixaderas, Miguel Arcangel;Pablo Ribas, Joan de;Cortina Pallas, Jose Luis		R2EM - Resource Recovery and Environmental Management	Tecno ambiente	

758540	Contaminación por metales pesados en los sedimentos de la cuenca del Llobregat	1/6/2001	Lao Luque, Concepcion;Sole Sardans, M. Montserrat;de las Heras Cisa, F. Xavier;Casas Sabata, Jose Maria	Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Afinidad: revista de química teórica y aplicada	
2317943	Kinetics of dolomite-portlandite reaction: application to portland cement concrete	6/5/2001	Galí Medina, Salvador;Ayora Ibáñez, Carlos;Alfonso Abella, María Pura;Tauler Ferré, Esperança;Labrador Carrasco, Manuel	The dedolomitization reaction kinetics are studied through several long-term experiments consisting of an aqueous dispersion of fine powders of dolomite and portlandite with different alkalinity, temperature and silica content. The experimental results are reproduced through computer simulation, which allows the estimation of the apparent dissolution constant rates for dolomite. These are discussed together with other parameters influencing the kinetics, in particular the modification of the specific surface of dolomite. The parameters obtained make it possible to predict the behavior of the system beyond experimental periods. Both experimental and simulated results are discussed in connection with the expansion and cracking occurrences observed in portland mortars and concretes made with dolomitic limestone. © 2001 Elsevier Science Ltd. Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Cement and concrete research	10.1016/S0008-8846(01)00499-9
1647747	Uso de TCP/IP en redes de radio de baja capacidad	1/2/2001	del Águila López, Francisco;Palà Schönwälder, Pere;Bonet Dalmau, Jordi;Giralt Mas, M. Rosa		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Radio noticias: revista de comunicaciones	
814326	Obtention of the Optimal Feeding Profile in a Fed-Batch Reactor Using Genetic Algorithms	1/2/2001	Grau Vilalta, Maria Dolors;Nougues Artigas, Jose Maria;Puigjaner Corbella, Luis		CITES - Sustainability Science and Technology Research Group	Industrial & engineering chemistry research	

758532	Differences in phenolic profile between oak wood and stainless steel fermentation in white wines	1/1/2001	Ibern Gómez, M.;Andrés-Lacueva, C.;Lamuela Raventós, Rosa M.;Lao Luque, Concepcion;Buxaderas Sánchez, Susana;De la Torre Boronat, M. Carmen		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	American journal of enology and viticulture	
1235114	Stratigraphy and petrology af the miocene Montjuïc delta (Barcelona, Spain)	1/1/2001	Gómez Gras, David Manuel;Parcerisa Duocastella, David;Calvet Rovira, Francesc;Porta Casanellas, Jaume;Solé de Porta, Núria;Civis Llovera, Jorge	The Neogene rift in the Catalan Coastal Ranges, which is located in the NE part of the Eastern Iberian Margin, corresponds to a system of grabens formed at the north-western edge of the Valencia Trough. In the central part of the Catalan Coastal Ranges are the Vallès - Penedès half-graben in the onshore and the Barcelona half-graben in the offshore, which are separated by the Garraf and the Collserola-Montnegre horsts. Montjuïc hill is a tilted block, which is located to the S of the Barcelona city, between the Collserola-Montnegre horst and the Barcelona half-graben . The Middle Miocene section of Montjuïc is constituted by an alternation of conglomerate, sandstone, mudstone and marlstone beds. The Montjuïc section was divided into four lithostratigraphic units from base to top: (1) The Morrot conglomerate and sandstone Unit, interpreted as delta plain deposits; (2) the Castell conglomerate, sandstone and mudstone Unit considered as proximal	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Acta geológica hispánica	
678379	The use of CE and ICP-ES for the analysis of metals, cyanide compounds and SCN- in leaching solutions	1/6/2000	Marti Gregorio, Vicenç;Meinhardt, E;Farran Marsa, Adriana;Cortina Pallas, Jose Luis;Aguilar Sanjuan, Manuel		R2EM - Resource Recovery and Environmental Management	Química analítica	
1235103	Hydrogeochemistry and diagenesis of miocene sandstones at Montjuïc, Barcelona (Spain)	1/6/2000	Gómez Gras, David Manuel;Parcerisa Duocastella, David;Bitzer, Klaus;Calvet Rovira, Francesc;Roca Abella, Eduard;Thiry, Médard	Massive silicification of Miocene sandstones cropping out at the Montjui¨c mountain in Barcelona has been analyzed in order to constrain paleoflow systems, which may have contributed to the diagenetic reactions. The section consists of five units with alternating sandstone?marl units. The principal diagenetic features are observed in strongly silicified sandstone units. Alunite mineral precipitation indicates presence of saline fluids and low pH. Salinity is most probably derived from marine seawater and low pH may be due to oxidation of pyrite. A quantitative thermodynamic modeling is applied to characterize the percolating fluids and to constrain the hydrodynamic system.	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of geochemical exploration	10.1016/S0375-6742(00)00022-4

758910	Rapid extracellular acidification induced by glucose metabolism in non-proliferanting cells of Serratia marcescens	1/3/2000	Sole Sardans, M. Montserrat;Rius Bofill, Núria;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International microbiology	
1647702	A discrete-time approach to the steady-state and stability analysis of distributed nonlinear autonomous circuits	1/2/2000	Bonet Dalmau, Jordi;Palà Schönwälder, Pere	We present a direct method for the steady-state and stability analysis of autonomous circuits with transmission lines and generic non-linear elements. With the discretization of the equations that describe the circuit in the time domain, we obtain a nonlinear algebraic formulation where the unknowns to determine are the samples of the variables directly in the steady state, along with the oscillation period, the main unknown in autonomous circuits.An efficient scheme to buildtheJacobian matrix with exact partial derivatives with respect to the oscillation period and with re-spect to the samples of the unknowns is described. Without any modifica-tion in the analysis method, the stability of the solution can be computed a posteriori constructing an implicit map, where the last sample is viewed as a function of the previous samples. The application of this technique to the time-delayed Chua's circuit (TDCC) allows us to investigate the stability of	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	IEEE transactions on circuits and systems I: regular papers	10.1109/81.828576
814317	Batch and semibatch reactor performance for an exothermic reaction	1/2/2000	Grau Vilalta, Maria Dolors;Nougues Artigas, Jose Maria;Puigjaner Corbella, Luis		CITES - Sustainability Science and Technology Research Group	Chemical engineering and processing: Process Intensification	
814309	Batch and Semibatch Reactors Modelling and Validation based on on-line pH measurement	1/2/2000	Grau Vilalta, Maria Dolors;Puigjaner Corbella, Luis		CITES - Sustainability Science and Technology Research Group	Chemical engineering communications	

1235198	Geometría de las silicificaciones en las areniscas miocenas de la montaña de Montjuïc	1/1/2000	Parcerisa Duocastella, David;Gómez Gras, David Manuel;Thiry, M;Calvet Rovira, Francesc		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geotemas (Madrid)	
776939	Boron vs. phosphorus in granitic pegmatites: the Cap de Creus case (Catalonia, Spain)	1/1/2000	Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles	The Cap de Creus pegmatite field exhibits a well-defined regional zonation of four types of granitic pegmatite: barren K-feldspar-rich pegmatites (type I), beryl-columbite-subtype pegmatites (type II), beryl-columbite-phosphate-subtype pegmatites (type III) and albite-type pegmatites (type IV). There is an increase in the albite content, relative to K-feldspar, with increasing pegmatite evolution. Type-I microcline-rich pegmatites have low contents of albite, whereas in type IV, albite is the only feldspar. The K/Rb value in K-feldspar decreases progressively from type-I to type-III pegmatites. In addition, there is a progressive enrichment in P, Rb, Cs, Y, Sr, Ga, Ce, W and Sn from type-I to type-IV pegmatites. Concentrations of Pb and Zr decrease in K-feldspar from type-I to type-III pegmatites. K-feldspar from the Cap de Creus pegmatites exhibits higher contents in Ba, Rb, Cs, Nb, Y, Sn, V and Cr than albite. Albite is richer in Sr, Zr, Cu, As, Ce and Ga, Pb, Zn, W, Co and Ni	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of the Czech Geological Society	
811661	Caracterización paleoambiental mediante biomarcadores de las sucesiones lacustres oligocénicas superiores (Formación Mequinenza) del sector SE de la Cuenca del Ebro (NE de España)	1/1/2000	Cabrera Ortega, Miquel;Gorchs Altarriba, Roser;de las Heras Cisa, F. Xavier		ERNMA - Engineering of the Natural Resources and Environment	Geotemas (Madrid)	
758513	Differences in the phenolic profile between oak wood and stainless steel fermentation in white wines	1/12/1999	Ibern, Gomez;Andres Lacueva, Cristina;Lamuela Raventós, Rosa M.;Lao Luque, Concepcion;De la Torre Boronat, M. Carmen		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	American journal of enology and viticulture	

787114	Experimental designs and response surface modeling applied for the optimization of metalcyanide complexes analysis by capillary electrophoresis	1/11/1999	Marti Gregorio, Vicenç;Aguilar Sanjuan, Manuel;Farran Marsa, Adriana		R2EM - Resource Recovery and Environmental Management	Electrophoresis	10.1002/(SICI)1522-2683(19991101)20:17<3381::AID-ELPS3381>3.0.CO;2-A
758470	Effect of grape pectic enzyme treatment on foaming	1/5/1999	Lao Luque, Concepcion		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Food chemistry	
1235184	Silicification superficielle et précose d'une formation deltaïque: les grès néogènes de Montjuïc, Barcelone, Espagne	1/1/1999	Gómez Gras, David Manuel;Parcerisa Duocastella, David;Calvet Rovira, Francesc;Thiry, Médard	Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Sciences géologiques. Mémoire	
786977	Determination of cyanides in electroplating solutions as Ni(CN)42? and analysis by capillary electrophoresis	1/1/1999	Aguilar Sanjuan, Manuel;Farran Marsa, Adriana;Marti Gregorio, Vicenç		R2EM - Resource Recovery and Environmental Management	Fresenius journal of analytical chemistry	

758483	Pectic enzyme influence on the foaming properties of white grape musts and wines from A.O.C. Penedés	1/12/1998	Lao Luque, Concepcion;Santamaria, Ana;López Tamames, Elvira;Buxaderas Sánchez, Susana;De la Torre Boronat, M. Carmen		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Food chemistry	
1234477	Vapor-liquid equilibria in the binary systems methyl chavicol+eucalyptol and (-)-carvone + eucalyptol at temperatures between 350k and 412k	1/11/1998	Batiu, Ioan;Jose, J;Mokbel, I;Bonsfills Pedros, Ana		BIOGAP - Biological Treatment of Gaseous Pollutants and Odours Group	Eldata: the international electronic journal phisico-chemical date	
758892	Acid-base response of bacterial suspensions	1/8/1998	Sole Sardans, M. Montserrat;Rius Bofill, Núria;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of industrial microbiology and biotechnology	
678627	Modification and preparation of polymeric adsorbents for precious-metal extraction in hydrometallurgical processes	1/3/1998	Cortina Pallas, Jose Luis;Meinhardt Junior, Erny Lauro;Marti Gregorio, Vicenç		R2EM - Resource Recovery and Environmental Management	Reactive and functional polymers	

678311	Multivariate calibration procedures for metalcyanide control in hydrometallurgical processing of gold ores	1/3/1998	Garcia Olaverri, Alfredo Martin;Marti Gregorio, Vicenç;Meinhardt, E;Cortina Pallas, Jose Luis;Granados Juan, Merce		R2EM - Resource Recovery and Environmental Management	Analytica chimica acta	
2198782	Un modelo de depósito vulcanogénico de manganeso del arco volcánico paleógeno de Cuba: el ejemplo de la región Cristo-Ponupo-Los Chivos	1/1/1998	Cazañas, Xiomara;Melgarejo Draper, Joan Carles;Alfonso Abella, María Pura;Escusa, Albert;Cuba, Santiago	Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Acta geológica hispánica	
2519823	Composición isotópica el azufre de los sulfuros de depósitos carboniferos tipo sedex del Priorato (SO Cataluña)	1/1/1998	Canet Miquel, Carles;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Fallick, Anthony E.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Minerología	
2518020	Estudio isotópico del azufre del depósito volcanogénico El Cobre, Cuba	1/1/1998	Cazañas, Xiomara;Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Fallick, Anthony E.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Minerología	

2517735	Composición isotópica del azufre de los depósitos tipo Sedex de edad silúrica de las montañas de Prades (SO Cataluña)	1/1/1998	Alfonso Abella, María Pura;Canet Miquel, Carles;Melgarejo Draper, Joan Carles;Fallick, Anthony E.		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Minerología	
758869	THE ROLE OF pH IN THE GLUCOSE EFFECT ON PRODIGIOSIN PRODUCTION BY NON-PROLIFERATING CELLS OF SERRATIA MARCESCENS	1/10/1997	Sole Sardans, M. Montserrat;Francia Santamaria, Alicia;Rius Bofill, Núria;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Letters in applied microbiology	
678621	Metal cyanide control in hydrometallurgical processing of gold ores by multivariate calibration procedures	1/10/1997	Marti Gregorio, Vicenç;Meinhardt Junior, Erny Lauro;Cortina Pallas, Jose Luis		R2EM - Resource Recovery and Environmental Management	Analytica chimica acta	
814301	Simulación de reactores biológicos en el tratamiento de aguas residuales	1/10/1997	Grau Vilalta, Maria Dolors;Soler Solé, Jaume		CITES - Sustainability Science and Technology Research Group	Tecnología del agua	

787144	Capillary electrophoretic determination of cyanide leaching solutions from automobile catalytic converters	22/8/1997	Aguilar Sanjuan, Manuel;Farran Marsa, Adriana;Marti Gregorio, Vicenç	A capillary electrophoresis (CE) method to determine metal-cyano complexes from leaching solutions of automobile catalytic converters has been developed. The separation and detection conditions have been optimized and analysis times up to 20 min and metal detection limits in the ppb range have been obtained. The CE analysis of leaching solutions from different converters allowed the determination of Fe(II)-, Cu(I)-, Pd(II)-complexes and NO3-. On the other hand, adsorption onto activated carbon is used as a concentration process for precious metal-cyano complexes and as a process of pollutant removal. The adsorption kinetics of the compounds of interest have been studied by means of the developed CE method. The results obtained by CE have been compared with inductively coupled plasma in order to validate this newly developed method.	R2EM - Resource Recovery and Environmental Management	Journal of chromatography A	10.1016/S0021-9673(97)00327-0
786993	Capillary electrophoretic determination of cyanide leaching solutions from automobile catalytic converters	1/8/1997	Aguilar Sanjuan, Manuel;Farran Marsa, Adriana;Marti Gregorio, Vicenç		R2EM - Resource Recovery and Environmental Management	Journal of chromatography A	10.1016/S0021-9673(97)00327-0
758458	Pectic enzyme effect on the volatile compounds and quality of white grape musts and wines from aoc penedés	1/6/1997	Lao Luque, Concepcion;López Tamames, Elvira;Buxaderas Sánchez, Susana;Torre, De La M C		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of food science	
758442	Grape pectic enzyme treatment effect on white must an wines composition	1/6/1997	Lao Luque, Concepcion;Tamales, López E;De la Torre Boronat, M. Carmen		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of food science	

787015	Determination of metal cyanide complexes in gold processing solutions by capillary electrophoresis	1/4/1997	Aguilar Sanjuan, Manuel;Farran Marsa, Adriana;Marti Gregorio, Vicenç		R2EM - Resource Recovery and Environmental Management	Journal of chromatography A	10.1016/S0021-9673(96)01046-1
1234530	Free and sulphurized hopanoids and highly branched isoprenoids in immature lacustrine oil shal	1/11/1996	de las Heras Cisa, F. Xavier;Grimalt Obrador, Joan;López Fernandez, Jordi;Albaigés Riera, Joan;Sinninghe, Damsté J S;Schouten, S;Leeuw, De J W		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Organic geochemistry	
1234521	Sulphur-binding in recent environments. I Lipid by-products from Ni 2B desulphurization	1/11/1996	Hartgers, W A;López Fernandez, Jordi;de las Heras Cisa, F. Xavier;Grimalt Obrador, Joan		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Organic geochemistry	
674112	Solid surface evolution model to predict uranium release from unirradiated UO2 and nuclear spent fuel dissolution under oxidizing conditions	1/9/1996	Pablo Ribas, Joan de;Casas Pons, Ignasi;Gimenez Izquierdo, Francisco Javier;Marti Gregorio, Vicenç;Torrero Baron, M. Elena		R2EM - Resource Recovery and Environmental Management	Journal of nuclear materials	

1633353	Stability analysis of periodic solutions in non-linear autonomous circuits: a discrete time approach	1/7/1996	Miro Sans, Joan Maria;Palà Schönwälder, Pere;Mas Casals, Orestes Miquel	Steady-state methods have been devised to compute periodic wave-forms without having to integrate the autonomous circuit equations until the transients die out. Stability analysis of the computed solutions is the next topic to be addressed by a steady state circuit simulator. Shooting methods based on Newton's iteration are expensive in terms of computing time, because each iteration step requires integration of the variational equation, but directly provide information on the stability of the final On the other hand, when making use of harmonic balance methods, the stability of the computed solutions is typically investigated from a continuation point of view.4 Recently a discrete time approach (DTA)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of circuit theory and applications	10.1002/(SICI)1097-007X(199607/08)24:4<511::AID-CTA894>3.0.CO;2-S
1231884	A daylight criterion on solar controls for comparing sky radiance models	1/5/1996	Jorge Sanchez, Juan;Puigdomenech Franquesa, Joan	The obstruction of solar radiation by solar controls must be balanced with the required daylight contribution. Solar controls are characterized by the percentage of non-obstructed external radiance. The estimation of this radiance, particularly its diffuse component, depends on the sky radiance distribution used. In this work, we have compared three models (isotropic, CIE clear sky and Perez) before deciding which one is the most suitable for calculating natural light without forgetting the aspect of energy. The incident energy on an aperture where solar control is installed and its daily factor (DF) are the two parameters that have been adopted to analyze the three models. The energy allows us to compare the models and the DF allows us to discuss the weight of each part of the sky dome for each model. It is deduced that the isotropic model is not suitable for calculating the	GREMS - Sustainable Mining Research Group	Building and environment	10.1016/0360-1323(95)00048-8
784367	Modeling and Experimental validation of both Mass Transfer and Tray Hydraulics in Batch	1/5/1996	Mehlhorn, Arndt;Espuña Camarasa, Antonio;Bonsfills Pedros, Ana;Gorak, A;Puigjaner Corbella, Luis		ENCORE - Energy Catalysis Process Reaction Engineering	Computers & chemical engineering	
2198735	Geoquímica de feldespatos y moscovita de las pegmatitas del Cap de Creus	1/1/1996	Alfonso Abella, María Pura;Velasco Morente, Francisco;Yusta, Iñaki;Melgarejo Draper, Joan Carles	Peer Reviewed Postprint (published version)	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geogaceta	

1231877	Acoustical impact of roads on medium-sized Mediterranean coastal towns	1/1/1996	Puigdomenech Franquesa, Joan;Jorge Sanchez, Juan;Mulet Arias, Jordi F	In the littoral region near Barcelona, roads belonging to the national network go through towns. Among the problems that this situation causes on the urban quality of ltfe is a high degree of noise pollution. By-pass roads (under construction) will modtfy acoustical maps of medium-sized cities by changing all circulation itineraries inside the city and increasing urban ltfe quality by reducing noise pollution. As an example, we present our study carried out in Matard, a city located 30 km from Barcelona on its north side. The high trafic noise is compared to the predicted acoustic level when a new by-pass road comes into operation. Postprint (published version)	LiTA - Architectural Innovation and Technology Laboratory	Applied acoustics	10.1016/0003-682X(95)00017-4
758501	Spectrophotometric methods for the analysis of polysaccharide levels in winemaking products	1/12/1995	Lao Luque, Concepcion;Segarra, I;López Tamames, Elvira;De la Torre Boronat, M. Carmen		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	American journal of enology and viticulture	
1248674	Indirect fluorescence detection of free cyanide and related compounds by capillary electrophoresis	1/8/1995	Marti Gregorio, Vicenç;Aguilar Sanjuan, Manuel		R2EM - Resource Recovery and Environmental Management	Journal of chromatography A	
1633344	A discrete approach to the steady analysis and optimization of non-linear autonomous circuits	1/7/1995	Palà Schönwälder, Pere;Miro Sans, Joan Maria	In this paper a method for the steady state analysis and optimization of non-linear autonomous circuits is described. After discretizing the linear part of the circuit, a system of non-linear algebraic equations is obtained. the final formulation is written entirely in the discrete-time domain, making it unnecessary to repeatedly take direct and inverse DFTs during the solution process. Furthermore, it is shown that the resulting formulation may be viewed as a generalization of the harmonic balance equations. an analytic method for computing the exact partial derivatives of the resulting equations with respect to the samples of the variables, the oscillation period and the circuit element values is described, making the proposed approach efficient for both analysis and optimization. Different globally convergent techniques for solving the non-linear system of equations are described, with emphasis on an algorithm based on fast simulated diffusion. Selected application	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	International journal of circuit theory and applications	10.1002/cta.4490230405

758837	Buffering capacity and h+ membrane conductance of gram-negative bacteria	1/5/1995	Rius Bofill, Núria;Sole Sardans, M. Montserrat;Francia Santamaria, Alicia;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Fems microbiology letters	
758855	Buffering capacity and h+ membrane conductance of acetic acid bacteria	1/2/1995	Rius Bofill, Núria;Francia Santamaria, Alicia;Sole Sardans, M. Montserrat;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of industrial microbiology	
674724	Studies of UO2 leading in the conditions expected in a high activity repository located in a saline environment	1/2/1995	Gimenez Izquierdo, Francisco Javier;Casas Pons, Ignasi;Pablo Ribas, Joan de;Marti Gregorio, Vicenç		R2EM - Resource Recovery and Environmental Management	ENRESA: Empresa Nacional de Residuos Radiactivos	
1234514	La distribució dels contaminants generats durant els incendis forestals de l'any 1994 en aigües fluvials	1/2/1995	de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	L'Erol: revista cultural del Berguedà	

2319126	Nb-Ta minerals from de Cap de Creus pegmatite field, eastern Pyrenees: distribution and geochemical trends	1/1/1995	Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles;Corbella Cordomí, Mercé	Internal structure and mineralogy facilitate distinction of four main pegmatite types at the eastern end of the Pyrenees. Three main trends in compositional variations in Nb-Ta-Sn-REE-Ti minerals have been established: a regional trend, with Ta/(Ta + Nb) ratio increasing towards the more evolved pegmatites, Mn/(Mn + Fe) being relatively low and increasing only slightly; a single-body trend, with similar enrichment toward the late pegmatite units; a single-crystal trend, with zoning related to both Ta/(Ta + Nb) and Mn/(Mn + Fe) ratios and a tendency toward Ta-enrichment in the late growth stages. The regional geochemical enrichment trends in the Mn/(Mn + Fe) ratios and Ta/(Ta + Nb) are those expected for a beryl-columbite pegmatite type. In a single pegmatite, the evolution depends on the simultaneous growth of other mineral species. Three factors seem to control the development of zoning in columbite-tantalite crystals: availability of Mn, Ta, Fe, Nb, significant	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Mineralogy and petrology	10.1007/BF01162579
8858215	The Cap de Creus rare element pegmatite field (Catalonia, Spain): model of cristallization	1/1/1995	Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Minerología	
674046	Kinetic studies of unirradiated UO2 dissolution under oxidizing conditions in batch and flow experiments	1/9/1994	Casas Pons, Ignasi;Gimenez, Javier;Marti Gregorio, Vicenç;Torrero Baron, M. Elena;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Radiochimica acta	
758825	Buffering capacity and membrana h+ conductance of lactic acid bacteria	1/7/1994	Rius Bofill, Núria;Sole Sardans, M. Montserrat;Francia Santamaria, Alicia;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Fems microbiology letters	

758432	Estudi diferents varietats de raïms blancs de la comarca del Bages	1/7/1994	Lao Luque, Concepcion		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	ACE: Associació Catalana d'Enòlegs	
758846	The effect of ph of prodigiosin production by nonproliferating cells of serratia marcescens	1/6/1994	Sole Sardans, M. Montserrat;Rius Bofill, Núria;Francia Santamaria, Alicia;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Letters in applied microbiology	
758812	Buffering capacity of pigmented and non pigmented of strains of serratia marcescens	1/6/1994	Rius Bofill, Núria;Sole Sardans, M. Montserrat;Loren Egea, José Gaspar		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Applied and environmental microbiology	
2523845	Evolución de las pegmatitas de Berilo-Columbita-Fosfato del Cap de Creus	1/1/1994	Alfonso Abella, María Pura;Melgarejo Draper, Joan Carles		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Minerología	

786951	Analysis of phenoxyalkyl acid herbicides and chlorophenols by capillary zone.	1/4/1993	Aguilar Sanjuan, Manuel;Farran Marsa, Adriana;Marti Gregorio, Vicenç		R2EM - Resource Recovery and Environmental Management	Science of the total environment	
674456	Kinetically controlled dissolution of UO2(s) under oxidizing conditions. A combined dissolution-oxidation model	1/1/1993	Casas Pons, Ignasi;Gimenez, Javier;Marti Gregorio, Vicenç;Torrero Baron, M. Elena;Pablo Ribas, Joan de		R2EM - Resource Recovery and Environmental Management	Materials research society symposia proceedings	
1231833	A practical tool for sizing optimal shading devices	1/1/1993	Jorge Sanchez, Juan;Puigdomenech Franquesa, Joan;Cusido Fabregas, Juan Antonio	A nomogram is presented for use in regions with a Mediterranean climate. Architects can use this tool as an easy way to optimize the design of shading devices. The nomogram allows the performance of a proposed external fixed shading device to be evaluated. The input variables required are (i) the location of the building, (ii) the orientation of the facade and (iii) two adimensional characteristics corresponding to the opening-shading device system. The accuracy reaches its minimum value during intermediate seasons but the margin of error is less than 10%. A nomogram is presented for use in regions with a Mediterranean climate. Architects can use this tool as an easy way to optimize the design of shading devices. The nomogram allows the performance of a proposed external fixed shading device to be evaluated. The input variables required are (i) the location of the building, (ii) the orientation of the facade and (iii) two	GREMS - Sustainable Mining Research Group	Building and environment	10.1016/0360-1323(93)90007-P
1234493	Characterization of Tertiary Catalan lacustrine oil shales: Discovery of extremely organic sulphur-rich type I kerogens	1/1/1993	Sinninghe, Damsté J S;de las Heras Cisa, F. Xavier;Bergen, Van P F;Leeuw, De J W		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geochimica et cosmochimica acta	

1237770	El manganés: els seus minerals i la seva mineria a catalunya	1/1/1993	Mata Perello, Jose Maria;Oliva Moncunill, Josep		ERNMA - Engineering of the Natural Resources and Environment	Xaragall: revista de ciències de la Catalunya Central	
1237761	El niquel:els seus minerals i la seva mineria a catalunya	1/1/1993	Mata Perello, Jose Maria;Oliva Moncunill, Josep		ERNMA - Engineering of the Natural Resources and Environment	Xaragall: revista de ciències de la Catalunya Central	
1234503	Molecular analysis of sulphur-rich brown coals by flash pyrolysis-gas chromatography-mass spectrometry. The type III-S kerogen	1/10/1992	de las Heras Cisa, F. Xavier;Leeuv, J W;Sinninghe, Damsté J S		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Journal of chromatography A	
1231827	Aerial infrared studies of delta de l'Ebre coast for aquaculture purposes	1/8/1992	Cusido Fabregas, Juan Antonio;Puigdomenech Franquesa, Joan;Jorge Sanchez, Juan;Arnau Arboix, Jacint		LiTA - Architectural Innovation and Technology Laboratory	International journal of remote sensing	10.1080/01431169208904260

1234624	Geoquímica orgànica de sòls. Restauració de sòls	1/1/1992	de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ictineu: butlletí de la Societat Catalana d'Història de la Ciència i de la Tècnica	
1234487	Novel C-ring cleaved triterpenoid-derived in Tertiary brown coals	1/12/1991	de las Heras Cisa, F. Xavier;Grimalt Obrador, Joan;Albaigés Riera, Joan		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Geochimica et cosmochimica acta	
2319147	Basaltic raw materials of catalonia in the production of glass-ceramics	1/1/1990	Alfonso Abella, María Pura;Martínez Manent, Salvador;Queralt Mitjans, Ignasi;Kanazirski, Milko;Pavlova, Julia;Dipchikov, Frantz		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Ceramics international	10.1016/0272-8842(90)90048-K
1234601	Origin and diagenesis of the organic matter in Miocene freshwater lacustrine phosphates (Cerdanya Basin, Eastern Pyrenees)	1/1/1989	de las Heras Cisa, F. Xavier;Grimalt Obrador, Joan;Albaigés Riera, Joan;Anadón Monzón, Pere		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Organic geochemistry	

2198714	Geología y composición de materias primas neógenas de Cataluña	1/11/1986	Alfonso Abella, María Pura;Martínez Manent, Salvador;De la Fuente Cullell, Carlos;Queralt Mitjans, Ignasi	El volcanismo neógeno catalán se divide en 3 áreas: Cordillera Transversal o área de La Garrotxa, El Emporda y La Selva. Se han realizado análisis químicos de los materiales de los afloramientos principales, así como un estudio mineralógico mediante difractometria de rayos X y estudio de láminas delgadas al microscopio óptico. Se ha visto que son lavas relativamente homogéneas pertenecientes al grupo de los basaltos y basanitas. El empleo de la microscopía de calefacción permitió conocer la variación de la viscosidad de estos materiales con el aumento de la temperatura, viendo que funden a temperaturas relativamente bajas. El volcanismo neógeno catalán se divide en 3 áreas: Cordillera Transversal o área de La Garrotxa, El Emporda y La Selva. Se han realizado análisis químicos de los materiales de los afloramientos principales, así como un estudio mineralógico mediante difractometria de	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Cerámica y Vidrio	
2198705	Estudio de la cristalización de vidrios procedentes de rocas magmáticas de Cataluña	1/9/1986	Alfonso Abella, María Pura;Martínez Manent, Salvador;De la Fuente Cullell, Carlos;Queralt Mitjans, Ignasi	En este trabajo se ha estudiado por difracción de rayos X y MEB -I- EDX la nucleación de cinco muestras de vidrios, obtenidos a partir de rocas basálticas de Cataluña. Las diferentes fases obtenidas al nuclear los vidrios sometiéndolos a distintas temperaturas, entre 680° y 770°C, y tiempos entre media y ocho horas, fueron magnetita, clinopiroxeno y plagioclasa. La evolución de estas fases con la variación de las condiciones de tratamiento fue estudiada mediante la realización de gráficas I/t para cada temperatura, donde se aprecia la variación de la intensidad de difracción de las principales reflexiones producidas por estos minerales con el tiempo de tratamiento térmico. En ellas se observa que la nucleación empieza a partir de los 700° C y, después de un cierto tiempo que varía según la temperatura de tratamiento, llamado tiempo de inducción, en el cual el aumento de la nucleación con el tiempo es débil, se incrementa más rápidamente la	RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Boletín de la Sociedad Española de Cerámica y Vidrio	
1234619	Aproximació geoquímica als lignits del Bages	1/1/1986	Puig Riu, Jose;de las Heras Cisa, F. Xavier		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Dovella	
1234590	Diketopiperazine formation in solid phase peptide synthesis using p-alkoxybenzyl ester resins and Fmoc-aminoacids	1/1/1986	Pedroso, E;Grandas, A;de las Heras Cisa, F. Xavier;Eritja, R;Giralt i Lledó, Ernest		RIIS - Grup de Recerca en Recursos i Indústries Intel·ligents i Sostenibles	Tetrahedron letters	