Special Issue

Hydrometallurgical Treatments of Copper Ores, By-Products and Waste

Message from the Guest Editors

Mining plays a vital role in sustaining the economy while minimizing its ecological impact on the environment, and also promotes social growth. Conventional hydrometallurgy treatment comprises three main stages. The first stage is leaching, in which mineral dissolution occurs via the action of an acidic solution. Then, the solvent extraction stage generates an electrolyte solution with a high acid and copper concentration and a low presence of impurities. Finally, electrowinning, via the use of redox reactions, enables copper to be obtained as a cathode. One of the challenges associated with hydrometallurgical processes is the treatment of refractory copper minerals under conventional leaching conditions, such as black copper oxide and sulfide ores, and chalcopyrite in particular. Furthermore, the dissolution of by-products from extractive copper metallurgy, along with the hydrometallurgical treatment of waste, presents an important alternative in the valorization of metal resources. Novel leaching media and pretreatment alternatives are also considered to be stages or processes that benefit the hydrometallurgical treatment of the copper industry.

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Minerals welcomes submissions that report basic and applied research in mineralogy. Research areas of traditional interest are mineral deposits, mining, mineral processing and environmental mineralogy. The journal footprint also includes novel uses of elemental and isotopic analyses of minerals for petrology, geochronology and thermochronology, thermobarometry, ore genesis and sedimentary provenance. Contributions are encouraged in emerging research areas such as applications of quantitative mineralogy to the oil and gas, manufacturing, forensic science, climate change, geohazard and health sectors.

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