Special Issue

Mineralogical Characteristics and Purification Process of Quartz

Message from the Guest Editors

High-purity quartz (HPQ), defined by SiO2 content >99.99% and ultra-low trace elements, is a critical enabler of advanced technologies. Its exceptional properties—including high transmittance, thermal stability, and electrical insulation—underpin semiconductor manufacturing, photovoltaic (PV) cells, fiber optics, and emerging applications in quantum computing and aerospace. However, in securing economically viable HPQ, dual challenges are faced: the scarcity of premium quartz deposits with favorable mineralogy and the complex, energy-intensive purification processes required to eliminate lattice-bound contaminants (e.g., Al, Li, and B). The following Special Issue addresses the entire HPQ value chain, from geological formation and deposit characterization to innovative purification technologies (e.g., acid leaching, thermal chlorination, and flotation) and cutting-edge applications. We welcome research on trace element behavior, novel beneficiation methods, sustainable processing, and quality control. Contributions elucidating HPQ's role in the energy transition and high-tech industries are particularly encouraged.

Guest Editors

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About the Journal

Message from the Editor-in-Chief

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.

Editor-in-Chief

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