Special Issue

Rheological, Mechanical and Hydration Properties of Cemented Paste Backfill

Message from the Guest Editors

Cemented Paste Backfill (CPB) is a critical technology in sustainable mining. This Special Issue focuses on advancing our knowledge of CPB's rheological behavior, mechanical behavior, hydration kinetics, and long-term durability, emphasizing optimizing component interactions (i.e., tailings/ gauge waste, binders, water) and environmental performance. Key Topics of Interest:

- **Rheological properties:**
  - Flow behavior, viscosity, and yield stress under varying shear conditions
  - Development of constitutive models to predict CPB flow in pipelines and stopes.
- **Mechanical performance:**
  - Strength development influenced by tailings mineralogy, binder type, and curing conditions.
  - Stability under dynamic loads
- **Hydration and microstructural evolution:**
  - Kinetics of binder hydration
  - Microstructural characterization using advanced techniques
- **Environmental and geochemical behavior:**
  - Acid mine drainage mitigation and heavy metal immobilization through tailored binder formulations.
  - Lifecycle assessments of CPB's ecological footprint and resource efficiency.
- **Innovations in testing and application**

Guest Editors

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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.

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