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Special Issue Reprint

Tailings Dams

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Mine tailings dams represent some of the largest engineered structures worldwide, storing vast volumes of slurry waste from mineral processing operations. Improper management poses severe geotechnical risks, including catastrophic failures that have historically released contaminants, damaged infrastructure, and endangered lives and ecosystems.

This reprint compiles ten selected articles from the Special Issue "Tailings Dams: Design, Characterization, Monitoring, and Risk Assessment" published in *Minerals*. Drawing on recent advances, the contributions address critical challenges in tailings management, such as improved characterization of deposits, innovative dewatering technologies, geophysical monitoring techniques, failure mode analyses, risk evaluation frameworks, and sustainable closure practices. Leading researchers present case studies, modeling approaches, and practical insights to enhance dam stability, mitigate environmental impacts, and align with evolving standards and guidelines. Together, these works provide engineers and practitioners with evidence-based strategies to reduce hazards in active and legacy facilities, supporting safer and more responsible mining practices amid growing global resource demands.

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