

ICS 73.020
CCS D 15



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 39489-2020

Technical specification for total tailings paste backfill

全尾砂膏体充填技术规范

Issued on: November 19, 2020

Implemented on: October 1, 2021

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard was proposed and managed by the National Gold Standardization Technical Committee (SAC/TC379). Drafting organizations of this standard. Beijing University of Science and Technology, China Enfi Engineering Technology Co., Ltd., Central South University, Feiyi Co., Ltd., Beijing Jinchengxin Mining Technology Research Institute Co., Ltd., Changchun Gold Research Institute Co., Ltd., Shandong Gold Mining Technology Co., Ltd., Tonghui, Jiashi County Mining Co., Ltd., Guizhou Chuanheng Chemical Co., Ltd., China Nonferrous Mining Group Co., Ltd., Jinchuan Group Co., Ltd. The main drafters of this standard. Wu Aixiang, Wang Yong, Wang Hongjiang, Wang Yiming, Yin Shenghua, Wang Shaoyong, Zhou Bo, Li Cuiping, Zhu Ruijun, Chen Qiusong, Zhang Zewu, Wang Xiancheng, Yan Peng, Qi Zhaojun, Yang Xixiang, Li Zijun, Hu Guobin, Wang Yushan, Huang Soldier, Wang Guoli, Kou Yunpeng, Zhou Falu, Wang Jiakai, Li Jianqiu. Technical specification for full tailing paste filling

1 Scope

China's national technical specification for backfilling mines with total tailings paste. It specifies the composition and storage requirements of the paste material and the filling process. Paste backfill solves two problems with one operation. A mine that removes ore leaves voids, and those voids have to be supported or the ground above subsides; and a mill that processes ore produces tailings, which conventionally go to a surface impoundment behind a dam - the structures whose failures have caused the worst industrial disasters of recent decades. Thickening the whole tailings stream to a non-segregating paste, mixing in a few per cent of cement, and pumping it back underground disposes of the tailings and fills the void at the same time. Total tailings means the entire stream rather than only the coarse fraction, which is what makes the surface impoundment unnecessary rather than merely smaller. The specification's difficulty is rheological: the paste must flow kilometres through a pipe and then stand up.

This standard specifies the composition and storage requirements of the full tailings paste material, the full tailings paste filling process requirements, and the full tailings paste filling

technical requirements Seek its detection method. This standard applies to the filling of full tailings paste in metal and non-metal mines.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB 8978 Integrated Wastewater Discharge Standard

GB 18599 Pollution control standard for general industrial solid waste storage and disposal sites

GB/T 50080 Standard Test Method for Performance of Ordinary Concrete Mixture

GB/T 50123 Standard for Geotechnical Test Methods

HJ943 Technical Specification for Cyanide Slag Pollution Control in Gold Industry JGJ/T

70 Standard for basic performance test method of building mortar

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Whole tail sand Unsorted full-grain tailings discharged from metal and non-metal mines after ore sorting.

3.2 Cementitious material Under the action of physics and chemistry, it can change from a slurry to a solid stone-like body, and can cement other materials to make a composite with a certain mechanical strength Solid matter.

3.3 Concentration The percentage of solid mass to the sum of solid and liquid mass is expressed as formula (1).