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Code for design of dry red mud stack

干法赤泥堆场设计规范

(English Translation)

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Foreword

This code has been compiled by China Nonferrous Engineering Co., Ltd. and Guiyang Aluminium Magnesium Design and Research Institute Co., Ltd., together with relevant organizations, in accordance with the requirements of the Notice on Issuing the Plan for the Formulation and Revision of Engineering Construction Standards and Codes in 2009 (Jian Biao [2009] No. 88) issued by the Ministry of Housing and Urban-Rural Development.

During the compilation of this code, the compiling group carried out extensive and in-depth investigation and research, earnestly summarized the experience in the construction and operation of dry red mud stockyards of alumina plants in China, and, on the basis of extensively soliciting opinions, finalized the code after review through repeated discussion, revision and improvement.

This code comprises 10 chapters, the main contents of which include: general provisions, terms, red mud stockyard, stockpiling process, red mud dam, flood discharge of the stockyard, seepage drainage and water return of the stockyard, red mud slurry conveying, red mud filtration and filter cake conveying, and environmental protection measures for the stockyard.

The provisions printed in bold type in this code are mandatory provisions and shall be strictly enforced.

The Ministry of Housing and Urban-Rural Development is in charge of the administration of this code and of the interpretation of the mandatory provisions; the China Nonferrous Metals Industry Association is in charge of the routine administration; and Guiyang Aluminium Magnesium Design and Research Institute Co., Ltd. is in charge of the interpretation of the specific technical contents. Should there be any comments or suggestions during the implementation of this code, please send them to Guiyang Aluminium Magnesium Design and Research Institute Co., Ltd. (address: No. 469 Jinyang North Road, Guanshanhu District, Guiyang City, Guizhou Province, postal code: 550081) for reference in future revision.

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1 General Provisions

1.0.1

This code is formulated in order to implement the national technical and economic policies in the design of dry red mud stacking yards, so as to achieve technical advancement, safety and applicability, environmental protection, economic rationality and assured quality.

1.0.2

This code is applicable to the design of newly built, reconstructed and extended dry red mud stacking yards, as well as to the design for the reconstruction of wet red mud stacking yards into dry red mud stacking yards.

1.0.3

In addition to complying with this code, the design of dry red mud stacking yards shall also comply with the provisions of the relevant current national standards.

2.0.1 red mud

The waste residue produced after alumina or aluminium hydroxide has been extracted from aluminium-bearing mineral raw materials.

2.0.2 water ratio of red mud

The ratio of the mass of water lost by a red mud specimen when dried at 105 °C to 110 °C to constant weight to the mass of the red mud after constant weight has been reached, expressed as a percentage.

2.0.3 dry red mud

Red mud whose liquidity index is less than 0.75 after sun-drying or mechanical dewatering treatment.

2.0.4 red mud yard

The site used to store the red mud discharged during the production process of alumina or aluminium hydroxide production enterprises.

2.0.5 dry red mud stack

A red mud yard adopting the dry stocking process of paste or the dry stocking process of filter cake.

2.0.6 dry stocking process of paste

A red mud stocking process in which red mud paste with a water ratio greater than the liquid limit and less than 150% is conveyed by pipeline to the red mud yard, where distribution, sun-drying, turning and sun-drying, rolling compaction and dam construction operations are carried out.

2.0.7 dry stocking process of filter cake

A red mud stocking process in which red mud slurry is filtered by a filter into a filter cake with a water ratio less than the liquid limit, and the filter cake is then transported by belt conveyor or motor vehicle to the red mud yard, where spreading, sun-drying and rolling compaction operations are carried out.

2.0.8 dry red mud stack of paste

A red mud yard adopting the dry stocking process of paste.

2.0.9 dry red mud stack of filter cake

A red mud yard adopting the dry stocking process of filter cake.

2.0.10 red mud dam

A structure in a red mud storage yard used to retain red mud slurry or red mud filter cake; it generally refers to the whole consisting of the starter dam and the embankment of the red mud storage yard.