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PEOPLE'S REPUBLIC OF CHINA**

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**Technical specifications for fluoride and dust treatment in
aluminum reduction waste gas
(English Translation)**

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Table of Contents

Foreword

1 Scope of application

2 Normative references

3 Terms and definitions

3.1 Aluminum gas waste gas of aluminum reduction

3.2 Filter bag service life service of bag filter

3.3 Fresh alumina fresh alumina

3.4 Alumina-loaded alumina enriched alumina

4 Contaminants and pollution loads

4.1 Contaminants

4.2 Pollutant load

4.3 Exhaust gas quantity and exhaust gas pollutant concentration

5 General requirements

5.1 General provisions

5.2 Construction scale

5.3 Engineering composition

5.4 General layout

6 Process design

6.1 General requirements

6.2 Routing options

6.3 Equipment selection design

Foreword

To implement the Law of the People's Republic of China on Air Pollution Prevention and Control, and regulate the waste gas treatment project of aluminum electrolysis industry Construction and operation management of facilities, prevention and control of environmental pollution caused by exhaust gas from aluminum electrolysis, protection of the environment and human health, Develop this standard.

This standard specifies the design, construction, acceptance and operation of fluoride electrolysis and dust control engineering for aluminum electrolysis.

Technical requirements such as maintenance.

This standard is a guidance document.

This standard is the first release.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. Northeastern University, Northeastern University Design and Research Institute (Ltd), Henan Zhongfu Industrial Co., Ltd., Shannan Nanshan Aluminum Co., Ltd., China Nonferrous Metals Industry Association.

This standard was approved by the Ministry of Environmental Protection on September 26, 2013.

This standard has been implemented since December 1, 2013.

This standard is explained by the Ministry of Environmental Protection.

Technical specifications for fluoride electrolysis and dust treatment of aluminum electrolysis

1 Scope of application

This standard specifies the design, construction, acceptance and operation of fluoride electrolysis and dust control engineering for aluminum electrolysis.

Technical requirements such as maintenance.

This standard applies to aluminum electrolysis exhaust fluoride and dust treatment projects. Can be used as an environmental impact assessment, work the technical basis for the design, construction, acceptance and operation and management of the project.

2 Normative references

The contents of this standard refer to the terms in the following documents. A valid version of a undated reference document this applies to this standard.

GB 4387 Safety regulations for railway and road transportation within industrial enterprises
GB 16279 Integrated emission standards for atmospheric pollutants
GB 25465 Aluminum Industry Pollutant Emission Standard
GB 50016 Building Design Fire Code
GB 50040 power machine basic design specification
GB 50046 industrial building anti-corrosion design specification
GB 50050 industrial circulating cooling water treatment design specification
GB 50051 chimney design specification
GB 50187 General Plan for Design of Industrial Enterprises
GB 50204 Concrete Structure Engineering Construction Quality Acceptance Specification
General specification for construction and acceptance of GB 50231 mechanical equipment installation engineering
GB 50683 Field equipment, industrial pipeline welding engineering construction and acceptance specifications
GB 50254 Electrical installation engineering Low-voltage electrical installation and acceptance

specifications GB 50255 Electrical installation engineering construction and acceptance specifications for power converter equipment GB 50275 Compressor, fan, pump installation engineering construction and acceptance specifications GB 50544 Non-ferrous metal enterprise general plan transportation design specification Technical requirements for GB/T 6719 bag filter GB/T 12801 General requirements for safety and hygiene of production processes GB/T 16157 Determination of particulate matter in fixed pollution source exhaust gas and sampling method of gaseous pollutants Classification and technical conditions of GB/T 16758 exhaust hood GB/T 16845 Dust Collector Terminology GB/T 17397 Aluminum Electrolysis Production Dust-proof and Anti-virus Technical Regulations GB/T 24487 alumina GBZ 1 industrial enterprise design hygiene standard GBZ 2.1 Industrial sites harmful factors occupational exposure limits chemical harmful factors HJ 477 pollution source online automatic monitoring (monitoring) data acquisition transmitter technical requirements HJ/T 76 Fixed pollution source flue gas emission continuous monitoring system technical requirements and testing methods HJ/T 212 pollution source online automatic monitoring (monitoring) system data transmission standard HJ/T 254 Construction Project Completion Environmental Protection Acceptance Technical Specification Electrolytic Aluminum HJ/T 284 electromagnetic pulse valve for bag filter HJ/T 324 environmental protection product technical requirements filter material for bag filter HJ/T 325 environmental protection product technical requirements bag filter bag frame HJ/T 326 environmental protection product technical requirements film filter for bag filter HJ/T 327 environmental protection product technical requirements bag filter bag HJ/T 328 pulse blowing bag type dust collector HJ/T 329 Rotary Back Blowing Bag Type Dust Collector Standard HJ/T 330 compartment backflush bag type dust collector JB 10191 bag filter installation requires a gas injection box for pulse jet bag type dust collector JB/T 5915 bag type dust collector with timing pulse injection electric control instrument JB/T 5917 filter bag frame for bag filter JB/T 8471 bag filter installation technical requirements and acceptance specifications JB/T 10340 bag type dust collector with differential pressure controller

3 Terms and definitions

The terms of GB/T 16845 and the following terms and definitions apply to this standard.

3.1 Aluminum gas waste gas of aluminum reduction

Refers to the aluminum electrolytic cell, material transportation, material storage, anode assembly, and residual in the aluminum electrolytic industry production process.

Extreme treatment, electrolytic cell overhaul and other related equipment discharge containing gaseous hydrogen fluoride, solid fluoride salt, dioxane A gas that oxidizes pollutants such as sulfur and dust.

3.2 Filter bag service life service of bag filter

According to the requirements of GB/T 6719, the life of the filter bag refers to the batch of filter bags of each bag filter.

10% of the used filter bags are damaged or cannot be maintained for normal use (whichever occurs first) the time of the experience.

3.3 Fresh alumina fresh alumina

Refers to alumina that has not been subjected to an adsorption reaction with hydrogen fluoride gas prior to mixing with the electrolysis flue gas.

3.4 Alumina-loaded alumina enriched alumina

After mixing with the electrolysis flue gas, it reacts with hydrogen fluoride in the flue gas to contain a fluoride salt component.

Alumina.

4.1 Contaminants

Gaseous hydrogen fluoride, solid fluoride salt dust produced by prebaked anode aluminum electrolysis cell in aluminum electrolysis production, Alumina dust and gaseous sulfur dioxide; gaseous hydrogen fluoride produced during anode cooling; alumina transport, Fluoride salt transport, anode transport, anode assembly and residual pole treatment, electrolytic cell overhaul, lift bag cleaning process Dust and so on.

4.2 Pollutant load

4.2.1

Pre-baked aluminum cell production of per ton of aluminum will produce 15 kg -40 kg of total fluorine, dust 30 kg -70 kg, dioxane Sulfur is 4 kg -12 kg.

4.2.2

Alumina and fluoride salt delivery systems produce 30 kg -60 kg of dust per ton of aluminum produced.

4.2.3

The anode assembly workshop produces 50 kg -80 kg of dust per ton of aluminum produced.

4.2.4

Electrolytic tank overhaul and bag cleaning workshop produce 10 kg -30 kg of dust per ton of aluminum produced.