

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 179-2018

Replacing HJ/T 179-2005

General technical specification of flue gas limestone/lime-gypsum wet desulfurization (English Translation)

Issued on: January 15, 2018

Implemented on: May 1, 2018

Issued by: Ministry of Ecology and Environment

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Foreword

In order to carry out the Law of the People's Republic of China on Environmental Protection and the Law of the People's Republic of China on Prevention and Control of Atmospheric Pollution Regulation, Prevention and Control of Environmental Pollution, Improvement of Environmental Quality, Regulation of Construction and Transportation of Limestone/Lime-Gypsum Wet Flue Gas Desulfurization Project Line management, the development of this standard.

This standard specifies the limestone/lime - gypsum wet flue gas desulfurization project design, construction, acceptance, operation and maintenance of technical requirements.

This standard was first released in 2005, this is the first revision.

The main content of this revision.

- Expand the scope of the applicable industries;
- Perfecting and supplementing the general technical requirements applicable to various industries, eliminating the special technical requirements applicable only to the thermal power industry;
- According to the technical development, the technical contents of flue gas system and absorption system were mainly adjusted, which supplemented the equipment selection requirements;
- Enrich the operation and maintenance of technical content;
- Improve the information appendix.

This standard Ministry of Environmental Protection Science and Technology Standards Division revised.

1 Scope of application

This standard specifies the limestone/lime - gypsum wet flue gas desulfurization project design, construction, acceptance, operation and maintenance skills requirement.

This standard applies to limestone/lime - gypsum wet flue gas desulfurization project can be used as construction project environmental impact assessment, Environmental protection facilities design, construction, acceptance and operation and management of technical basis.

The technical requirements proposed by this standard are general and special requirements to implement the relevant technical specifications of the industry.

2 Normative references

This standard references the following documents in the terms. For undated references, the effective version applies to this book standard.

GB 2893 safe color

GB 2894 safety signs and guidelines for their use GB 4053 fixed steel ladders and platform safety requirements GB/T 4272 equipment and pipe insulation technology GB 5083 General safety and health design of production equipment GB 7231 Industrial pipes of the basic identification of color, identification symbols and safety signs GB 12348 industrial enterprises boundary environmental noise emission standards GB/T 12801 production safety and health requirements General GB/T 13148 stainless steel clad steel welding technology requirements GB/T 13869 Electricity safety guidelines GB 18241.1 Rubber lined - Part 1. Equipment anti-corrosion lining GB 18599 general industrial solid waste storage, disposal site pollution control standards GB 50009 Building structural load specifications GB 50011 Code for seismic design of buildings GB 50013 outdoor water supply design specifications GB 50014 outdoor drainage design specifications GB 50016 architectural design code for fire protection GB 50019 Industrial building heating, ventilation and air conditioning design specifications GB 50033 architectural lighting design standards GB 50040 Power Machinery Basic Design Specification GB 50046 industrial building anti-corrosion design specifications GB 50050 industrial circulating cooling water treatment design specifications GB 50052 for power distribution system design specifications GB 50084 automatic sprinkler system design specifications GB 50087 Industrial Enterprise Noise Control Design Code GB 50093 Automatic Instrumentation Engineering Construction and Quality Acceptance Specification GB 50187 General design of industrial enterprises GB 50222 interior design fire protection specifications GB 50231 Mechanical Equipment Installation Engineering Construction and Acceptance Common Specifications GB 50243

ventilation and air conditioning construction quality acceptance criteria GB 50254
 Installation of electrical installations low voltage electrical construction and acceptance
 specifications Specification for Construction and Acceptance of Electrical Lighting Fixtures
 for Installation of Electrical Installations GB 50300 construction quality acceptance uniform
 standards GB 50755 Steel Construction Project Code GB 51245 Industrial building
 energy-saving design uniform standards Design Code for Roads and Mines GBZ 1
 industrial design health standards GBZ 2.1 Occupational exposure limits for hazardous
 agents in the workplace - Part 1. Chemical hazards GBZ 2.2 Occupational exposure limits
 for hazardous agents in the workplace - Part 2. Physical factors GBZ/T 194 workplace
 protection against occupational poisoning Hygienic engineering protective measures norms
 AQ 3009 Hazardous Location Electrical Safety Standard DL/T 5044 Power Engineering DC
 Power System Design Technical Specification DL/T 5403 thermal power plant flue gas
 desulfurization project to adjust the trial transport and quality acceptance assessment
 procedures HJ/T 75 fixed pollution sources flue gas emissions continuous monitoring
 technical specifications HJ/T 76 fixed emission sources continuous emission of flue gas
 monitoring system technical requirements and monitoring methods HG/T 2451 Equipment
 Corrosion-resistant rubber lining HG/T 2640 glass flake construction technology HG/T
 20678 lining steel shell design specifications HGJ 29 brick lining chemical equipment JB
 4710 steel tower container SY/T 0326 steel tank lined epoxy glass steel technical standards

3 Terms and definitions

3.1

limestone/lime-gypsum wet flue gas desulfurization process flue gas
 limestone/lime-gypsum wet desulphurization process Refers to the use of calcium-based
 material as an absorbent, remove flue gas sulfur dioxide (SO₂) and the recovery of
 by-product flue gas desulfurization art.

3.2 Desulfurization project desulphurization project

Refers to the facilities, equipment, components and system integration required to remove
 SO₂ and other sour gases from the flue gas with absorbent.

3.3 Absorbent

Refers to the reaction of SO₂ and other acidic gases alkaline substances. Absorption of
 limestone/lime-gypsum wet FGD process Agents for the limestone (CaCO₃), lime (CaO).

3.4 Absorber

Refers to the desulfurization project to achieve absorbent and SO₂ and other sour gas
 reaction facilities.

3.5 By-product

Refers to the absorbent and the flue gas SO₂ and other acidic gases generated after the reaction of substances.

3.6 Desulfurization efficiency desulfurization efficiency

Refers to the amount of SO₂ removed by the desulfurization project and the percentage of SO₂ contained in the flue gas without desulfurization, according to the formula (1) Count.

Desulfurization efficiency = $(C_1 - C_2) / C_1 \times 100\%$ (1) where.

C₁ - conversion concentration of SO₂ in flue gas before desulfurization, mg/m³;

C₂ - SO₂ flue gas desulfurization concentration, mg/m³.

3.7 Ca/S Ca/S mole ratio

Refers to the ratio of the number of moles of CaCO₃ and CaO added to the absorbent to the number of moles of SO₂ removed by the absorber.

3.8 Booster fan boost fan

Refers to the fan to overcome the flue gas desulfurization project generated new resistance.

3.9 Oxidation fan oxidation fan

Refers to the desulfurization of calcium sulphite generated oxidation of calcium sulfate fan.

3.10 Particle

Refers to the total suspended solids and the particulate matter in the solution.

3.11 Desulfurization wastewater FGD waste water

Refers to the desulfurization project of the production of waste water.

3.12 Liquid to gas ratio (L/G) liquid/gas ratio

Refers to the slurry circulation (L) and the absorber outlet saturated flue gas volume (m³) ratio.

3.13 Slurry circulation dwell time cycle slurry retention time in absorber slurry tank

Refers to the absorption tower slurry tank all the time required for the circulation of slurry for the absorption tower slurry tank effective volume (m³) and circulation Ring slurry total (m³/min) ratio.