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

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**Technical specifications for wastewater treatment and reuse of
iron and steel industry
(English Translation)**

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Foreword

To implement the Environmental Protection Law of the People's Republic of China, the Law of the People's Republic of China on Water Pollution Prevention and Control, and the Iron and Steel Industry Water Pollutant Emission Standards, which regulate the construction and operation management of steel industry wastewater treatment and reuse projects, environmental pollution, and protection this standard is formulated to protect the environment and human health.

This standard specifies the general requirements, process design, main process equipment and materials for the treatment and reuse of steel industry wastewater.

Technical requirements for materials, testing and control, construction, acceptance and

operation.

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 was drafted. China Metallurgical Construction Research Institute Co., Ltd.

This standard was approved by the Ministry of Environmental Protection on October 17, 2012.

This standard has been implemented since January 1, 2013.

This standard is explained by the Ministry of Environmental Protection.

Technical specification for steel industry wastewater treatment and reuse engineering

1 Scope of application

This standard specifies the technical requirements and reuse principles for wastewater treatment engineering of steel industry production units (excluding coking), and General requirements, process technology, design parameters, equipment and materials, testing and control, and application of comprehensive sewage treatment and reuse projects Technical requirements for work, acceptance and operation.

This standard applies to the process control and comprehensive wastewater treatment and reuse of waste water treatment and reuse in the production unit of the steel industry.

Cheng, can be used as an environmental impact assessment for steel industry construction projects, environmental protection facilities design and construction, project completion environment the technical basis for the protection and acceptance and operation and management after completion.

2 Normative references

The contents of this specification refer to the terms in the following documents. For undated references, the valid version applies to this specification.

GB 12348 Environmental noise emission standards for industrial enterprises GB 13456 Water Industry Pollutant Emission Standard GB 16297 Integrated emission standards for atmospheric pollutants GB 50013 Outdoor Water Supply Design Code GB 50014 Outdoor Drainage Design Code GB 50016 Building Design Fire Code GB 50019 Heating, Ventilation and Air Conditioning Design Code GB 50040 power machine basic design specification GB 50050 industrial circulating cooling water treatment design specification GB 50052 design specification for power distribution system GB 50053 10kV and below substation design specifications GB 50054 Low Voltage Distribution Design Specification GB 50168 Electrical

installation engineering Rotating electrical machine construction and acceptance specifications GB 50194 Safety requirements for power supply at construction site GB 50275 Compressor, fan, pump installation engineering construction and acceptance specifications GB 50303 Building electrical engineering construction quality acceptance specification GB 50335 Wastewater Recycling Engineering Design Specification GB 50506 Steel Enterprise Water Saving Design Specification GB 50672 Process design specification for comprehensive sewage treatment plant of iron and steel enterprises GB J 22 Factory Mine Road Design Code GB J 87 Industrial Enterprise Boundary Noise Control Design Specification GBZ 1 industrial enterprise design hygiene standard HJ/T 250 Environmental Protection Products Technical Requirements Rotary Fine Grille HJ/T 251 environmental protection product technical requirements Roots blower HJ/T 257 Environmental Protection Product Technical Requirements Electrolytic chlorine dioxide synergistic disinfectant generator HJ/T 258 Environmental Protection Products Technical Requirements Electrolytic Sodium Hypochlorite Generator HJ/T 262 environmental protection product technical requirements grille decontamination machine HJ/T 272 Environmental Protection Products Technical Requirements Chemical Process Chlorine Dioxide Disinfectant Generator HJ/T 279 environmental protection product technical requirements push flow submersible mixer HJ/T 283 environmental protection product technical requirements vane filter and plate and frame filter HJ/T 336 Environmental Protection Product Technical Requirements Submersible Sewage Pump HJ/T 369 Environmental Protection Product Technical Requirements Dosing Device for Water Treatment HJ/T 353 Water Pollution Source Online Monitoring System Installation Technical Specification (Trial) HJ/T 354 water pollution source online monitoring system acceptance technical specification Technical specification for operation and maintenance of HJ/T 355 wastewater online monitoring system "Design Manual for Water Supply and Sewerage in the Iron and Steel Industry" Measures for Completion and Acceptance of Construction Projects (Engineering) (National Planning Commission Construction [1990] No. 215) Measures for the Administration of Environmental Protection Completion Acceptance of Construction Projects (Order No. 13 of the State Environmental Protection Administration)

3 Terms and definitions

The following terms and definitions apply to this specification.

3.1 Waste water from iron and steel industry

Wastewater from various production units and auxiliary facilities in the steel industry.

3.2 Waste water from the unit of iron and steel industry

Waste water produced by various production processes (such as raw materials, sintering, iron making, steel making, steel rolling, etc.) in the steel production process.

3.3 Synthetic sewage from iron and steel industry

Wastewater discharged and transported by the drainage system of the iron and steel enterprise plant.

3.4 Concentrated salt-containing wastewater concentrated salt-containing wastewater

Industrial wastewater with a salt content greater than or equal to 2000 mg/L.

3.5 Integrated clarifier all-in-one sediment tank

The special mud pump is used to promote the external circulation of the activated sludge in the pool, and the impurity particles in the sewage are in contact with the formed sludge.

Flocculation and separation, a combination of flocculation, clarification, sedimentation and residual mud enrichment.

4.1 Wastewater sources and major pollutants

The steel industry wastewater comes from the production process water, equipment and product cooling water, equipment and site cleaning water. Waste Water contains raw materials, intermediates and products that are lost with water, as well as contaminants produced during production. Wastewater source See Table 1 for major pollutants.

Table 1 Sources and main pollutants of steel industry wastewater

Production unit wastewater type source main pollutants and load Raw material raw material field wastewater discharge dust removal, flushing floor SS sintering Flushing tape, floor wastewater Rinse the mixing tape, rinse Floor SS concentration is generally 5000mg/L Wet dust collector wastewater wet scrubber Mainly SS, the concentration is generally 5000~10000mg/L, Among them, TFe accounts for 40%~45% Desulfurization waste liquid sintering machine flue gas desulfurization pH. 4~6, SS, Cl-high, mercury, lead, arsenic, zinc, etc.

heavy metal ion

Ironmaking

Blast furnace gas washing wastewater Blast furnace gas washing and purification system System, pipe water seal SS, COD, etc., containing a small amount of phenol, cyanide, Zn, Pb, Sulphide and heat pollution. Where the SS concentration is 1000~5000mg/L, cyanide 0.1~10 mg/L, phenol 0.05~3 mg/L Slag granulation wastewater treatment system Mainly SS, concentration is 600~1500mg/L, cyanidation 0.002~1mg/L, phenol 0.01~0.08 mg/L the cast iron machine spray cooling waste water cast iron machine is mainly SS, the concentration is 300~3500mg/L Steel making Converter flue gas wet dust removal