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Cleaner production standard. Copper electrolytic industry

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(English Translation)

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Foreword

To implement the "People's Republic of China Environmental Protection Law" and "People's Republic of China Cleaner Production Promotion Law," for the enterprises to carry out electrolytic copper Clean production to provide technical support and guidance, the development of this standard.

This standard provides the basis to achieve the national and local emission standards, according to current industry technology, equipment and management the status quo, put forward the general requirements for clean production of electrolytic copper. The standard three levels, a representative of the international advanced level of clean production, two Representatives of the domestic advanced level of clean production, three representatives of the domestic basic level of clean production. As technology continues to progress and development, the standard will Timely amendment.

This standard is the first release.

This standard is developed by the Ministry of Environmental Protection Science, Technology organization.

This standard was drafted. Hunan Nonferrous Metal Research Institute, Chinese Academy of Environmental Sciences.

This standard MEP February 1, 2010 for approval.

This standard since May 1, 2010 implementation.

The standard explanation by the Ministry of Environmental Protection.

Cleaner production standard copper electrolysis industry

1 Scope

This standard specifies the general requirements for clean production of electrolytic copper industry. This standard clean production standard indicators into six categories, namely, the production process and Equipment requirements, resource and energy usage targets, product index, pollutant indicator (prior to the end of treatment), waste recycling and the environment Management requirements.

This standard applies to copper electrolysis enterprise clean production examination, judgment of the potential and opportunities for clean production, and cleaner production and performance assessment Clean production performance disclosure system for environmental impact assessment, waste discharge permit management, environmental management systems.

2 Normative references

The standard content of the following documents cited in the articles. For undated references, the effective version applies to this standard.

GB 7475-87 Water quality copper, zinc, lead, and cadmium - Atomic absorption spectrophotometry GB 7485-87 Determination of total arsenic in water quality diethyl dithiocarbamate spectrophotometry silver GB 11912-89 Flame atomic absorption spectrophotometry quality nickel GB 11914-89 Determination of Chemical Oxygen Demand Quality dichromate method GB 18597 Hazardous Waste Storage Pollution Control Standard GB 18599 general industrial solid waste storage and disposal site pollution control standards GB 21248 copper smelting enterprises of energy consumption per unit product GB/T 467-1997 cathode GB/T 534-2002 industrial sulfuric acid GB/T 2589 General Principles of comprehensive energy consumption calculation GB/T 4920-85 concentrated sulfuric acid mist exhaust measurement barium chromate colorimetry GB/T 24001 Environmental management systems - Requirements with guidance for use "Copper smelting industry access" (National Development and Reform Commission Announcement No. 40, 2006) "Pollution automatic monitoring and management approach" (SEPA Order No. 28) "Clean Production Audit Interim Measures" (National Development and Reform Commission, the State Environmental Protection Administration Order No. 16 of 2004)

3 Terms and Definitions

The following terms and definitions apply to this standard.

3.1 Cleaner production cleaner production

Refers constantly taken to improve the design and use of clean energy and raw materials, the use of advanced technology and equipment, improve management, utilization and other

measures to reduce pollution at source, improve resource utilization efficiency, reduce or avoid production of production, services and products to use during Pollutants Health and emissions, in order to reduce or eliminate human health and the environment.

3.2 pollutant indicator (prior to the end of the process) pollutants generation indicators (before end-of-pipe treatment) that pollutants producing coefficient, refers to the production unit (or processing) process, the amount of pollutants generated (before the end of the process). Including wastewater the amount of waste gas and solid waste generation and other indicators. Wastewater amount means the amount of waste water sewage treatment plant inlet and types of pollutants, Unit product amount or concentration of pollutants. Gas generation amount means the exhaust gas treatment apparatus and the amount of exhaust gas inlet types of pollutants per unit of product contamination the amount of pollutants produced or concentration.

3.3 Electrolytic refining of copper electrolytic refining of copper

It refers to the use of copper and impurity potentials different order, in the role of DC, both electrochemical dissolution of copper anode, but also on the cathode of the Precipitation, while the part of impurities into the electrolyte, anode slime partially into the process.

4.1 Index rating

This standard gives the electrolytic copper production process, cleaner production level three technical indicators.

A. the international advanced level of clean production;

Class 2. domestic advanced level of clean production;

Three. clean domestic production of basic levels.

4.2 Index requirements

Electrolytic copper industry clean production index requirements in Table 1.

Table 1 electrolytic copper industry clean production index requirements

Cleaner Production Index Level One Two Three First, the production technology and equipment requirements 1. Preparation work Arts & Equipment Cell-free polymer concrete lining concrete cell structure, lined with soft PVC, glass, steel or HDPE membrane preservative Cu permanent stainless steel cathode technology start pole piece Sulfuric acid and other accessories storage, Transport and delivery Transport and storage of sulfuric acid in line with GB/T 534-2002 stipulates that an amount has instrument control; copper craft work site Set forced ventilation facilities; work site with an emergency water supply; there are emergency plans Pressure filtration equipment selection to meet the normal production of the pump; high-pressure membrane filter press Corrosion seepage control measures

taken by the production shop floor seepage, leakage and corrosion measures; the workshop wall and ceiling against rot; electrolyte reservoir and sewage systems have corrosion seepage control measures 2. Lift-off Arts & Equipment Mechanized automatic stripping mode manually peeled Packaging, storage accordance with GB/T 467-1997 Second, the use of resources and energy indicators 1. Current efficiency /% ≥ 98 ≥ 95 ≥ 93 2. Comprehensive energy consumption per unit of product (folding standard Coal)/(kg/t) ≤ 130 ≤ 170 ≤ 220 3. DC consumption per unit of product /[(KW · h)/t] ≤ 240 ≤ 260 ≤ 280 4. Steam consumption per unit of product/(t/t) ≤ 0.40 ≤ 0.65 ≤ 0.75

6 Butts rate

Large anode plate (350 kg) ≤ 16 ≤ 18 Small anode plate (250 kg) ≤ 18 ≤ 20

7 Tons of copper water consumption/(m³/t) ≤ 3.5 ≤ 4.0 ≤ 5.0

Third, the product index 1. Purity copper cathode accordance with GB/T 467-1997 2. Standard copper cathode Fourth, pollutant indicator (prior to the end of the process) 1. Exhaust gas per unit of product sulfuric acid mist generation/(kg/t) ≤ 0.5 ≤ 0.6 ≤ 0.7 2. Wastewater Unit product of wastewater generated Quantity/(m³/t) ≤ 1.2 ≤ 1.5 ≤ 2.0 Chemical oxygen demand per unit of product Amount (COD) generation /(G/t) ≤ 60 ≤ 70 ≤ 90 CONTINUED Cleaner Production Index Level One Two Three 2. Wastewater Unit product copper (Cu²) Generation/(g/t) ≤ 0.23 ≤ 0.25 ≤ 0.28 Unit product lead (Pb²) Generation/(g/t) ≤ 3.2 ≤ 3.5 ≤ 4.0 Unit product of nickel (Ni²) Generation/(g/t) ≤ 0.080 ≤ 0.085 ≤ 0.100 Total arsenic per unit of product produced Quantity/(mg/t) ≤ 16 ≤ 18 ≤ 20 Fifth, the indicator for waste recycling 1. Utilization of copper anode slime and black/100% 2. Rinse and clean the electrolytic cell cathode surface After washing the precipitate back to the electrolyte circulation system, recycling Sixth, environmental management 1. Environmental laws and regulations on environmental standards in line with national and local laws, regulations, emissions meet the national emission standards, total control and discharge permit management requirements 2. Organizations set up specialized environmental management agencies and professional management personnel 3. Environmental Audit Accordance with the "Clean Production Audit Interim Requirements Law "were cleaner production Audit, and full implementation of the program by the provincial administration of environmental protection Sector acceptance; according to GB/T 24001 establishment and effective operation environment Management system, environmental management manual, Job files and program files are available Accordance with the "Clean Production Audit Interim Measures" requirements of cleaner production audit, Audit program and full implementation by the provincial environmental protection department to carry out inspection Closed; the course of operations to control environmental factors, there are strict rules, Establish relevant side management programs, cleaner production audit system and environmental management system 4. Waste treatment and disposal Use of waste treatment and disposal methods in line with national