

Standard Conditions for Copper Smelting Industry

In order to promote the supply-side structural reform of the copper smelting industry, promote the technological progress of the industry, and promote the high-quality development of the copper smelting industry, these standard conditions are formulated.

The standard conditions apply to copper smelting enterprises that have been built and put into production and use copper concentrates and secondary copper (not including enterprises separately disposing copper-bearing hazardous waste). This is a guiding document to promote the technological progress and standardized development of the industry, without administrative pre-approval and mandatory approval.

I. Enterprise layout

(I) The copper smelting project must meet the requirements of national and local industrial policies, overall land use planning, major functional area planning, environmental protection and energy conservation laws, regulations and policies, safety production laws, regulations and policies, and industry development plans.

II. Quality, technology and equipment

(II) Copper smelting enterprises shall establish, implement and maintain a quality management system that meets the requirements of GB/T19001, and encourage third-party certification of the quality management system. The anode copper shall meet the industry standard (YS/T1083), the cathode copper shall meet the national standard (GB/T467), and the quality of other products shall meet the corresponding national or industry standards.

(III) Copper smelting enterprises using copper concentrates should adopt flash smelting and oxygen-enriched bath smelting and other advanced technologies with high production efficiency, advanced technology, low energy consumption, environmental protection standards, good comprehensive utilization of resources, safety and reliability (such as rotary float copper smelting, synthesis furnace smelting, oxygen-enriched bottom blowing, oxygen-enriched side blowing, oxygen-enriched top blowing, silver furnace smelting, etc.), equipment and processes that are explicitly prohibited or eliminated by the state shall not be used. Encourage qualified enterprises to upgrade and transform the existing traditional converter blowing process to improve the management and control level of fugitive flue gas emissions. Facilities such as sulphuric acid production from flue gas, comprehensive utilization of resources and energy conservation must be equipped. Sulfuric acid production from flue gas must adopt advanced technologies such as dilute acid washing and purification, double-rotation and double-suction, and it is strictly forbidden to use water washing or hot concentrated acid washing technology for flue gas purification. Sulfuric acid tail gas needs to be equipped with treatment facilities. The equipped smelting tail gas waste heat recovery and dust collection process and equipment must meet the requirements stipulated in the *Energy Conservation Law*, the *Cleaner*

Production Promotion Law and the Environmental Protection Law.

(IV) Copper smelting enterprises that utilize secondary copper-containing resources must adopt advanced energy-saving, environmentally-friendly, and clean production techniques and equipment. Enterprises should strengthen the pretreatment of copper-containing secondary resources, and carry out impurity removal and classification to the greatest extent. It is forbidden to use chemical methods and incineration techniques and equipment for smoke-free treatment facilities. The smelting process must adopt advanced production technology and equipment with high production efficiency, low energy consumption, good comprehensive utilization of resources, environmental protection compliance, safety and reliability such as NGL furnaces, rotary top blowing furnaces, tilting refining furnaces, oxygen-enriched top-blown furnaces, oxygen-enriched bottom-blown furnaces, improved anode furnaces (reverberatory furnaces) of more than 100 tons. At the same time, dioxin emission control facilities or purification facilities should be matched according to the raw material conditions, and equipment such as preheated air and waste heat boilers must be used. It is prohibited to use direct coal-fired reverberatory furnaces to smelt secondary copper containing resources. The use of smelting processes and equipment without smoke control measures is prohibited.

(V) Where possible, encourage enterprises to develop smart factories. Establish a copper smelting big data platform, widely use automated intelligent equipment, and gradually establish an enterprise resource planning system (ERP), supervisory control and data acquisition (SCADA), manufacturing execution system (MES), product data management system (PDM), and time-division multiplexing (TDM) to

realize intelligent management, intelligent scheduling, digital spot inspection and online intelligent diagnosis of equipment, and finally realizes intelligent analysis and decision-making.

III. Energy consumption

(VI) Copper smelting enterprises shall establish, implement and maintain an energy management system that meets the requirements of GB/T23331, and encourage third-party certification of the energy management system.

(VII) The comprehensive energy consumption of the blister copper smelting process of copper smelting enterprises using copper concentrate is 180 kg standard coal per ton or less, and the comprehensive energy consumption of the electrolysis process (including electrolyte purification) is 100 kg standard coal per ton or less.

(VIII) The comprehensive energy consumption of the cathode copper refining process of copper smelting enterprises using copper-containing secondary resources is 390 kg standard coal per ton or less. Among them, the comprehensive energy consumption of the anode copper process is 290 kg standard coal per ton or less.

IV. Comprehensive utilization of resources

(IX) Copper smelting enterprises should have production waste water reuse systems, heavy metal-containing waste water and other discharged waste water met standards, and the drainage must meet the requirements of relevant national standards for unit product benchmark drainage.

Encourage copper smelting enterprises to build comprehensive recovery and utilization devices for associated rare and precious metals. Copper smelting enterprises should increase the comprehensive utilization of copper smelting slag resources, and effectively improve the resource utilization efficiency of waste generated in the smelting process. The valuable waste heat in the process should be used directly or indirectly. Where possible, encourage enterprises to carry out the resource utilization of smelting flue gas scrubbing acid and arsenic dust.

(X) The water recycling rate of copper smelting enterprises using copper concentrates should reach 98% or more, the consumption of new water per ton of copper should be less than 16 tons, the sulfur capture rate of the copper smelting production process should reach 99%, and the sulfur recovery rate should reach 97.5% or more.

(XI) The water recycling rate of copper smelting enterprises using secondary copper-containing resources should reach 98% or more.

V. Environmental protection

(XII) Copper smelting enterprises must comply with relevant environmental protection laws, regulations and policies, establish, implement and maintain an environmental management system that meets the requirements of GB/T24001, and encourage third-party certification of the environmental management system.

(XIII) Copper smelting enterprises must carry out self-monitoring in accordance with relevant standards and regulations such as the *Technical Guidelines for Self-monitoring of Pollutant Discharge – Non-Ferrous*

Metal Smelting (HJ 989), including having complete and corollary online pollutant monitoring facilities and joint operation of networks with the supervision unit designated by the competent department of ecological environment and encouraging in-plant dust reduction monitoring; pollutants can only be discharged after obtaining a pollutant discharge permit in accordance with regulations, and strictly implement the environmental management requirements of the pollutant discharge permit in production and operation.

(XIV) Copper smelting enterprises must improve sewerage and storm water diversion facilities, complete treatment facilities, complete operation and maintenance records, and simultaneous operation of pollution prevention facilities and main production facilities. Discharge of chemical oxygen demand, ammonia nitrogen, sulfur dioxide, nitrogen oxides, particulate matter, heavy metals, dioxins and other pollutants shall not exceed the relevant national or local pollutant emission standards, and the total discharge shall not exceed the total control index approved by the competent department of ecological environment. Enterprises implementing special emission areas should meet the emission limit requirements. Encourage copper smelting enterprises that are not in special emission limit areas to implement corresponding special emission limit standards (requirements).

(XV) Encourage large key copper smelting enterprises to build their own secondary resource recovery and utilization systems. Where possible, encourage copper smelting enterprises to use copper smelting systems and supporting pollutant prevention facilities to treat e-waste and other solid waste containing copper-containing and rare precious metals.

(XVI) The storage, utilization and disposal of solid waste by copper smelting enterprises shall comply with the requirements of relevant national standards and regulations, and strictly implement management systems such as hazardous waste management plans, declaration and registration, transfer forms, and business licenses, and should accurately report information on solid waste generation, storage, transfer, utilization and disposal through the national solid waste management information system.

(XVII) No major environmental pollution incidents or ecological damage has occurred in the year or the previous year when copper smelting enterprises applied for regulation.

VI. Safe production and occupational disease prevention

(XVIII) Copper smelting enterprises shall comply with the *Safety Production Law*, *Prevention and Control of Occupational Disease Law*, *Social Insurance Law* and other laws and regulations, establish, implement and maintain an occupational health and safety management system that meets the requirements of GB/T28001, and encourage the third-party certification of occupational health safety management system.

(XIX) Copper smelting enterprises shall implement the *Safety Production Regulations of Metallurgical Enterprises and Non-ferrous Metal Enterprises* and the *Basic norms for the standardization of production safety in enterprises* (GB/T33000) and other laws, regulations and standards that guarantee safe production and protection against occupational hazards.

(XX) Copper smelting enterprises shall pay taxes in accordance with the law, operate legally, participate in various types of insurance such as pension, unemployment, medical care, and work-related injuries in accordance with the law, and pay the full amount of relevant insurance fees for their employees. Actively promote safety production standardization, strengthen safety production infrastructure, and fulfill the main responsibility of enterprise safety production.

(XXI) There were no major or more serious production safety accidents in the year when copper smelting enterprises applied for specification and the previous year.

VII. Standards management

(XXII) Application, review and announcement of standard conditions for companies in the copper smelting industry

1. The Ministry of Industry and Information Technology is responsible for the management of standardization for the copper smelting enterprises.

2. All copper smelting enterprises that have been established and put into production for more than one year (inclusive) can apply for review voluntarily in accordance with the *Standard Conditions for Copper Smelting Industry*. The enterprise applying for the standardization must prepare the Application Report for the Announcement of the Standardized Copper Smelting Industry Enterprise (see Annex 1) and provide relevant materials as required. The legal person (or representative), the applicant and the reviewer shall be responsible for the completeness and

authenticity of the application materials and take the corresponding responsibility.

3. The provincial-level industrial authority is responsible for receiving applications and preliminary examinations for the standard conditions of relevant enterprises in the region, and the central government-owned enterprises conduct self-examination. The initial or self-examination unit shall verify the applying enterprise in accordance with the standard conditions, propose the initial or self-examination opinions, and the submit the opinion and the application materials of the enterprise to the Ministry of Industry and Information Technology.

4. The Ministry of Industry and Information Technology collectively receives application materials submitted by relevant departments or units, and entrusts industry associations and other institutions to organize relevant experts to review reports of application enterprises, and organize on-site verification when necessary.

5. The Ministry of Industry and Information Technology will review the enterprises that have passed the review, and if necessary, seek the opinions of the Ministry of Ecology and Environment and other departments, publicize the enterprises that meet the standard conditions, and make an announcement if there is no objection, and send a copy to the relevant departments.

(XXIII) Announcement that enterprises implement dynamic management

The Ministry of Industry and Information Technology dynamically manages the list of announced companies. Before the end of March each year, standardized enterprises should submit the previous year's self-inspection report (see Annex 2) to the local provincial-level industrial authority. The provincial-level industrial authority shall be responsible for

the review and report the review results to the Ministry of Industry and Information Technology; central government-owned enterprises conduct self-inspection, and report the self-inspection results to the Ministry of Industry and Information Technology. The Ministry of Industry and Information Technology organizes the association to conduct spot checks on the announced enterprises. Encourage all sectors of the society to supervise the standardization situation of announced enterprises. If an announced enterprise has one of the following circumstances, its qualification for announcement will be revoked:

1. Fill in relevant information with fraudulent behavior;
2. Refuse to carry out annual self-inspection, accept supervision and inspection and irregular on-site inspection;
3. Failure to maintain the requirements of the standard conditions;
4. The main production equipment is shut down and withdrawn or production is suspended for 1 year or more;
5. The occurrence of major product quality problems, major environmental pollution incidents or ecological damage incidents, large or above production safety accidents, major social instability incidents, causing serious social impact;
6. There are outdated production capacities that have been explicitly eliminated by the State.

If the qualification for announcement is to be revoked, the Ministry of Industry and Information Technology will inform the relevant enterprises in advance and listen to their statements and defenses. Enterprises whose qualifications for announcement are revoked, in principle, can re-apply for standardization 12 months from the date of revocation.

If there are significant changes in the announced standardization enterprise (relocation, in-situ reconstruction and main process changes), an application for change shall be filed, and the Application for Announcement of the Standardized Copper Smelting Industry Enterprise shall be re-filled, and shall be submitted to the Ministry of Industry and Information Technology after verification by provincial industrial authorities; central government owned enterprises directly report to the Ministry of Industry and Information Technology. The Ministry of Industry and Information Technology issues changes in real time.

VIII. Supplementary Provisions

(XXIV) The standards and related policies involved in the standard conditions shall be implemented in accordance with their latest version.

(XXV) The standard conditions shall be implemented from the date of issuance, and the previous *Regulations of Copper Smelting Industry* (Announcement No. 29 of the Ministry of Industry and Information Technology of the People's Republic of China in 2014) shall be abolished at the same time. Enterprises that have announced before the publication of the standard conditions must reapply for the announcement in accordance with the requirements of this specification.

(XXVI) The Ministry of Industry and Information Technology is responsible for interpreting the standard conditions and revising them according to industry development.