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Technical specifications for collection and recovery of non-ferrous metal contained solid waste
含有色金属固体废物回收利用技术规范

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Technical specifications for collection and recovery of non-ferrous metal contained solid waste

1 Scope

This Standard specifies general requirements for recovery of non-ferrous metal contained solid waste, enterprise management requirements, ecological environmental protection requirements and recycling product management requirements.

This Standard is applicable to recovery of solid wastes such as residues, dust, smoke, sludge and waste liquid that contain non-ferrous metals produced in ferrous metal smelting, non-ferrous metal smelting, electronics industry, metal surface treatment, petroleum refining, environmental treatment and other industries.

This Standard is not applicable to the recovery of solid waste generated during mining and beneficiation in the non-ferrous metal industry. It is not applicable to the recovery of solid waste that contains radioactive material.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 5085 (all parts), *Identification standards for hazardous wastes*

GB 18597, *Standard for pollution control on hazardous waste storage*

GB 18599, *Standard for pollution control on the non-hazardous industrial solid waste storage and landfill*

GB 34330, *Identification standards for solid wastes - General rules*

GB/T 41015, *Technical requirements for solid waste vitrification product*

HJ 2025, *Technical specifications for collection, storage, transportation of hazardous waste*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

technology. Adopt comprehensive utilization and environmental protection technologies encouraged and recommended by the state. Timely measure and monitor environment and energy. Timely detect and eliminate adverse effects on the environment.

5.4 During transportation and storage of semi-solid and liquid non-ferrous metal contained solid wastes, they shall be loaded into special barrels, tanks and other containers or tank trucks. The storage and transportation of non-ferrous metal contained solid waste shall comply with the requirements of GB 18597, HJ 2025 and other standards.

6 Enterprise management requirements

Enterprises that recycle non-ferrous metal contained solid waste shall meet the following basic requirements:

- a) It belongs to the enterprise legal person qualification established in accordance with the law and has the business scope of comprehensive utilization of non-ferrous metal solid waste.
- b) Management personnel, professional technicians, skilled workers and other personnel suitable for the scale of the organization and the type of comprehensive utilization of non-ferrous metal solid waste shall be deployed. Relevant staff and management personnel shall master the provisions of relevant national policies, regulations, and standards.
- c) There shall be a fixed place and necessary recycling, storage, processing and environmental protection and safety facilities and equipment, which meet the requirements of national or local environmental protection and safety protection related standards and specifications.
- d) There shall be a sound management system or management system for personnel management, production management, quality management, safety emergency management and environmental management.
- e) The amount of solid waste to be treated shall be compatible with the recycling capacity and pollution prevention and control capacity.

7 Common recycling technologies

7.1 Physical processing

It is a treatment method, that is according to the basic physical properties of non-ferrous metal contained solid waste, changes the morphology of solid waste by physical methods without destroying the composition of solid waste, including compaction,

crushing, screening, sorting, dehydration, evaporation, extraction, adsorption and other methods. Before recovery, the necessary initial treatment of non-ferrous metal contained solid waste can be carried out, mainly including crushing, sorting and other processes. For non-ferrous metal contained sludge and semi-solid waste residues, mechanical dehydration can be carried out by means of pressure filtration or drying and dehydration can be carried out using equipment such as thermal ovens and steam drying ovens.

7.2 Chemical treatment

It is a treatment method, that is according to the basic chemical properties of non-ferrous metal contained solid waste, undergoes chemical transformation to obtain valuable metals or metal compounds and other substances, including redox, electrolysis, electrowinning, extraction, separation, leaching and other hydrometallurgical methods, and roasting, smelting and other pyrometallurgical methods. See Annex A for the typical utilization process of non-ferrous metal contained solid waste.

7.3 Biological treatment

It is a treatment method that uses biochemical action to treats non-ferrous metal contained solid waste to obtain valuable substances or energy, such as microbial metallurgy.

8 Ecological and environmental protection requirements

8.1 Construction requirements

The site selection of the recovery of non-ferrous metal contained solid waste shall meet the requirements of the ecological protection red line. Combining with the status quo of environmental quality and related planning and functional zoning requirements, determine the environmental quality objectives and the corresponding environmental management and control, pollutant discharge control requirements. The project shall be able to maintain stable environmental quality and shall not be lower than the environmental quality standards for air, soil and water. The project shall build supporting environmental protection facilities in accordance with the requirements of environmental protection "three simultaneous" and apply for environmental protection acceptance upon completion of the project according to law.

8.2 Pollution control requirements

8.2.1 In the process of recycling non-ferrous metal contained solid waste, the discharge of air, water and solid pollutants shall meet the requirements of national and local pollutant discharge standards.

8.2.2 The waste residue generated in the process of treatment and disposal shall be identified according to the provisions of GB 34330 and GB 5085 (all parts), and shall

meet the following provisions:

- a) Those identified as hazardous wastes shall be collected, stored and transported according to the requirements of GB 18597 and HJ 2025, and shall be handed over to qualified units for processing.
- b) If it is identified as general industrial solid waste, it shall be further processed and utilized, or stored or landfilled in accordance with the requirements of GB 18599.

8.3 Resource utilization requirements

Enterprises that recycle non-ferrous metal contained solid waste shall take energy-saving and emission-reduction measures, so as to reduce energy consumption, improve wastewater recycling rate, and minimize new water consumption. The recycling rate of valuable resources shall be continuously improved. The heat energy generated during the recycling process is utilized in an appropriate form.

9 Recycling product management requirements

9.1 Comprehensive utilization requirements

9.1.1 Recycling products of non-ferrous metal contained solid waste, when they comply with the quality standards of products produced by substituted raw materials established by the state, local or common in the industry, shall meet the technical standards for the prevention and control of environmental pollution by solid waste, the subsequent environmental management requirements and the technical requirements of downstream industries. If there is a stable market demand, the recycling products shall be managed according to the products.

9.1.2 Metal enrichment obtained after chemical leaching, precipitation, dehydration and drying, if can be used as raw and auxiliary materials for downstream industries, shall be managed with reference to the requirements for the corresponding raw and auxiliary materials.

9.1.3 Recycling and processing products of non-ferrous metal contained solid waste, if they meet the requirements of the comprehensive utilization standard of solid waste and the pollution prevention and control standard and at the same time meet the technical requirements of the user, can be used as an additive for the preparation of building materials, or as a raw material or ingredient for making lightweight aggregates, ceramic materials, magnetic materials.

9.2 Final disposal requirements

9.2.1 Treatment and disposal products of non-ferrous metal contained solid waste, if they do not meet national or industry standards for related products and have no stable market demand, are managed as solid wastes. If they are determined to be hazardous

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