

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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**A guide to feasible technologies for the prevention and control
of pollution in the coating and ink industry**
(English Translation)

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1 Scope of application

This standard proposes feasible technologies for the prevention and control of waste gas, waste water, solid waste and noise pollution in the paint and ink industry.

This standard can be used as the environmental impact assessment of paint and ink industrial enterprises or production facilities construction projects, and the preparation and revision of national pollutant discharge standards.

References for ordering, emission permit management and selection of pollution prevention and control technologies.

This standard does not apply to production equipment for synthetic resin production and modification.

2 Normative references

This standard refers to the following documents or clauses thereof. For dated references, only the dated version applies to this standard.

For undated references, the latest edition (including all amendments) applies to this standard.

GB 8978 Integrated Wastewater Discharge Standard GB 12348 Industrial Enterprise Boundary Environmental Noise Emission Standard GB 14554 Emission Standard of Odor

Pollutants GB 18597 Hazardous Waste Storage Pollution Control Standard GB 18599
General Industrial Solid Waste Storage and Landfill Pollution Control Standard GB 25463
Ink Industry Water Pollutant Discharge Standard GB 37824 Air Pollutant Emission Standard
for Paint, Ink and Adhesive Industry GB/T 4754-2017 National Economic Industry
Classification GB/T 50087 Design specification for noise control of industrial enterprises HJ
1093 Regenerative combustion method industrial organic waste gas treatment engineering
technical specification HJ 1116 Technical Specifications for the Application and Issuance of
Pollution Discharge Permits for the Manufacturing of Paints, Inks, Pigments and Similar
Products HJ 2020 General technical specification for bag type dust removal project HJ
2026 Technical specification for industrial organic waste gas treatment engineering by
adsorption method HJ 2027 Technical Specification for Industrial Organic Waste Gas
Treatment Engineering by Catalytic Combustion "Measures for the Administration of
Hazardous Waste Transfer Forms" "National Hazardous Waste List"

3 Terms and Definitions

The following terms and definitions apply to this standard.

paint and ink industry paint and ink industry Paint manufacturing industry (C2641) and ink
and similar products manufacturing industry (C2642) specified in GB/T 4754-2017.

manufacture of paints the production activities of adding pigments, solvents and auxiliary
materials to natural resins or synthetic resins and processing them into covering materials,
including coating Preparation of auxiliary materials such as materials and thinners, paint
strippers, etc.

manufacturing of ink it is prepared by mixing and grinding pigments, binders (vegetable oils,
mineral oils, resins, solvents) and fillers.

Color paste-like substances, as well as for computer printing, ink for copiers and other
production activities.

available techniques of pollution prevention and control According to my country's
environmental demand and economic level in a certain period of time, comprehensive use
of pollution prevention technology and pollution control technology in the process of
pollution prevention and control technology and environmental management measures to
stably meet the national pollutant discharge standards and large-scale application of
technology.

volatile organic compounds (VOCs) Organic compounds participating in atmospheric
photochemical reactions, or organic compounds determined according to relevant
regulations.

When characterizing the overall emission of VOCs, according to industry characteristics
and environmental management requirements, total volatile organic compounds (with

TVOC) can be used.

expressed), non-methane total hydrocarbons (expressed as NMHC) as pollutant control items.

non-methane hydrocarbons (NMHC) Using the specified monitoring method, the sum of the gaseous organic compounds, excluding methane, for which the hydrogen flame ionization detector responds, in terms of carbon mass concentration meter.

airtight closed/close Contaminants are not in contact with the ambient air, or are isolated from the ambient air by sealing materials, sealing equipment, or operating methods.

closed space

A closed area or closed building formed by using a complete envelope to block pollutants, workplaces, etc. from the surrounding space.

Except for personnel, vehicles, equipment, and materials entering and leaving the closed area or closed building, as well as the exhaust pipes and vents established according to law, the door shall be closed.

Windows and other openings (holes) should be kept closed at all times.

VOCs-containing materials this standard refers to raw and auxiliary materials, products and wastes (slag, liquid) with a mass proportion of VOCs greater than or equal to 10%, as well as organic polymer raw materials.

Auxiliary materials and waste (slag, liquid).

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fugitive emission

Irregular emissions of air pollutants that do not pass through exhaust stacks, including emissions from open workplaces, and through crevices, vents, open Discharge of doors, windows and similar openings (holes), etc.

4.1.1 Coating Manufacturing Production Process

4.1.1.1

According to the form of the coating product and the dispersion medium used, it can be divided into solvent-based coating, water-based coating and powder coating, etc. of which solvent-based the production process of coatings and water-based coatings mainly includes raw and auxiliary materials storage, metering, transportation, feeding, mixing, grinding, blending, filtration, storage, etc.

Storage, packaging, cleaning and other processes. The production process of powder coatings mainly includes raw and auxiliary materials storage, metering, transportation,

feeding, mixing, melting Extrusion, tableting, cooling, crushing, grinding, air screening, packaging and other processes. See Appendix A for the paint production process flow.

4.1.1.2

The main raw and auxiliary materials used in the coating production process include resins, fillers, solvents, additives and pigments. Materials containing VOCs Including resins, solvents and additives, where resins include alkyd resins, amino resins, acrylic resins, phenolic resins, epoxy resins and polyurethanes Ester resins, etc.; solvents include aliphatic hydrocarbon mixtures mainly alkanes, aromatic hydrocarbons, alcohols, ethers, ketones, esters and chlorinated alkanes, etc.; additives Including leveling agents, thickeners, surfactants, plasticizers, driers, curing agents, etc.

4.1.1.3

The energy used in paint production mainly includes electricity, natural gas, etc.

4.1.2 Production Process of Ink Manufacturing

4.1.2.1

According to the ink product form, it can be divided into paste ink, liquid ink, etc.; according to the use of binder, it can be divided into solvent-based ink, water-based oil Ink and offset printing ink, etc. The production process of ink mainly includes storage, measurement, transportation, feeding, mixing (kneading), grinding, Preparation, filtration, storage, packaging, cleaning and other processes. See Appendix A for the production process flow of the ink.

4.1.2.2

The main raw and auxiliary materials used in the ink production process include pigments, binders (vegetable oils, mineral oils, resins, solvents, etc.), Fillers and auxiliaries, etc. Materials containing VOCs include resins, solvents and additives, among which resins include polyamide resins, chlorinated polypropylene resins, Polyurethane resins, acrylic resins, polyester resins, phenolic resins and epoxy resins, etc.; solvents include aliphatic hydrocarbon mixtures based on alkanes, Aromatic hydrocarbons, alcohols, ketones and esters, etc.; additives include desiccants, anti-drying agents, viscosity reducers, diluents, thickeners, plasticizers, diluents, Anti-gelling agent, surfactant, defoaming agent, ultraviolet absorber, anti-pinhole agent, foaming agent, etc.

4.1.2.3

The energy used in ink production mainly includes electricity, natural gas, etc.

4.2.1 Generation of paint manufacturing pollutants