

HJ

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Guideline on available techniques of pollution prevention and control for printing industry

印刷工业污染防治可行技术指南

(English Translation)

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Foreword

In order to implement the "Environmental Protection Law of the People's Republic of China" Law on the Prevention and Control of Gas Pollution, Law on the Prevention and Control of Environmental Pollution by Solid Wastes of the People's Republic of China, Law on Prevention and Control of Environmental Noise Pollution of the People's Republic of China and other laws to prevent and control environmental pollution, improve environmental quality, and promote technological progress in the prevention and control of pollution in the printing industry to formulate this standard.

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

This standard is issued for the first time.

Appendices A to E of this standard are informative appendices.

This standard was formulated by the Department of Science, Technology and Finance, and the Department of Regulations and Standards of the Ministry of Ecology and Environment.

This standard was drafted. Beijing Environmental Engineering Design Institute, China Academy of Environmental Sciences, China Printing and Equipment Industry Association

Conference, China Printing Technology Association, University of Chinese Academy of Sciences, Shanghai Mechanical and Electrical Design Research Institute Co., Ltd., South China University of Technology.

This standard was approved by the Ministry of Ecology and Environment on January 8, 2020.

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This standard is explained by the Ministry of Ecology and Environment.

Guidance on feasible technologies for pollution prevention in the printing industry

1 Scope

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

This standard can be used for environmental impact assessment of printing industry enterprises or production facilities construction projects, formulation and revision of national pollutant emission standards, Reference for pollution permit management and pollution prevention technology selection.

2 Normative references

This standard refers to the following documents or clauses therein. For dated references, only the dated version is applicable to this standard.

For undated references, the latest version (including all amendments) is applicable to this standard.

GB 8978 Integrated Wastewater Discharge Standard GB 12348 Environmental noise emission standards for industrial enterprises GB 14554 Emission Standard for Odor Pollutants GB 16297 comprehensive emission standards for air pollutants GB 18597 Pollution Control Standard for Hazardous Waste Storage GB 18599 Standard for Pollution Control of General Industrial Solid Waste Storage and Disposal Sites GB 37822 Volatile Organic Compounds Emission Control Standard GB 50016 fire protection code for building design GBZ 1 Hygienic Standard for Design of Industrial Enterprises GBZ 2.1 Occupational exposure limits for workplace hazardous factors Chemically harmful factors GB/T 4754-2017 National Economic Industry Classification HJ 944 General Regulations on Technical Specifications for Environmental Management Ledgers and Pollutant Permits for Pollutant Discharge Units (Trial) HJ 2026 Technical Specifications for Industrial Organic Waste Gas Treatment Engineering by Adsorption HJ 2027 Technical Specification for Catalytic Combustion Industrial Organic Waste Gas Treatment Engineering AQ 4273 Safety Technical Specification for Dedusting System for Danger of Dust Explosion "Administrative Measures for the Transfer of Hazardous Waste" (Order of the State Environmental

Protection Administration No. 5) National Hazardous Waste List (Decree No. 39 of the Ministry of Environmental Protection, the National Development and Reform Commission, and the Ministry of Public Security)

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Printing

A reproduction process that uses an analog or digital image carrier to transfer a toner/colorant (such as ink) to a substrate. According to the printing Printing plate types can be divided into lithographic printing, gravure printing, letterpress printing (including resin printing, flexographic printing) and stencil printing (main to print for screen).

3.2 Printing industry

GB/T 4754-2017 book, newspaper printing (C2311), printing of this volume (C2312), packaging decoration and other printing (C2319), and the industry engaged in production of printing reproduction and pre-press processing, plate making, post-processing binding, surface finishing and packaging molding.

3.3 Printing ink

A dispersion system composed of colorants, binders, auxiliary agents and other components is transferred to the substrate to be colored during the printing process.

3.4 Volatile organic compounds (VOCs)

Organic compounds that participate in atmospheric photochemical reactions, or organic compounds determined according to relevant regulations.

When characterizing the overall emissions of VOCs, according to industry characteristics and environmental management requirements, total volatile organic compounds (as TVOC (Represented)), non-methane total hydrocarbons (represented by NMHC) as pollutant control projects.

3.5 Non-methane hydrocarbons (NMHC)

Using specified monitoring methods, the hydrogen flame ionization detector responds to the sum of gaseous organic compounds other than methane, based on the quality of carbon.

Measuring concentration meter.

3.6 Closed/closed

The state or operation mode where the pollutants are not in contact with the ambient air, or are isolated from the ambient air by sealing materials, sealing equipment.

3.7 Closed space

A closed area or closed building formed by using a complete enclosure structure to block pollutants, working places, etc. from the surrounding space.

Except for personnel, vehicles, equipment, and materials entering and exiting the closed area or closed building, as well as the exhaust pipes and vents established according to law, the doors Windows and other openings (holes) should be kept closed at all times.

3.8 Available techniques of pollution prevention and control

According to the environmental needs and economic level of China in a certain period of time, comprehensively adopt pollution prevention technology and pollution treatment technology in the process of pollution prevention Technology and environmental management measures to stabilize the discharge of pollutants to national pollutant discharge standards and technologies for large-scale applications.

4.1 Production process

4.1.1

Printing production generally includes three processes. prepress, printing, and postpress processing. The prepress process mainly includes plate making and prepress processing (washing Canning, coating, etc.). The printing process mainly includes the processes of ink allocation and transportation, printing, glazing, drying, and blankets Supporting processes such as cleaning and ink cleaning. The post-printing process mainly includes binding, surface finishing, and packaging molding processes. Binding can be divided into hardcover, flat Assembly, saddle stitching, etc .; surface finishing processes include laminating, glazing, foil stamping, die cutting, etc .; packaging molding processes including adhesive and varnish formulation and conveying, compounding, drying, folder-gluing, bag-making, mounting, cutting, etc. See Appendix A for the printing process.

4.1.2

The main raw and auxiliary materials used by printing industry enterprises include paper, cardboard, plastic film, aluminum foil, textiles, sheet metal, various Containers, developers, fixers, and inks, adhesives, thinners, cleaning agents, wetting fluids, varnishes, coatings and other materials containing VOCs material. The percentage of VOCs mass and characteristic pollutants are shown in Appendix B.