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**Guideline for available techniques of pollution prevention and
control for pulp and paper industry**

制浆造纸工业污染防治可行技术指南

(English Translation)

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Foreword

To implement the Environmental Protection Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Water Pollution, Law on Pollution Prevention and Control, etc., Implementing the Notice of the General Office of the State Council on Printing and Distributing the Implementation Plan for Controlling Pollutant Discharge Permit System [2016] No. 81), establish and improve a feasible technical system based on emission standards, prevent environmental pollution, improve environmental quality, and promote this standard is formulated for the advancement of pollution prevention and control technology in the pulp and paper industry.

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

Appendix A of this standard is an informative annex.

This standard is the first release.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard was drafted. Light Industry Environmental Protection Research Institute,

China Paper Association, Environmental Engineering Assessment Center of the Ministry of Environmental Protection, National Pulp and Paper Research Institute, China Light International Engineering Co., Ltd., South China University of Technology.

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This standard is explained by the Ministry of Environmental Protection.

Technical guide for pollution prevention and control in the pulp and paper industry

1 Scope of application

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

This standard is applicable to the discharge management of pollutant discharge in the pulp and paper industry, and can be used as environmental impact assessment for construction projects and national pollutants.

The basis for the formulation and implementation of emission standards and the selection of pollution prevention technologies for pulp and paper industry enterprises.

This standard does not apply to self-provided thermal power stations and industrial boilers in pulp and paper industry enterprises.

2 Normative references

This standard refers to the following documents or their terms. For undated references, the latest edition applies to this standard.

GB 18484 Hazardous Waste Incineration Pollution Control Standard GB 18485 Domestic garbage incineration pollution control standard GB 18597 Hazardous Waste Storage Pollution Control Standard GB 18599 General industrial solid waste storage and disposal site pollution control standards National Directory of Hazardous Wastes (Ministry of Environmental Protection, National Development and Reform Commission, Ministry of Public Security Order No. 39)

3 Terms and definitions

The following terms and definitions apply to this standard.

Pulp and paper industry Produce pulp from plants (wood, other plants) or waste paper, and/or use paper pulp to produce paper and cardboard Industry.

Feasible technology

In the process of pollution prevention and control of China's pulp and paper industry in a certain period of time, pollution prevention technology, pollution control technology and environmental management are adopted.

Measures to make pollutant emissions consistently meet or exceed national pollutant discharge standards, and have a certain scale of application technology.

Chemical pulping process Treating plant material with a solution containing chemicals under specific conditions, dissolving most of the non-cellulosic components to make paper the pulp production process mainly includes kraft pulping, caustic soda pulping and sulfite pulping.

Chemi-mechanical pulping process in the combination of chemical pretreatment and mechanical refining, the plant material is dissociated to produce a pulp production process.

Waste paper pulping process Waste paper is used as raw material, and it is processed by pulping, purification, etc., if necessary, deinking and bleaching to obtain pulp production process.

Paper and paperboard process According to the requirements of use, the fibers are treated and suspended in a fluid medium, and intertwined on the net, and the fluid is removed by machine cutting.

Quality to form the production process of sheet products.

Primary treatment

In the wastewater treatment project, the pollutant treatment process is mainly based on filtration, sedimentation, air flotation and other solid-liquid separation measures.

Secondary treatment

In the wastewater treatment project, the treatment process of pollutants with biochemical treatment as the main body after primary treatment.

Tertiary treatment

The process of further processing of contaminants by physical and chemical methods after primary and secondary treatment in wastewater treatment projects.

4.1 Chemical pulping

4.1.1

Chemical pulping production process. The plant raw materials are processed into the cooking section after being processed in the preparation section, and steamed under the action of chemical liquid.

The boiled crude pulp is purified by washing and screening, and then pulp is produced by

oxygen delignification and bleaching sections as needed. Usually wood (bamboo) Pulping by kraft method, non-wood (bamboo) is made by caustic soda or sulfite method. Kraft or caustic soda pulping the raw black liquor is evaporated and then burned into an alkali recovery furnace. The burned melt produces white liquor and white mud through the caustic chemical section. White liquor back to cooking the section is used as a cooking liquid. The white mud produced by the wood pulp production is calcined by lime kiln to produce calcium oxide for reuse in the harsh chemical section; non-wood pulp production the white mud produced is generally used as a raw material for preparing calcium carbonate or other uses, and generally does not support a lime kiln. Sulfite pulping and washing section the waste liquid is comprehensively utilized after evaporation.

4.1.2

Chemical pulping production technology The technology used in each section. the preparation section mainly includes dry stripping of logs, and dry preparation of bamboo.

Raw materials, dry and wet preparation of wheat straw and reed, wet storage of bagasse; cooking section mainly includes continuous cooking and batch cooking;

The washing section mainly includes press washing, displacement washing, pressure washing, vacuum washing, etc.; the screening section mainly includes pressure screening and full Closed pressure screening; oxygen delignification is an optional process, usually one or two stages of oxygen delignification; bleaching section is mainly elemental chlorine bleaching Process; the alkali recovery section consists of evaporation, combustion, causticization and lime recovery.

4.1.3

Waste water is mainly produced by the preparation, cooking, bleaching, evaporation and other sections. The pollutants are mainly chemical oxygen demand (CODCr), five days.

Biochemical oxygen demand (BOD₅), suspended solids (SS) and ammonia nitrogen. Concentration of each pollutant. CODCr 1200~2500 mg/L, BOD₅ 350~800 Mg/L, SS 250~1500 mg/L, ammonia nitrogen 2~5 mg/L.

4.1.4

Exhaust gas pollutants are mainly dust generated by preparation, cooking, washing, screening, black liquor (waste liquid) evaporation, sewage treatment plant, etc.

The odor generated in the section, the alkali recovery furnace, the soot produced by the lime kiln, sulfur dioxide and nitrogen oxides. Sulphate pulping odor is mainly it is hydrogen sulfide, methyl mercaptan, methyl sulfide and dimethyl disulfide. The caustic soda pulp is mainly volatile organic compounds such as methanol, sulfurous acid.

The odor of salt pulping is mainly ammonia, and the odor of sewage treatment plant is mainly ammonia and hydrogen sulfide.