

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 1177-2021

Guidelines for feasible technologies for the prevention and control of pollution in the textile industry

纺织工业污染防治可行技术指南

(English Translation)

Issued on: January 1, 1970

Implemented on: January 1, 1970

Issued by: Ministry of Ecology and Environment

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and Definitions
4 Industrial production and generation of pollutants
5 Pollution Prevention Techniques
6 Pollution control technology
7 Environmental management measures
8 Possible technologies for pollution prevention
Appendix A (informative appendix) Typical textile industry production process and main pollution-producing links

1 Scope of application

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

This standard can be used as environmental impact assessment, national Reference for the formulation and revision of domestic pollutant discharge standards, the management of pollutant discharge permits and the selection of pollution prevention and control technologies.

The pollution prevention and control of the textile and apparel industry can be implemented with reference to this standard.

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 4287 Discharge Standard of Water Pollutants in Textile Dyeing and Finishing Industry
GB 8978 Integrated Wastewater Discharge Standard
GB 14554 Emission Standard of Odor Pollutants
GB 16297 Comprehensive Emission Standard of Air Pollutants
GB 18597 Hazardous Waste Storage Pollution Control Standard
GB 18599 General Industrial Solid Waste Storage and Landfill Pollution Control Standard
GB 18918 Pollutant Discharge

Standards for Urban Sewage Treatment Plants GB 28936 Discharge Standard of Water Pollutants in Silk Reeling Industry GB 28937 Water Pollutant Discharge Standard for Wool Textile Industry GB 28938 Discharge Standard of Water Pollutants in Hemp Textile Industry GB 37822 Volatile organic compound fugitive emission control standard GB 50335 Code for Design of Urban Sewage Recycling and Utilization Engineering GB 50425 Design Standard for Environmental Protection Facilities in Textile Industry GB 50477 Design Standard for Occupational Safety and Health Facilities in Textile Industry GB/T 4754-2017 National Economic Industry Classification GBZ/T 212 Guidelines for the Prevention and Control of Occupational Disease Hazards in Textile Printing and Dyeing Industry HJ 577 Technical Specification for Sequencing Batch Activated Sludge Sewage Treatment Engineering HJ 579 Technical Specification for Membrane Separation Sewage Treatment Engineering HJ 861 Technical Specification for Pollution Discharge Permit Application and Issuance Textile Printing and Dyeing Industry HJ 879 Technical Guidelines for Self-Monitoring of Pollutant Discharging Units Textile Printing and Dyeing Industry HJ 944 General Provisions of Technical Specifications for Environmental Management Ledger of Pollutant Discharging Units and Implementation Report of Pollutant Discharge Permit (Trial) HJ.2006 Sewage coagulation and flocculation treatment engineering technical specification HJ.2007 Technical Specification for Sewage Air Flotation Treatment Engineering HJ.2009 Technical Specification for Biological Contact Oxidation Sewage Treatment Engineering HJ.2010 Technical Specification for Membrane Biological Wastewater Treatment Engineering HJ.2013 Technical Specification for Up-flow Anaerobic Sludge Bed Reactor Sewage Treatment Engineering HJ.2014 Technical Specification for Biological Filter Method Sewage Treatment Engineering HJ 2025 Technical Specifications for Hazardous Waste Collection, Storage and Transportation HJ 2026 Technical specification for industrial organic waste gas treatment engineering by adsorption method HJ 2047 Technical Specification for Sewage Treatment Engineering of Hydrolysis Acidification Reactor "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.

Textile industry: the textile industry (C17) specified in GB/T 4754-2017 refers to the processing of cotton, wool, hemp, silk and other pre-spinning fibers, spinning (silk), Weaving and dyeing and finishing industries mainly focus on pre-treatment, dyeing, printing and finishing of textile materials.

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.

silk weaving

Silkworm cocoons are processed and reeled into silk, and the production process of silk fabric weaving and processing with silk as the main raw material.

wool weaving

Using wool, cashmere fiber and other animal down fibers as the main raw materials, the production process of wool washing, strip making, spinning and weaving is carried out.

linen weaving

Production of degumming and textile processing using fibers such as ramie, flax, jute, sisal, hemp (hemp) and apocynum as the main raw materials process.

chemical fiber weaving the production process of weaving woven fabrics with chemical fiber filaments as the main raw material.

dyeing, printing and finishing Processes based on chemical treatment of textile materials (fibers, yarns, threads and fabrics), including pretreatment (singeing, desizing, scouring, bleaching, mercerizing, alkali reduction and scouring), dyeing, printing, finishing and other sections.

Centralized wastewater treatment facilities for textile industry A centralized sewage treatment facility that provides sewage treatment services for two or more textile industry enterprises.

4.1.1 Production process

The process of processing and reeling raw materials in silk spinning includes silk making and silk spinning. Silk making is the process of processing silkworm cocoons into raw silk, including selection, stripping, Cocoon peeling, cocoon mixing, cocoon selection, cocoon cooking, silk reeling, re-shake, finishing and other processes; silk spinning is processed into silk silk from defective cocoons, waste silk and cut ends.

process, including scouring, cotton making and other processes. See Figure A.1 in Appendix A for the production process flow and major pollution-producing links.

4.1.2.1 Filament

Silk-making wastewater is mainly produced in cocoon cooking and silk reeling processes. Water pollutants include sericin, silk fibroin and silkworm pupa protein.

The nitrogen concentration is 80-400 mg/L, the total nitrogen concentration is 40-60 mg/L, and the waste water production is 400-700 m³/t product.

4.1.2.2 Silk spinning

Silk spinning wastewater is mainly produced in the process of scouring, includes cooking, degreasing, washing and other processes. Water pollutants include sericin, grease and Silkworm chrysalis protein, etc. The CODCr concentration of the degreasing wastewater is 12000~20000 mg/L, and the CODCr concentration of the general mixed wastewater is 800~20000 mg/L.

4 000 mg/L, the total nitrogen concentration is 100-500 mg/L, and the amount of wastewater produced is 500-1 000 m³/t product.

4.1.3 Air pollutants

Exhaust gas mainly includes unorganized odor generated during cocoon cooking, scouring, cotton making and wastewater treatment.

4.1.4 Solid waste

Solid waste mainly includes waste silk, silkworm chrysalis, waste packaging, and sludge generated during wastewater treatment.

4.1.5 Noise

The noise is mainly produced by the cocoon drying machine, silk reeling machine, reshaking machine, cotton making machine, and mechanical equipment for waste water treatment, and the source intensity is generally 55-75 dB(A).

4.2.1 Production process

Hemp textile raw materials generally use bast fibers such as ramie, flax, jute, and hemp (hemp).

The production process is processed into textiles. Hemp degumming is a process in which the bast fiber gum is removed before the hemp fiber is spun. The production process includes biological methods, Chemical and combined degumming methods. Biological degumming is the use of microbial metabolism or enzymes to remove gum; chemical degumming is the use of alkali, inorganic acid and oxygen.

The chemical agent removes the gum; the combined degumming method is a combination of the two. Flax, jute, and hemp (hemp) are generally degummed by biological methods, and ramie is often Using the combined degumming method, see Figure A.2 in Appendix A for the production process flow and main pollution-producing links.