



The Ministry of Environmental Protection Issued the *Paper Industry Pollution Prevention and Control Technology Policy*

Note: *The Paper Industry Pollution Prevention and Control Technology Policy* issued by the Ministry of Environmental Protection is to upgrade the pollution prevention technology and promote the healthy and sustainable development of the paper industry.

In order to implement *the Environmental Protection Law of the People's Republic of China*, improve the environmental technology management system, guide pollution prevention and control, ensure human health and ecological safety, and guide the green recycling and low-carbon development of the paper industry, on August 2nd, 2017, the Ministry of Environmental Protection issued Announcement No. 35 2017 *Paper Industry Pollution Prevention and Control Technology Policy* as follows.

I. General Rules

1. This technical policy is formulated in order to implement *the Environmental Protection Law of the People's Republic of China* and other laws and regulations, prevent and control environmental pollution caused by waste water, waste gas, solid waste, noise and other emissions of papermaking enterprises, improve pollution prevention and control technology, and promote the healthy and sustainable development of the paper industry, protect ecological environment, improve the quality of the environment.
2. This technical policy applies to the enterprises or production facilities that produce pulp from raw materials such as wood, non-wood or waste paper, and/or produce paper and paperboard by machine or handmade papermaking with pulp as raw materials, and further process paper products using paper and cardboard as raw materials.

3. This technical policy is a guiding document that can be used to guide the formulation of industrial related policies, environmental management, and enterprises pollution prevention and control.
4. The paper industry should adhere to green and low carbon development; increase barriers to entry, eliminate backward production capacity, promote transformation of production mode and industrial structure optimization; strengthen cleaner production, focus on energy conservation and emission reduction, promote efficient recycling of resources; carry out comprehensive prevention and control of waste water, waste gas and solid waste and build a comprehensive pollution prevention and control system.
5. The goal of this technical policy is to strengthen the prevention and control of pollutants such as COD, BOD₅, AOX and dioxin to meet discharge standard of waste water, waste gas, solid waste and noise from paper industry.

II. The Pollution Prevention and Control in Production Process

1. Wood raw materials should adopt dry barking technology; bamboo raw materials should adopt dry preparation technology; reed and wheat straw raw materials should adopt dry-wet preparation technology; bagasse raw materials preparation should adopt semi-dry depithing and wet storage technologies;

waste paper raw materials should use different grades and the impurities should be cleaned out based on product quality requirements.

2. Chemical pulping should adopt less energy consumption displacement cooking and oxygen delignification technologies; waste paper deinking pulping should adopt medium-high consistency pulping technology; non-deinking waste paper pulping should adopt fiber classification technology; waste paper deinking should adopt the flotation deinking technique, which can be supplemented with biological enzymes to promote deinking.
3. Non-wood chemical pulping should adopt high-efficiency multi-stage countercurrent washing and closed screening techniques; waste paper pulping should adopt combined lightweight and heavy-weight impurities removal technology or high-efficiency screening technology.
4. The enterprises are encouraged to reform the elemental chlorine bleaching process to elemental chlorine free bleaching (ECF) or totally chlorine free bleaching (TCF) technology.
5. Alkali pulping should be equipped with an alkali recovery system, and sulfite pulping should be combined with technical measures for the comprehensive utilization of effluent.
6. The papermaking production line should be equipped with a complete white water recycling system and waste heat recovery system. Large and medium-sized paper machines should be equipped with fully closed hoods.
7. Pulping and papermaking processes should adopt cleaner production techniques with energy-conservation, water-saving and less consumption such as water reuse based on its quality and steam cascade utilization, further encouraged to adopt energy-saving equipment such as variable-frequency motors and turbines.
8. Encouraged to adopt energy-saving technologies such as heat

and power cogeneration, and make full use of biomass energy such as black liquor, waste (slag) and biomass gas.

9. The production of paper products should adopt mature technology without pollution or low pollution, and should not use raw materials containing toxic substances such as formaldehyde, benzenes and phenols.

III. Pollution Control and Comprehensive Utilization

Water Pollution Control

(1) The high-concentration organic wastewater produced by chemi-mechanical pulping and the high-concentration organic wastewater produced by waste paper pulping should be pretreated firstly then treated with anaerobic process, and finally combined with other wastewater into integrated wastewater for further treatment.

(2) The foul condensate produced in the production process should be maximally reused according to actual production conditions.

(3) Comprehensive wastewater from pulp and paper companies is discharged when its quality meets the national standard after secondary or tertiary treatment. The tertiary treatment should adopt coagulation sedimentation, air flotation or advanced oxidation and other technologies. On the basis of meeting the discharge standards, the eligible areas and enterprises may adopt artificial wetland and other advanced treatment technologies to further reduce emissions.

(4) Wastewater generated by paper product companies should be classified according to their nature to take effective control measures.

Air Pollution Control

(1) The high- and low-concentration odorous gases produced by cooking, washing and bleaching, evaporation (including stripping of heavy pollution condensate), alkali recovery boilers, and causticization in alkaline pulping should be collected and centralized treated. The generated odor from cooking and



evaporating sections should be sent to the alkali recovery furnace for incineration treatment after recycling waste heat. The exhaust gas generated in the bleaching section should be washed and treated.

(2) Boilers, alkali recovery furnaces, lime kilns and incinerators should be equipped with high-efficiency dust removal equipment and adopt other environmental protection measures to achieve the standardized discharge of particulates, dust, nitrogen oxides, sulphur dioxide, mercury and its compounds and dioxins.

(3) Paper-making enterprises located in industrial clusters should use cogeneration units in clusters to phase out decentralized coal-fired boilers.

(4) The exhaust gas from paper products production should be collected, treated, or centralized processed according to their nature.

Solid Waste Disposal

(1) Organic solid waste such as the residues from wood and non-wood raw materials preparation and solid waste (excluding deinking sludge) from waste paper pulping should be classified and processed for comprehensive utilization.

(2) The mud produced by the alkali recovery of wood pulping should be calcinated to recover quicklime, and recycled or used comprehensively. The mud generated from non-wood pulping alkali recovery should be comprehensively utilized by preparing precipitated calcium carbonate and other technologies; the resulting dregs from alkali recovery should be treated with landfill technology.

(3) The deinking sludge produced by the pulping of waste paper should be disposed in a harmless manner in accordance with the relevant requirements for hazardous waste disposal.

Noise Pollution Prevention and Control

Paper-making enterprises should reduce the impact on noise-sensitive targets outside the plant boundary through a rational

production layout, encouraged to use low-noise equipment and noise reduction measures such as sound insulation and silencer for high-noise equipment. The noise at the plant boundary should meet the emission standards.

IV. Secondary Pollution Prevention

1. Sludge produced by wastewater treatment should be concentrated and dehydrated and then safely disposed.
2. The biogas generated from anaerobic wastewater treatment should be recovered and used as fuel or to generate electricity, and an accident torch should be set up.
3. The wading and solid waste dumps in the paper mill area shall be provided with anti-seepage measures. It is advisable to take measures such as separation heavily polluted wastewater from slightly polluted one; diverting the rain and sewage, preventing the seepage of the pipe network, and preventing leaks, so as to effectively prevent the adverse impact on the groundwater environment.

V. Encouraging R&D of New Technologies

1. New processes and new technologies of non-wood pulping featured as low-energy, less-pollution, new technologies of total chlorine-free bleaching of chemical pulp.
2. Efficient energy-saving and water-saving technologies in papermaking process.
3. Efficient three-stage treatment technology and reuse technology of papermaking comprehensive wastewater, and efficient dewatering technology of chemical sludge.
4. Air pollutant emission reduction technology of alkaline recovery furnace, comprehensive utilization technology of lignin, development or application technologies of high-efficiency, low-pollution pulping and papermaking chemicals and enzyme agents as well as other new products. ▮