



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Standard for Fugitive Emission of Volatile Organic Compounds

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1 Scope

This Standard specifies the fugitive emission control requirements for VOCs-containing materials storage; the fugitive emission control requirements for VOCs-containing materials transferring and transportation; the VOCs fugitive emission control requirements in the technology process; the control requirements for equipment and pipeline components VOCs leakage; control requirements for open liquid surface VOCs fugitive emission; as well as the requirements for the exhaust gas collection and treatment system of VOCs fugitive emissions; and the requirements for pollution monitoring in and around the enterprise plant.

This Standard is applicable to the management of VOCs fugitive emission of existing enterprises or VOCs fugitive emission of production facilities; the environmental impact assessment, design of environmental protection facilities, environmental protection acceptance of completion, and review of pollution emission permits for the construction projects involving VOCs fugitive emission; as well as the management of VOCs fugitive emission after the project is put into production.

The industry pollutant emission standards issued by the state have stipulated the VOCs fugitive emission control; and they shall be implemented in accordance with the industry pollutant emission standards.

If, due to the safety factors or special process requirements, the requirements for the VOCs fugitive emission specified in this Standard cannot be met, other equivalent pollution control measures may be taken and report to the local ecological environment authority or be implemented in accordance with the relevant requirements of the pollutant emission permit.

2 Normative References

This Standard quoted the following documents or some clauses in them. For the undated documents, only the latest version is applicable to this Standard.

GB 16297 Comprehensive Emission Standard of Air Pollutants

GB/T 8017 Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)

GB/T 16157 The Determination of Particulates and Sampling Methods of Gaseous Pollutants Emitted from Exhaust Gas of Stationary Source

GB/T 16758 The Classification and Technical Specification of Exhaust Hood HJ 38 Stationary Source Emission - Determination of Total Hydrocarbons, Methane and Nonmethane Hydrocarbons - Gas Chromatography HJ/T 55 Technical Guidelines for Fugitive Emission Monitoring of Air Pollutants HJ/T 397 Technical Specifications for Emission Monitoring of Stationary Source HJ 501 Water Quality - Determination of Total Organic Carbon - Combustion Oxidation Nondispersive Infrared Absorption Method HJ 604 Ambient Air - Determination of Total Hydrocarbons, Methane and Nonmethane Hydrocarbons - Direct Injection/Gas Chromatography

3 Terms and Definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1 Volatile organic compounds (VOCs)

Organic compounds that participate in atmospheric photochemical reactions, or organic compounds determined in accordance with relevant provisions.

3.2 Total volatile organic compounds (TVOC)

Use the prescribed monitoring method to measure the individual VOCs in the exhaust gas; sum them together to obtain the total amount of VOCs; it shall be calculated by the mass concentration of the individual VOCs.

3.3 Non-methane hydrocarbons (NMHC)

Use the prescribed monitoring method, the total amount of gaseous organic compounds other than methane that the hydrogen flame ionization detector responds are measured by the mass concentration of carbon.

3.5 Closed/close

The state or operating method of the pollutant that does not come into contact with the ambient air, or is isolated from the ambient air through sealing materials and sealing equipment.

3.6 Closed space

A closed area or closed building formed by a complete enclosure structure to block the

pollutants, workplaces, etc. from the surrounding space. In this closed area or closed building, except for the entry and exit of personnel, vehicles, equipment, and materials, as well as exhaust pipes and vents established by law, doors, windows, and other openings (holes) shall be kept closed at all times.

3.16 Existing facility

Industrial enterprises or production facilities that have been completed and put into operation before the implementation of this Standard, or whose environmental impact assessment documents have been approved or filed.

3.17 New facility

Since the date of implementation of this standard, the environmental impact assessment documents have been approved or filed for new, rebuilt and expanded industrial construction projects.

4.1 Start from July 1, 2019, for newly-built enterprises and from July 1, 2020 for existing

enterprises, the VOCs fugitive emission control shall be implemented in accordance with the provisions of this Standard.

5.1.1 VOCs materials shall be stored in closed containers, packaging bags, storage

tanks, warehouses, and silos.

5.2.1.1 For the storage tanks that store the volatile organic liquid with true vapor

pressure ≥ 76.6 kPa and tank volume ≥ 75 m³, low pressure tanks, pressure tanks or other equivalent measures shall be adopted.

5.2.2.1 For the storage tanks that store the volatile organic liquid with true vapor

pressure ≥ 76.6 kPa, low-pressure tanks, pressure tanks or other equivalent measures shall be adopted.

5.2.3.3 Maintenance and records

If the volatile organic liquid storage tank does not meet the requirements of 5.2.3.1 or 5.2.3.2, it shall be recorded and repaired within 90 days or shall be emptied out of use.

6.1.1 Liquid VOCs materials shall be transported in closed pipelines. When transferring

liquid VOCs materials by non-pipeline transportation, airtight containers and tankers shall be used.

6.2.1 Loading method

Volatile organic liquids shall be loaded at the bottom; if top immersion loading is used, the height from the discharge nozzle to the bottom of the groove (tank) shall be less than 200 mm.

6.2.2 Loading control requirements

If loading the materials with true vapor pressure ≥ 27.6 kPa and the annual loading capacity of a single loading facility ≥ 500 m³, the loading process shall meet one of the following requirements.

6.2.3 Special control requirements for loading

If loading the materials with true vapor pressure ≥ 27.6 kPa and the annual loading capacity of a single loading facility ≥ 500 m³, as well as loading the materials with true vapor pressure ≥ 5.2 kPa but < 27.6 kPa and the annual loading capacity of a single loading facility ≥ 2500 m³, the loading process shall meet one of the following requirements.

7.1.2 Chemical reaction

be discharged to the VOCs exhaust gas collection and treatment system.

7.1.4 Vacuum system

The vacuum system shall use a drying vacuum pump; and the vacuum exhaust gas shall be discharged to the VOCs exhaust gas collection and treatment system.

7.2.1 For VOCs-containing products with a mass percentage of VOCs greater than or

equal to 10%, the use process shall adopt airtight equipment or operate in a closed space; and the exhaust gas should be discharged to the VOCs exhaust gas collection and treatment system. If it cannot be closed, local gas collection measures shall be taken; the exhaust gas shall be discharged to the VOCs exhaust gas collection and treatment system. The use process of VOCs-containing products includes but is not limited to the following operations.

7.2.2 The organic polymer products are used in the process of product production, in