

ICS 13.100
CCS C 69



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

GB 20101-2025

Replacing GB 20101-2006

**Safety technical requirements for purification equipment of
coating organic waste gas**

涂装作业安全规程 有机废气净化装置安全技术规定

Issued on: October 5, 2025

Implemented on: August 1, 2026

**Issued by: the State Administration for Market Regulation,
Standardization Administration of the People's Republic of China**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB.20101-2006 "Safety Regulations for Coating Operations - Safety Technical Specifications for Organic Waste Gas Purification Devices" and is consistent with...

Compared with GB.20101-2006, apart from structural adjustments and editorial changes, the main technical changes are as follows:

- a) The scope of application of the standard has been changed (see Chapter 1, Chapter 1 of the.2006 edition);
- b) The definitions of purification devices and catalytic combustion have been revised (see 3.2, 3.6, and 3.2, 3.4 in the.2006 edition);
- c) Added terms and definitions for zeolite adsorption, zeolite rotor, regenerative catalytic combustion, and regenerative thermal combustion (see 3.4, 3.5, 3.7). 3.9);
- d) Regulations for the control system of the purification device have been added (see
- e) Added a requirement regarding the equivalent length of the pipe between the installation location of the combustible gas alarm and the inlet of the combustion equipment (see 4.19);
- f) The regulations for setting the temperature sensor in activated carbon adsorption purification devices have been changed (see 5.1.1, 5.5 in the.2006 edition);

- g) Added zeolite adsorption (including desorption) purification device, zeolite rotor purification device, regenerative thermal combustion purification device, and regenerative catalytic converter. Regulations for chemical combustion purification devices (see 5.3, 5.4, 6.3, 6.4);
- h) The regulations regarding the location of purification devices have been removed (see 4.14, 4.15, 4.16, and 4.17 of the 2006 edition);
- i) The requirements for the qualifications of purification device design and manufacturing units, and the nameplates on finished products, have been removed (see Chapter 11 of the 2006 edition);

1 Scope

GB 20101-2025 is the Chinese safety standard for the equipment that cleans the organic waste gas coming off a paint shop. That gas is a mixture of solvent vapour and air, and the abatement plant that treats it, whether by adsorption on carbon or zeolite with subsequent desorption and regeneration, or by combustion in a thermal or catalytic oxidiser, concentrates it. Concentrating a flammable vapour is exactly how these installations catch fire and explode, which is why the safety of the abatement plant is regulated separately from its emission performance. The standard sets the general requirements and then deals with each technology in turn, adsorption-type purification equipment including the desorption and regeneration stage, and combustion-type purification equipment, covering the concentration limits, the temperature control, the explosion relief and isolation, the detection and interlocks and the requirements for start-up and shutdown. The 2025 edition, effective 1 August 2026, replaces GB 20101-2006. For anyone specifying, building or operating a VOC abatement plant in China, this is the mandatory text.

This document specifies the safety technical requirements for organic waste gas purification devices used in coating processes and describes the verification methods. This document applies to the design, manufacture, installation, acceptance, operation, and maintenance of organic waste gas purification devices for coating applications.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB 3836.15 Explosive Atmospheres - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 14441 and the following terms and definitions apply to this document.

3.1 Organic waste gas; exhaust organic gas Gases containing organic compounds generated during painting operations.

3.2 Devices for reducing or removing organic matter from waste gases.

Note. This mainly includes purification equipment, control systems, auxiliary equipment, filters, flame arresters, temperature, concentration, pressure, alarm and other detection instruments, fire extinguishing, explosion protection and safety equipment. Interlocking control and other devices.

3.3 A method for purifying organic waste gas by using activated carbon as an adsorbent, such as granular, honeycomb, or fibrous activated carbon.

15 Design, Selection and Installation of Electrical Installations

GB/T 4213 Pneumatic control valves GB 5908 Flame Arrestors

GB 12158 General requirements for the prevention of electrostatic discharge accidents

GB/T 14441 Safety Terminology for Painting Operations

GB 15930 Fire-resistant valves for building ventilation and smoke exhaust systems

GB/T 19839 General Technical Requirements for Industrial Oil and Gas Burners

GB 50057 Code for Design of Lightning Protection of Buildings

GB 50058 Design Code for Electrical Installations in Explosive Atmospheres

GB/T 50087 Design Code for Noise Control in Industrial Enterprises TSG

21 Safety Technical Supervision Regulations for Stationary Pressure Vessels