

ICS 27.010
CCS F01



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

GB 46029-2025

**Norm of energy consumption per unit production of
formaldehyde**

甲醛单位产品能源消耗限额

Issued on: August 1, 2025

Implemented on: August 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative References...	4
3 Terms and Definitions...	4
4 Norm Level of Comprehensive Energy Consumption...	5
5 Technical Requirements...	6
6 Statistical Range...	6

1 Scope

GB 46029-2025 is the Chinese national standard on norm of energy consumption per unit production of formaldehyde, in the field of energy and heat transfer engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 1 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 August 2026. Classification: ICS 27.010, CCS F01. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Document specifies norm levels, technical requirements, statistical scope, and calculation methods for energy consumption per unit production (hereinafter referred to as "energy consumption") of formaldehyde. This Document applies to the calculation, control, and assessment of energy consumption in the production of formaldehyde using methanol as raw material through the silver catalyst process and the iron molybdenum catalyst process; as well as the energy consumption control for new projects and renovation/expansion projects.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB/T 2589 General rules for calculation of the comprehensive energy consumption

GB/T 3484 The general principles for energy balance of enterprise

GB/T 9009 Formaldehyde solution for industrial use

GB/T 12723 General principles for establishing allowance of energy consumption per unit throughput

GB/T 28751 The method of editing energy balance table for enterprises

GB/T 29116 General principles for calculation of raw material consumption in industrial enterprises

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 2589, GB/T 12723, and the following apply.

3.1 Silver catalyst process The process of producing formaldehyde by air oxidation of methanol using silver as a catalyst.

3.2 Iron molybdenum catalyst process The process of producing formaldehyde by air oxidation of methanol using iron-molybdenum as a catalyst.

3.3 Comprehensive energy consumption of formaldehyde During the statistical reporting period, the total energy input into the formally operational formaldehyde production area minus the total energy output is calculated as follows: NOTE. All input and output energy are expressed in standard coal equivalents.

3.4 Comprehensive energy consumption per unit production of formaldehyde Comprehensive energy consumption during the statistical reporting period, expressed as 100% formaldehyde per unit production.

3.5 Production area of formaldehyde The entire formaldehyde production process FROM the metering and entry of raw materials and energy into the production process TO the metering and warehousing of finished formaldehyde and auxiliary production systems. NOTE. Energy consumption in the formaldehyde production area consists of three parts. the production system, auxiliary production system, and supplementary production system.

4 Norm Level of Comprehensive Energy Consumption

The norm level of comprehensive energy consumption per unit production of formaldehyde is divided into 3 levels, with level 1 having the lowest energy consumption. The comprehensive energy consumption per unit production for each level of formaldehyde shall meet the requirements of Table 1.

5 Technical Requirements

The norm of comprehensive energy consumption per unit production of the existing formaldehyde production facilities shall meet the requirements of Level 3 in Table

1. The access value of energy consumption per unit production of newly built, renovated, and expanded formaldehyde production facilities shall meet the requirements of Level 2 in Table 1.

6 Statistical Range

6.1 The statistical range of comprehensive energy consumption of formaldehyde includes all types of energy, including actually consumed primary and secondary energy, containing methanol used as raw material. Actual energy consumption is calculated according to GB/T 3484, GB/T 28751, etc.

6.2 The consumption of formaldehyde raw materials methanol and water is statistically based on physical quantities; and actual consumption is calculated according to GB/T 29116.

6.3 The statistical range covers the energy consumption of the production system, auxiliary production system, and subsidiary production system within the statistical reporting period; including energy consumption during accidents, equipment maintenance, start-up and shutdown, and annual overhaul. Energy consumption of production system includes the energy consumed by methanol, the raw material used in formaldehyde production; and the energy (electricity, steam, etc.) generated by the evaporation unit, reaction unit, absorption unit, and tail gas treatment unit during the formaldehyde production process. Energy consumption of auxiliary production system includes the total energy consumed for power supply (including electricity for circulating water, compressed air, raw material and finished product loading, unloading, and storage), deoxygenated water, demineralized water, fresh water added to the circulating water system, steam for storage heating, and nitrogen used for nitrogen sealing of methanol storage tanks. Energy consumption of subsidiary production system refers to the total energy consumed by departments and units serving production, including offices, control rooms, rest rooms, changing rooms, bathhouses, central control analysis, finished product inspection, and maintenance, etc.

6.4 If the workshop's electricity consumption already includes the electricity used for preparing compressed air, circulating water, deoxygenated water, and demineralized water, its energy consumption shall not be calculated again using the standard coal equivalent coefficient. However, the energy consumption of fresh water used for circulating water, deoxygenated water, and demineralized water shall be included in the input energy consumption.