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

**GB/T 17530.2-2023**

Replacing GB/T 17530.2-1998

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**Test method of acrylic acid and acrylates for industrial use -  
Part 2: Determination of organic impurities and purity of  
acrylates for industrial use - Gas chromatography**

工业丙烯酸及酯的试验方法 第2部分：工业用丙烯酸酯有机杂质及纯度的测定 气  
相色谱法

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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 is Part 2 of GB/T 17530: GB/T 17530 has published the following parts:

2 Test methods for industrial acrylic acid and esters Part 2: Organic impurities and purity of industrial acrylic acid esters Determination gas chromatography;

3 Determination of color of industrial acrylic acid and ester;

4 Determination of acidity of industrial acrylates;

5 Determination of polymerization inhibitors in industrial acrylic acids and esters: This document replaces GB/T 17530:2-1998 "Gas Chromatography Method for Determination of Purity of Industrial Acrylates" and is consistent with GB/T 17530:2- Compared with:1998, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

---Reagents and materials have been changed, butyl butoxypropionate and dichloromethane have been deleted, and methanol, methyl acetate, methyl propionate, etc: have been added: Agents and materials (see Chapter 5, Chapter 4 of the:1998 edition);

---The chromatographic analysis conditions were changed, the chromatographic column was changed from a packed column to a capillary column, and the chromatographic bars such as stationary solution, column temperature, and carrier gas flow rate were changed: (See Chapter 7, Chapter 6 of the:1998 edition);

---Changed the analysis result calculation formula (see Chapter 9, 7:4 and Chapter 8 of the:1998 edition);

---Deleted acrylate relative correction factor data (see Appendix A of the:1998 edition):

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by China Petroleum and Chemical Industry Federation: This document is under the jurisdiction of the National Chemical Standardization Technical Committee (SAC/TC63): This document was drafted by: Satellite Chemical Co., Ltd., Wanhua Chemical Group Co., Ltd., Sinopec (Beijing) Chemical Research Institute Co., Ltd., Shanghai Huayi New Materials Co., Ltd., Pinghu Petrochemical Co., Ltd., Jiangsu Sandie Chemical Co., Ltd., Shandong Kaitai Petrochemical Co., Ltd. CO., LTD: The main drafters of this document: Cui Yaosen, Wang Zhigang, Huang Yu, Li Jun, Qian Ligang, Ma Yan, Zhang Aidong, Rosa, Xu Qilin, Zheng Shuai, Sun Zhijun, Jiang Tianya: This document was first published in:1998 and this is the first revision:

GB/T 17530 aims to establish unified test methods for inspection items of industrial acrylic acid and ester, and with the development of analytical technology Update and improve upon development and maturity, testing the universality of project requirements: This series of standards has been established in the following four parts:

2 Test methods for industrial acrylic acid and esters Part 2: Organic impurities and purity of industrial acrylic acid esters Determination by gas chromatography: A gas chromatograph equipped with a flame ionization detector is used to separate acrylate and various impurity components in Effective separation on the chromatographic column, and the purity of acrylate and the content of each impurity were calculated based on the correction area normalization method:

3 Determination of color of industrial acrylic acid and ester: The sample is placed in a colorimetric tube and compared with the colorimetric value of the platinum-cobalt standard solution: Visual comparison:

4 Determination of acidity of industrial acrylates: The sample is dissolved in ethanol, phenolphthalein is used as the indicator liquid, and hydrogen The sodium oxide standard titration solution is used to titrate the acid in the sample, and acrylic acid is used to measure the free acid in the sample:

5 Determination of polymerization inhibitors in industrial acrylic acids and esters: It is to put p-hydroxyanisole in the sample in acidic medium React with nitrous acid to generate nitrous acid derivatives: Use a spectrophotometer to measure the absorbance at a wavelength of 420nm and standard curve: Quantitative: Test methods for industrial acrylic acids and esters Part 2: Organic acrylates for industrial use Determination of Impurities and Purity Gas Chromatography Warning

## 1 Scope

GB/T 17530.2-2023 is the Chinese national standard on test method of acrylic acid and acrylates for industrial use - part 2:determination of organic impurities and purity of acrylates for industrial use - gas chromatography, in the field of chemical technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes

binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 27 November 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2024. Classification: ICS 71.080.70, CCS G17. 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 describes industrial methyl acrylate, industrial ethyl acrylate, industrial n-butyl acrylate and industrial 2-ethyl acrylate: Method for determination of organic impurities and purity in hexyl hexyl ester: This document applies to the corresponding ester products produced by the esterification reaction of acrylic acid with methanol, ethanol, n-butanol, and 2-ethylhexanol respectively: analyze:

## 2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 9722 General rules for gas chromatography with chemical reagents GB/T 17529:

2 Acrylic acid and esters for industrial use Part 2: Methyl acrylate for industrial use GB/T 17529:

3 Acrylic acid and esters for industrial use Part 3: Ethyl acrylate for industrial use GB/T 17529:

4 Acrylic acid and esters for industrial use Part 4: n-Butyl acrylate for industrial use GB/T 17529:

5 Acrylic acids and esters for industrial use Part 5: 2-Ethylhexyl acrylate for industrial use

## 3 Terms and definitions

There are no terms or definitions to be defined in this document:

## 4 Method summary

The acrylate sample passes through the chromatographic column, and each impurity is separated and detected by a hydrogen flame ionization detector: The organic impurities are normalized using a calibrated area: For quantification by the unified method, the acrylate content is calculated as 100% minus the mass fraction of organic impurities, moisture and

acidity:

## 5 Reagents and materials

1 General provisions The reagents used in this document are of analytical grade reagents unless other requirements are noted:

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