

ICS 71.080
CCS G 16



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

GB/T 14327-2025

Replacing GB/T 14327-2009

Determination of thiophene content in benzene

苯中噻吩含量的测定方法

Issued on: October 5, 2025

Implemented on: May 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration 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 replaces GB/T 14327-2009 "Determination of Thiophene Content in Benzene". Compared with GB/T 14327-2009, except for the structure... Aside from adjustments and editorial changes, the main technical changes are as follows:

- a) The scope has been changed (see Chapter 1, Chapter 1 of the.2009 edition);
- b) The principle of spectrophotometry has been modified (see 5.1, Chapter 3 of the.2009 edition);
- c) The reagents and materials in the spectrophotometry method have been changed, and the requirements for water have been added (see 5.2, Chapter 4 of the.2009 edition);
- d) The experimental procedures for spectrophotometry have been modified (see 5.4, Chapter 8 of the.2009 edition);
- e) Added requirements for calculating spectrophotometric results (see 5.5);
- f) Added Method 2 [Gas Chromatography (Arbitration Method)] (see Chapter 6);
- g) Additional test report requirements have been added (see Chapter 7). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Iron and Steel Association. This document is under the jurisdiction of the National Technical Committee on Standardization of Coal Chemical Industry (SAC/TC469). This document was drafted by: Ansteel Co., Ltd., Inner Mongolia Huineng Chemical Co., Ltd., Metallurgical Industry Information and Standardization Research Institute, and Wuhan University of Science and Technology. Technical University. The main drafters of this document are. Li Yuanyuan, Lü Ming, Yu Yongzhi, Yang Ying, Wang Xiaoyuan, Lai Wei, Li Jianpeng, Zhang Xin, Gao Mingli, and Fang Hongming. This document was first published in.1993, revised for the first time in.2009, and this is the second revision. Method for

determining thiophene content in benzene Warning

---The test methods described in this document require the use of some hazardous reagents and experimental instruments, and some procedures also involve certain risks. Due to the inherent dangers, it is impossible to specify all safe usage methods; users are responsible for taking appropriate safety and health precautions. Ensure compliance with the conditions stipulated by relevant national laws and regulations.

1 Scope

GB/T 14327-2025 is the Chinese national standard on determination of thiophene content in benzene, 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 5 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2026.

Classification: ICS 71.080, CCS G 16. 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 the sampling, reagents and materials, instruments and equipment, test procedures, result calculation, and precision of the method for determining the thiophene content in benzene. And test reports. This document applies to the determination of thiophene content in coking benzene, coking toluene, coking xylene, and intermediate products. Method 1 (Spectrophotometry) Method 1 (Gas Chromatography). Determination range.

0.1 mg/kg to 10 mg/kg; Method 2 (Gas Chromatography). Determination range.

0.05 mg/kg to 10 mg/kg, subject to modification. The range of measurements can be expanded by adjusting the injection volume and split ratio.

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/T 1999 Sampling Method for Coking Oil Products

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 8170 Rules for rounding off numerical values and the representation and

determination of limiting values

GB/T 9977 Terminology for Coking Products

GB/T 12806 Laboratory Glassware - Single-mark volumetric flasks

GB/T 12807 Graduated Pipettes for Laboratory Glassware

GB/T 12808 Laboratory Glassware - Single-mark Pipettes

3 Terms and Definitions

The terms and definitions defined in GB/T 9977 apply to this document.

4. Sampling Proceed in accordance with GB/T 1999.

5 Method 1 (Spectrophotometry)

5.1 Principle In the presence of sulfuric acid, thiophene reacts with indolequinone to form indothiophene, which turns purple in the presence of the oxidizing agent ferric sulfate. The color intensity varies depending on the degree of color change. The trace thiophene content in the sample was determined by spectrophotometry.