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

GB/T 30921.5-2025

Replacing GB/T 30921.5-2016

**Test methods for purified terephthalic acid (PTA) for industrial
use - Part 5: Determination of acid number**

工业用精对苯二甲酸（PTA）试验方法 第5部分：酸值的测定

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Indicator Method
- 4.2 Reagents and Materials

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 5 of GB/T 30921, "Test Methods for Purified Terephthalic Acid (PTA) for Industrial Use". GB/T 30921 has been issued. The following parts were laid out.

1. Determination of p-carboxybenzaldehyde (4-CBA) and p-methylbenzoic acid (p-TOL) content;

2. Determination of Metal Content;

3. Determination of water content;

4. Determination of Titanium Content. Diantipyrin Methane Spectrophotometric Method;

5. Determination of Acid Value;

6. Determination of Particle Size Distribution;

7. Determination of b^* value using a colorimeter. This document replaces GB/T 30921.5-2016 "Test Methods for Industrial Purified Terephthalic Acid (PTA) - Part

5. Determination of Acid Value". Compared with GB/T 30921.5-2016, the main technical changes in the revised version are as follows, except for structural adjustments and editorial modifications.

---The scope has been changed (see Chapter 1, Chapter 1 of the 2016 edition);

---The terminology and definition of acid value have been changed (see 3.1, 2016 edition of 3.1);

---Added content related to potentiometric titration (see Chapters 5 and 7);

---Added quality assurance and control (see Chapter 8). 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 Petroleum and Chemical Industry Federation. This document is under the jurisdiction of the National Technical Committee on Chemical Standardization (SAC/TC63). This document was drafted by: China Petroleum & Chemical Corporation Yangzi Petrochemical Co., Ltd., China Petroleum & Chemical Research Institute Co., Ltd., and China Petroleum & Chemical Corporation. Petrochemical Yizheng Chemical Fiber Co., Ltd., Sichuan Energy Investment Chemical New Materials Co., Ltd., and Metrohm China Ltd. The main drafters of this document are. Shao Qiang, Ye Huili, Yu Hao, Wang Chuan, Li Chengwei, Zhong Xuanmeng, Lei Zhiwen, Ding Daxi, Xu Peng, Song Ling, and Gu Yufeng. Li Dingsong, Yang Chao, Liu Binhua. This document was first published in 2016, and this is its first revision.

1 Scope

GB/T 30921.5-2025 is the Chinese national standard covering the acid number of PTA - the feedstock of every polyester fibre and bottle, where the acid value is one of the checks that the purification did its job. Part 5 of the series. It replaces GB/T 30921.5-2016. It was issued on 2 December 2025 and has been in force since 1 July 2026, replacing GB/T 30921.5-2016. The document is under the responsibility of the China Petroleum and Chemical Industry Federation. This page is published from the official record of the 2025 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the indicator method and potentiometric titration method for determining the acid value of industrial purified terephthalic acid (PTA). This document applies to the determination of the acid value of purified terephthalic acid (PTA) for industrial use.

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 601 Preparation of Standard Titration Solutions for Chemical Reagents

GB/T 3723 General Safety Rules for Sampling of Industrial Chemical Products

GB/T 6679 General Rules for Sampling of Solid Chemical 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 JJG814-2015 Verification Procedure for Automatic Potentiometric Titrator

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 acid number The number of milligrams of potassium hydroxide required to neutralize 1g of PTA sample.

Note. The unit is milligrams per gram (mg/g).

4 Indicator Method

4.1 Method Summary A certain amount of PTA sample was dissolved in an appropriate amount of dimethyl sulfoxide, and an appropriate amount of water was added. Phenolphthalein was used as an indicator, and the solution was diluted with hydroxide hydrate. Titrate with sodium standard solution until the endpoint is reached (pink color). Calculate the acid value of the sample from the volume of sodium hydroxide standard solution consumed.

4.2 Reagents and Materials

4.2.1 Unless otherwise specified, all reagents used are of analytical grade, and the water used in the experiment meets the requirements for Grade III water in GB/T 6682.