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

GB/T 12574-2023

Replacing GB/T 12574-1990

Determination of acid number in aviation turbine fuel

喷气燃料总酸值测定法

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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 replaces GB/T 12574-1990 "Method for determination of total acid value of jet fuel". Compared with GB/T 12574-1990, except for structural adjustment In addition to general and editorial changes, the main technical changes are as follows:

- a) Added the term "acid value" and its definition (see 3.1);
- b) Added requirements for the weighing mass of potassium hydrogen phthalate (reference reagent) when calibrating potassium hydroxide isopropyl alcohol standard solution (see 5.9);
- c) Added absolute ethanol and nitrogen as reagent materials (see
- d) Added the preparation requirements for titration solvent and p-naphtholbenzene (see
- e) Added content related to automatic instruments (see 6.1, 7.3, 10.2.2, 10.3.2 and Chapter 11);
- f) Added quality control checks (see Chapter 8);
- g) Increased precision of automatic instrument methods (see 10.2.2 and 10.3.2);
- h) Added Appendix A (Normative) "Jet Fuel Total Acid Number Determinator". Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed and coordinated by the National Petroleum Products and Lubricants Standardization Technical Committee (SAC/TC280). This document was drafted by: Sinopec Petrochemical Research Institute Co., Ltd., China Aviation Fuel Co., Ltd., China Civil Aviation The Second Research

Institute of the General Administration of Aeronautics and Astronautics, Sinopec Beijing Yanshan Branch, Sinopec Hainan Refining and Chemical Co., Ltd., China National Petroleum and Natural Gas Co., Ltd. Petrochemical Research Institute, South China Blue Sky Aviation Oil Co., Ltd., Shaanxi Yanchang Petroleum (Group) Co., Ltd. Ren Company Yongping Refinery, Beijing Chuxiangfei Technology Development Co., Ltd., Sichuan Provincial Product Quality Supervision, Inspection and Inspection Institute (Sichuan Provincial Quality Technical Review and Evaluation Center). The main drafters of this document. Chang Chunyan, Zhang Chenmeng, Li Ming, Deng Jun, Hao Meng, Tao Zhiping, Zhao Guoguo, Li Yuntong, Huang Yicheng, Ma Chunyang, Zhao Jinquan, Lai Quanchang, Zhang Kaijing. This document was first published in 1990 and this is the first revision.

There may be some acidic substances in jet fuel, which come from acid treatment during the refining process, natural organic acids in the raw materials, or jet fuel. Additives used in materials (such as T1602 naphthenic acid anti-wear additive). The presence of acidic substances will corrode materials in contact with them properties, affecting the water separation characteristics of jet fuel. The total acid number of jet fuel is an important quality indicator of jet fuel. This data is useful for monitoring the process status of jet fuel production equipment, injection The development of new processes for gas fuel production, the use of jet fuel anti-wear additives and the quality control of jet fuel are all very important. Jet fuel total acid number determination method Warning

---Personnel using this document should have practical experience in regular laboratory work. The use of this document may involve certain hazardous materials, equipment and operations, this document does not identify all possible safety issues. Users are responsible for taking appropriate safety and health measures implementation, and ensure compliance with the conditions stipulated in relevant national laws and regulations.

1 Scope

GB/T 12574-2023 is the Chinese national standard on determination of acid number in aviation turbine fuel, in the field of petroleum and related technologies. 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 7 September 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 January 2024. Classification: ICS 75.160.20, CCS E31. 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 a method for determining the total acid number of jet fuels using the color indicator method. This document applies to jet fuel with a total acid value ranging

from 0.000mg/g (based on KOH) to 0.100mg/g (based on KOH).

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 4756 Manual sampling method for petroleum liquids

GB/T 4945-2002 Determination of acid value and base number of petroleum products and lubricants (color indicator method)

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

GB/T 27867 Automatic sampling method for petroleum liquid pipelines SH/T 0635 Liquid petroleum product sampling method (semi-automatic method)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 acid valueacidnumber The amount of base required to titrate a sample in a specified solvent to a specified end point in a specific system.

Note. The unit is expressed in mg/g (calculated as KOH).

4 Principles

Dissolve the sample in a mixture of toluene and isopropyl alcohol containing a small amount of water, pass nitrogen into the resulting homogeneous solution to cover it, and cover it with hydrogen. The standard titration solution of potassium oxide in isopropyl alcohol is used for titration, and the color change of the p-naphtholbenzene indicator (it appears orange in acidic solution, and appears orange in alkaline solution). Green color appears in the liquid) to determine the end point.

5 Reagents and materials

---Toluene is flammable and the vapor is toxic. Keep away from open flames and pay attention to ventilation. Warning--Potassium hydroxide is corrosive. Keep away from sources of fire. Wear appropriate protective clothing, gloves and goggles. Warning

---Isopropyl alcohol is flammable and the vapor is toxic. Keep away from open flames and pay attention to ventilation.