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

GB/T 11143-2025

Replacing GB/T 11143-2008

**Test method for rust-preventing characteristics of inhibited
mineral oil in the presence of water**

加抑制剂矿物油在水存在下防锈性能试验法

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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 supersedes GB/T 11143-2008 "Test Method for Rust Prevention Performance of Mineral Oils with Added Inhibitors in the Presence of Water", and is consistent with GB/T 11143-2008, aside from structural adjustments and editorial changes, the main technical changes are as follows:

- a) Added terms and definitions (see 3.1);
- b) The reagent used for synthesizing seawater was changed, with $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ replacing CaCl_2 (see 5.7, 6.6 in the 2008 edition);
- c) The term "oil bath" has been changed to "liquid bath" (see 6.1, 5.1 in the 2008 edition);
- d) The requirements for comparative tests on test steel bars and the principles for handling test steel bars that rust during the test have been added (see 8.2);
- e) The method for determining corrosion after the test has been changed (see 10.2, 2008 version of 10.2). 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 and is under the jurisdiction of the National Technical Committee on Standardization of Petroleum Products and Lubricants (SAC/TC280). This document was drafted by: Sinopec Research Institute of Petroleum Processing Co., Ltd., Sinopec Lubricating Oil Co., Ltd., and Beijing Petroleum Products Co., Ltd. Quality Supervision and Inspection Center, Beijing Petroleum Branch of China Petroleum & Chemical Corporation, and Beijing Institute of Product Quality Supervision and Inspection. The main drafters of this

document are. Zheng Yu, Mei Li, Qin Tuo, Li Heran, Tian Deying, Yang He, Zhao Jie, Wang Chao, Wang Shoucheng, Shi Xia, and Xu Hualing. Hanna. This document was first published in 1989, revised for the first time in 2008, and this is the second revision.

In equipment such as steam turbines, lubricating oil may become contaminated with moisture, causing rust on iron components. This experiment demonstrates the effectiveness of adding an appropriate amount of inhibitor. Mineral oils help prevent corrosion caused by this condition. This method is also applicable to other oils such as hydraulic oils and circulating oils, and those with a density higher than water. Large liquids can be used to determine the specifications of new oil products, as well as to monitor oil products currently in use. Adding inhibitors to mineral oil in the presence of water Rust prevention performance test method Warning

---Personnel using this document should have practical experience in formal laboratory work. The use of this document may involve certain hazardous activities. This document does not address all potential safety issues related to the materials, equipment, and operations used. Users are responsible for taking appropriate safety and health precautions. Implement the measures and ensure they comply with the conditions stipulated by relevant national laws and regulations.

1 Scope

GB/T 11143-2025 is the Chinese national standard on test method for rust-preventing characteristics of inhibited mineral oil in the presence of water, 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 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 75.100, CCS E34. 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 rust-preventive properties of mineral oils with added inhibitors in the presence of water. This document applies to evaluating the rust-preventive properties of mineral oils with inhibitors, particularly turbine oils, on ferrous components when mixed with water. Hydraulic oil, circulating oil, and other oil products, as well as liquids with a density greater than water.

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 1220-2007 Stainless Steel Bars

GB/T 4756 Manual Sampling Method for Petroleum Liquids

GB/T 6682-2008 Specifications and test methods for water used in analytical laboratories

NB/SH/T 0006 Industrial White Oil

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 rust Reddish-brown or black spots, pits, or unevenness appear on the surface of the cylindrical test steel bar.

4. Method Overview Mix 300 mL of sample with 30 mL of distilled water or synthetic seawater, and immerse the cylindrical test steel rod completely in the mixture at $60^{\circ}\text{C} \pm 1^{\circ}\text{C}$. Stirring should be carried out at 1°C . A test period of 24 hours is recommended, but an appropriate test period can be determined based on the requirements of both parties. The test period will conclude... After the test, observe the traces and extent of rust on the steel rod.