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

GB/T 47119-2026

**Testing method for the thermal stability of organic heat transfer
fluids - Gas chromatography with internal standard method**

有机热载体热稳定性测定法 气相色谱内标法

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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. 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 Boilers and Pressure Vessels (SAC/TC262). This document was drafted by: China Boiler and Boiler Water Treatment Association, Suzhou Shounuo Thermal Oil Co., Ltd., and Guangzhou Special Equipment Inspection and Research Institute. Institute, Jilin Hengsheng Chemical Co., Ltd., Shandong Beifang Zibo Special Oil Co., Ltd., Shanghai Lanya Petrochemical Equipment Testing Institute of Machinery Industry Limited Company, Taian Special Equipment Inspection and Research Institute, Wuhai Branch of Inner Mongolia Autonomous Region Special Equipment Inspection and Research Institute, Dalian Boiler and Pressure Vessel Inspection and Testing Research Institute Co., Ltd., Zibo Special Equipment Inspection and Research Institute, Henan Provincial Boiler and Pressure Vessel Inspection Technology Research Institute Hubei Special Equipment Inspection and Testing Institute. The main drafters of this document are. Wang Jiaoling, Lu Weihong, Mao Li, Wang Hui, Li Fuliang, Yao Guoping, Jia Bingli, Wang Haizhong, Niu Chengjie, and Zhao Bo. Zhang Wenhui, Song Xiaolin, Li Feixiang, Du Yuhui, Li Ziyun, Su

Chen. Determination of thermal stability of organic heat transfer fluid Gas chromatography internal standard method

1 Scope

GB/T 47119-2026 is the Chinese national standard covering how a thermal oil degrades when held hot - the cracking products measured by gas chromatography, which is what decides the maximum film temperature a heat transfer fluid may be used at before it starts coking the tubes. First edition, issued and in force on 28 January 2026. It was issued on 28 January 2026 and has been in force since 28 January 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 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 a method for determining the thermal stability of organic heat transfer fluids using gas chromatography with internal standard. This document applies to the thermal stability of unused synthetic organic heat transfer fluids with relatively simple components and a distillation range (at atmospheric pressure) of less than 55°C. Measurement. This document is not applicable to the determination of the thermal stability of organosilicon heat transfer fluids.

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 4756 Manual Sampling Method for Petroleum Liquids

GB/T 4946 Gas Chromatography Terminology

GB 4962 Safety Technical Regulations for the Use of Hydrogen

GB/T 9722-2023 General Rules for Gas Chromatography of Chemical Reagents

GB/T 23800-2009 Determination of thermal stability of organic heat transfer fluids

GB 23971 Organic Heat Transfer Fluid

GB/T 30430-2019 Standard Columns for Gas Chromatography

HG/T 3115 Performance of Borosilicate Glass 3.3

3 Terms and Definitions

The terms and definitions defined in GB/T 4946 and GB 23971, as well as the following terms and definitions, apply to this document.

3.1 A certain amount of pure substance is added as an internal standard to a certain amount of the sample to be tested, and then the sample containing the internal standard is subjected to chromatography. Analysis was performed, and the peak areas of the internal standard and the analyte were measured separately. Based on the measured relative correction factor, the content of the analyte in the sample was calculated. The method.

3.2 thermal stability Organic heat transfer fluids, under specified heating conditions, resist chemical reactions such as thermal decomposition, oxidation, and polymerization, and maintain their physicochemical properties (such as viscosity). The ability of a substance (such as temperature, flash point, acid value, etc.) to remain within permissible ranges. [Source: GB 23971-2009, 3.7, with modifications]

3.3 original sample Samples without organic heat transfer fluid used for thermal stability testing.