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

GB/T 46421-2025

**Determination of the dropping point of grease - Automatic
method**

润滑脂滴点的测定 自动法

(English Translation)

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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 is modified to adopt ISO 22286:2018 "Petroleum products and lubricants - Determination of dropping point of greases using automatic apparatus".

Compared with ISO 22286:2018, this document has undergone the following structural adjustments.

---Move the content of the chapter "Significance and Use" to the "Introduction".

The technical differences between this document and ISO 22286:2018, and the reasons therefor, are as follows.

---ASTM D4057 (see Chapter 6) has been replaced with the normatively referenced SH/T 0229 to suit my country's national conditions;

---The maximum temperature of the heating unit has been changed from "300°C" to "400°C" (see 5.7) to suit my country's national conditions.

The following editorial changes have been made to this document.

---The standard title has been changed to "Automatic Method for Determining the Dropping Point of Lubricating Grease";

---ISO 6299 has been replaced by GB/T 3498 (informative reference), and ISO 2176 has been replaced by GB/T 4929 (informative reference).

(See Introduction);

---The maximum test temperature for the dropping point has been changed from "300°C" to "340°C" (see note 7.4.3).

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).

Introduction

The dropping point of grease is the temperature at which grease changes from a semi-solid to a liquid state under test conditions.

This change in state is typical of greases containing organic thickeners (mainly soap-based thickeners), and it exhibits [a certain characteristic] as the temperature rises.

Phase change and softening. Non-soap-based greases (such as bentonite grease or silicone grease) are called "non-melting," meaning they have no dropping point. Upon heating, they...

It can separate oil.

The results of a dropping point test indicate the highest temperature at which a grease can be heated without complete liquefaction or oil separation.

The dot is a useful indicator of the type of grease. For soap-based greases, it relates to the nature of the cation. Under equal amounts of cations, complex soap-based greases...

The dropping point of grease is higher than that of simple soap-based grease. This property can be used for quality control in the production process and for establishing product specifications.

Dropping point cannot be considered directly related to application performance; nor can it indicate the maximum operating temperature of a grease.

Some related experiments show that the results obtained using this document are comparable to those obtained using GB/T 3498 and GB/T 4929.

There is consistency.

Automatic method for determining the dropping point of grease Warning---Personnel using this document should have practical experience in formal laboratory work. The use of this document may involve certain hazardous activities.

Regarding the materials, equipment, and operations, this document does not specify all potential safety issues. Users are responsible for taking appropriate safety, health, and environmental precautions.

Measures shall be taken and the conditions stipulated in relevant national laws and regulations shall be guaranteed.

1 Scope

This document describes a method for determining the dropping point of grease using an automatic dropping point apparatus.

This document applies to the determination of the dropping point of lubricating grease.

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.

SH/T 0229 Sampling Methods for Solid and Semi-Solid Petroleum Products

3 Terms and Definitions

The following terms and definitions apply to this document.

droppingpoint

Under the influence of its own mass, the grease changes from a semi-solid state to a sufficiently fluid state, dripping from the bottom orifice of the grease cup in the form of droplets.

temperature.

4 Method Overview

The grease cup, glass test tube, and grease cup holder containing the grease sample are placed in a heating bath, and the temperature of the heating bath is gradually increased at a specified rate.

The temperature is recorded by a photoelectric sensor at the moment of droplet falling from the bottom hole of the grease cup.

5 Instruments

5.1

Grease Cup. The external dimensions are shown in Figure 1. A grease cup made of chrome-plated brass can meet the requirements of this document.