



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

**中华人民共和国石油化工有限公司行业标准**

**SH/T 0680-1999**

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**Heat transfer fluids—Determination of thermal  
stability**

**热传导液热稳定性测定法**

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## Foreword

This standard is prepared according to German national standard DIN 51528—1994 *Determination Method of Liquid Heat Stability of Heat Carrier Which is Not Used* equivalently. The main difference between this standard and DIN 51528—1994 standard include:

- (1) Add the requirements for weighing accuracy of specimen and instrument.
- (2) Add the report about appearance of specimen after heating.
- (3) The minimum volume of borosilicate glass ampoule is increased to 15 ml from 5 mL, and this standard is proposed by China Petroleum and Chemical Corporation.

This standard is under jurisdiction of Academy of Science of Petroleum and Chemical of China Petroleum and Chemical Corporation.

Drafting units of this standard: Academy of Science of Petroleum and Chemical of China Petroleum and Chemical Corporation.

Drafters of this standard: Wang Fei, Lianghong.

# Determination method of thermal stability of heat transfer fluids

## 1 Scope

This standard specifies the test method of thermal stability of heat transfer fluids of mineral oil and synthetic hydrocarbon type.

This standard is applied to the heat transfer fluids used in the open system (the maximum operating temperature under normal pressure is less than its initial boiling point or boiling point) or closed system (the maximum operating temperature is more than its initial boiling point or boiling point).

## 2 Normative references

The articles included in the following standard become the part of this standard by reference. Unless otherwise expressly provided in this standard, the following references should be existing effective standards.

SH/T 0558 Petroleum distillate boiling range distribution determination method (gas chromatographic method)

## 3 Terms

This standard uses the following terms.

### 3.1 Thermal stability

In the test temperature and test process, the heat transfer fluid has the stability due to heating.

Note: with the rise of temperature, the changes of heat transfer fluid are accelerating, and will generate the gas phase decomposition products, products of lower boiling point, products of higher boiling point as well as products which can not be evaporating. The type and quantity of products will affect the use performance of heat transfer fluid.

In order to access the thermal stability, need to determine the content of the generated gas phase decomposed products, products of lower boiling point, products of higher boiling point as well as products which can not be evaporating from heat transfer fluid after heating, and the content percentage and deterioration rate of these products are expressed. The deterioration rate is smaller, the thermal stability of product is better.

### 3.2 Gaseous decomposition products

After heating the sample, the substances with the boiling point less than the room temperature under the normal pressure, such as hydrogen and methane, etc.

### 3.3 Products of lower boiling point

After heating the sample, the substances with the boiling point which is less than the initial boiling point of the heat transfer liquid which is not used.

### 3.4 Products of higher boiling point

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