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

GB/T 21451.6-2017

**Petroleum and liquid petroleum products -- Measurement of level and
temperature in storage tanks by automatic methods -- Part 6: Measurement of
temperature in pressurized storage tanks (non-refrigerated)**

石油和液体石油产品 储罐中液位和温度自动测量法 第6部分：带压罐（非冷冻）
中的温度测量

(English Translation)

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 Measures
5 Accuracy
6 Equipment selection
7 Equipment Description
8 Installation
9 Calibration and on-site inspection
10 Data Communication and Reception

Foreword

GB/T 21451 "Petroleum and liquid petroleum products tank automatic measurement of liquid level and temperature" is divided into six parts.

- Part 1. Atmospheric pressure tank level measurement;
- Part 2. Level measurement in tanker tanks;
- Part 3. Pressure tank (non-frozen) in the liquid level measurement;
- Part 4. Atmospheric pressure tank temperature measurement;
- Part 5. Tanker tank temperature measurement;
- Part 6. Temperature measurement in pressurized tanks (not frozen).

This section GB/T 21451 Part 6.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the redrafted law Amendment adopts ISO 4266-6:2002 "oil and liquid petroleum products tank liquid level and temperature automatic Measurement methods - Part 6 - Temperature measurement in pressurized tanks (not frozen) ".

This part of ISO 4266-6:2002 technical differences and the reasons are as follows.

- Modify the use of international standards GB/T 8927 instead of ISO 4268:2000 (see 9.1, 9.2.2.1.1, 9.3.2.1.1) as a standard Sexual references to adapt to our country's technical

conditions.

--- Removed the standard before all the uncertainty value of " $\pm$ ". According to JJF1059.1-2002, the uncertainty constant is positive.

--- At the end of the last sentence of paragraph 9.3.2.1.1, add "This test method is to be carried out only when conditions permit." In the actual test inspection, does not rule out the temperature sensing element removed from the tank for testing methods.

--- Modify the second sentence of 9.4.1 to read "Each ATT shall be inspected and tested in accordance with 9.2 or 9.3." ATT is not only a single Point thermometer A type, multi-point ATT test method specified in 9.3.

This section made the following editorial changes.

--- Removed references.

This part of the National Petroleum Products and Lubricants Standardization Technical Committee (SAC/TC280) and co-ordinated.

This section is responsible for the drafting unit. China Petroleum and Chemical Corporation Petrochemical Research Institute.

This section participated in the drafting unit. China Petroleum & Chemical Corporation Zhenhai Refining and Chemical Branch, Honeywell (China) Co., Ltd., Emerson Process Control Co., Ltd., Beijing Ruicai Great Wall Aviation Measurement and Control Technology Co., Ltd.

1 Scope

This part of GB/T 21451 gives automatic tank thermometers for temperature measurement of petroleum and liquid petroleum products in pressurized tanks (ATTS) selection, accuracy, installation and commissioning, calibration and calibration guide.

This section applies to the custody transfer storage tank (except for the tank or frozen storage tank) temperature measurement.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 8927 Petroleum and liquid petroleum products temperature measurement manual method (GB/T 8927-2008, ISO 4268:2000, MOD) ISO .1998 (all parts)
Petroleumindustry-Terminology

3 Terms and definitions

ISO 1998 (all parts) as defined by the following terms and definitions apply to this document.

Automatic tank thermometer; ATT Continuous measurement of the temperature inside the tank.

Note: ATT, also known as an automated tank temperature measurement system, typically includes an accurate temperature sensor, a transmitter mounted on site for electrical signal transmission, and a Receiving/digital display device.

Resistance temperature sensor resistancetemperaturedetector; RTD the electronic sensing element measures the temperature of the medium in the tank through the principle that the resistance changes with temperature.

Single point ATT single-pointATT (spotATT) ATT for measuring the temperature of a specific point in a tank with a spot temperature element.

Multi-point ATT multiple-pointATT the ATT measuring the selected liquid level temperature consists of several (usually 3 or more) spot temperature elements.

Note: The readings of the digital devices should be obtained from the temperature sensing elements immersed in the liquid in the container, not only by calculating the average temperature of the liquid but also by Liquid temperature distribution.

Multiple point average ATT multiple-pointaveragingATT the digital display device uses a number of independent spot temperature elements immersed in the liquid to determine the average ATT of the average temperature inside the tank.