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

GB/T 21451.1-2015

**Petroleum and liquid petroleum products -- Measurement of
level and temperature in storage tanks by automatic methods --
Part 1: Measurement of level in atmospheric tanks**

石油和液体石油产品 储罐中液位和温度自动测量法 第1部分：常压罐中的液位测
量

(English Translation)

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Table of Contents

Introduction
1 Scope
2 Normative references
3 Terms and definitions
4 Measure
5 Accuracy
6 ALG installation
Initial setting and initial inspection site 7
8 ALG post-test
9 And 15 receives data communications
References

Foreword

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

- Part 1. pressure tank level measurement;
- Part 2. tanker tanks level measurement;
- Part 3. Pressure tank level measurement;
- Part 4. atmospheric tanks temperature measurement;
- Part 5. tanker compartment temperature measurement;
- Part 6. Pressure tank temperature measurement.

This section GB/T 21451 Part 1.

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

This section uses redrafted Law Amendment uses ISO 4266-1:2002 "Petroleum and liquid petroleum product storage tank level and temperature automatically Measurement - Part 1. atmospheric tank level measurement. " this part of ISO 4266-1:2002 technical differences and their reasons are as follows.

--- Between paragraph 2 and paragraph 1 a paragraph. "This section applies to level measurement inventory management and custody transfer tanks.", He stressed for inventory management and custody transfer measurement, consistent with other parts of

ISO 4266;

--- On normative references, this part of GB/T 21451 of the technical differences have been adjusted in order to adapt our technology Condition, adjust the focus reflected in Chapter 2, "Normative references", the specific adjustments are as follows.

- Modify with international standards of GB/T 13236 replaced by ISO 4512:2000 (see 7.2.3);

- increase the reference GB/T 13894 (see 4.3.7, 7.2.2).

--- Modify the term "3.5 dipstick" English expressions and definitions to be consistent with GB/T 13236-2011, and the portion of the original definition

NOTE contents as a sub;

--- Modify the definition of the term "3.7 measurement reference point", with the GB/T 13236-2011 consistent;

--- Modify the term "high 3.12 empty" is defined, with the GB/T 13236-2011 consistent;

--- After 6.4.1 add "thereby avoiding or reducing the displacement of the liquid level and temperature changes caused by ALG installation point.", With strong of the important role of stabilizing tube;

--- 6.4.4 After the first phrase add "while at the side of the shade or in direct sunlight," to avoid due to the different thermal expansion error;

--- Modify the order of 2, written in the middle of the section in Figure 2 on the previous Legend, prepared to adapt to the requirements of the standard;

--- 6.5.7 The increase in "illiquid when the oil tank, through grooves or through holes increase the number of columns, the width or diameter, shorten the adjacent Spaced holes or slots, the oil will be easier to stabilize the free inflow or outflow tubing, thereby ensuring uniform and stable liquid tank liquid level in tube Sex. "Avoid or reduce the liquid stable density stratification inside and outside of the different effects caused;

--- Increase 6.5.9 "When stable tube installed in the pipe against the manual metering or measurement position of the mouth, sounding reference plate is preferably connected directly to the the stable liquid pipe, ensure that the installation location ALG relative height measured depth reference plate remains substantially unchanged. "Strengthening sounding board and reference Stable tube integrated design, to meet the basic requirements for setting up and testing;

--- Will be the 7.2.2 ISO 4512 is amended as GB/T 13894, within the meaning of the content should be level measurement method, rather than level measurement set Preparation of technical conditions, there is no formal international standards;

--- Add "7.2.5 hydrostatic influence," later in this chapter shall number to be changed

accordingly, he stressed sounding reference point, and the measurement reference point Affect ALG installation point shift their solutions;

--- 7.4.1 Delete the last first test than later, "or" two more than the actual should be carried out with "or" not Suitable;

--- Will in 7.4.3.2 f) is amended as g), in order to meet the criteria to express the meaning;

--- The first sentence of the first paragraph of 8.4 "for custody transfer with ALG, the difference should be 7.4.3.3 Test as a post test to make tolerance use. "Was changed to" for custody transfer with ALG, in 7.4.3.3 should test tolerance test tolerance use as a post. "In in line with the actual situation.

This part made the following editorial changes.

--- 3.4 inject;

--- 3.11 inject;

--- Note 2 increase in 5.2;

--- Remove 5.3 Note 2, 3 becomes Note 2, Note 2 is incorporated Note 1, Note 1 to rewrite the content;

--- Increased 5.3 New Note 3;

--- Note the increase in 5.4.2;

--- Note the increase in 6.4.4;

--- Note the increase in 7.2.3;

--- Increase in 7.3.1, 7.3.2, 7.4.3.1 Note 2 and 7.4.3.2, respectively;

--- Note the increase in 7.4.3.3;

--- The References ISO 4268:2000 with our standard GB/T 8927-2008 instead of;

--- The reference ISO 7507 (all parts) instead of using our standard GB/T 13235 (all parts);

--- Increasing the GB/T 25964-2010 reference.

This part of the National Standardization Technical Committee on products and lubricant oil (SAC/TC280) and focal points.

This in part by the Chinese Research Institute of Petroleum Corp. petrochemical responsible for drafting, Beijing Great Wall Airlines Swiss tournament CONTROL TECHNOLOGY Ltd., China Petroleum and Chemical Corporation Beijing Branch of oil, China Petroleum & Chemical Corporation Fujian Branch of oil Senate Plus draft.

1 Scope

GB/T 21451 This section gives a storage tank at atmospheric pressure, Reid vapor pressure of less than 100kPa of petroleum and petroleum products level measurement the accuracy of the amount used in immersion and non-immersion type automatic level gauge, installation, commissioning, calibration and testing guidelines.

This section applies to level measurement inventory management and custody transfer tank.

This section does not apply to installation of automatic level measurement gauge (ALG) frozen tank.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 13236 Petroleum and liquid petroleum product storage tank level measurement equipment manual (GB/T 13236-2011, ISO 4512.

2000, MOD)

GB/T 13894 Petroleum and liquid petroleum products - Measurement of liquid level (manual method) ISO 1998 (all parts), petroleum industry term (Petroleumindustry-Terminology)

3 Terms and Definitions

As defined in ISO 1998 and the following terms and definitions apply to this document.

Anchor hammer anchorweight Hanging in the guide line automatic gauge sensing element, the guide wire tensioning and straightening ballast.

Automatic level gauge; ALG Continuous measurement of liquid level in the tank (high real high or empty) instruments.

Real high dip; innage Sounding the vertical distance between the reference point and the surface, that sounding reference point above the liquid level in the tank.

Sounding reference plate dippingdatumplate Sounding reference point dippingdatumpoint Sounding board dip-plate in the measurement reference point directly below the horizontal metal plate to provide a fixed contact surface for the manual measurement of the liquid depth settings.