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CCS E 30



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

GB 11140-1989

Replacing GB/T 11140-1989

**Standard test method for sulfur in petroleum products by
wavelength dispersive X-ray fluorescence spectrometry
(English Translation)**

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Foreword

This revised standard adopts the American Society for Testing and Materials standard ASTM D2622:2007 "wavelength dispersive X-ray Fluorescence Spectrometry the method of" petroleum product sulfur content.

This standard is based on ASTM D2622. redrafted 2007.

In order for China's national conditions, the use of this standard in ASTM D2622:2007 when modified. This standard ASTM D2622.

2007 technical differences are as follows.

--- This standard ASTM D2622:2007 reference standard part of our revised to reference the corresponding national standards and industry standards.

For ease of use, this standard also made the following editorial changes.

--- Repeatability and reproducibility of written expression according to our habits were modified.

This standard replaces GB/T 11140-1989 "Petroleum products - Determination of sulfur (X-ray spectroscopy)", GB/T 11140-1989 is Referring to the use of ASTM D2622. 1982 enacted.

The main technical differences between standard compared with GB/T 11140-1989 as follows.

--- Name of this standard has been modified by the "petroleum products Determination of sulfur (X-ray spectroscopy)" was changed to "sulfur-containing petroleum products Determination of the amount of wavelength dispersive X-ray fluorescence spectrometry";

--- This standard extends the scope of application;

--- The standard measurement limit has been changed from 10mg/kg ~ 5.0% (mass fraction) to 3mg/kg ~ 4.6% (mass fraction);

--- The standard reference standard has increased;

- The standard interference element has fluctuated;
- The standard test procedure in Chapter 2 theta angle different crystals have increased or decreased;
- This standard adds meaning and purpose, interfering factors, quality control three chapters;
- This standard GB/T 11140-1989 Methods of sampling, preparation and sample chapter amended as sample preparation, calibration chapter;
- The standard precision has been modified;
- This standard adds to Appendix A "precision instructions." Appendix A of this standard is an informative annex.

This standard by the National Standardization Technical Committee on Petroleum Products and Lubricants made.

This standard by the National Standardization Technical Committee Petroleum Products and Lubricants petroleum fuels and lubricants Technical Committee.

This standard was drafted. China Petroleum & Chemical Corporation Shanghai Gaoqiao.

1 Scope

1.1

standard specifies under single-phase and liquid at room temperature, was properly heated liquid or soluble in the hydrocarbon solvent oil and petroleum products Determination of total sulfur content of the product. This standard applies to the determination of diesel, jet fuel, kerosene, other distillate oil, naphtha, residual oil, lubricating base Base oil, hydraulic oil, crude oil, motor gasoline, gasohol and biodiesel.

1.2

with ASTM D6259 statistical procedure to calculate the combined measurement of the standard limit of 3mg/kg.

1.2.1

For a particular laboratory instruments, which depends on the instrument measurement limits and precision of X-ray tube power (low or high power Rate), and the type of laboratory sample specific operation to this method.

1.3

For the sulfur content exceeds 4.6% (by mass) of the sample by dilution of the sample to the sulfur content of this standard applies range. Error measurement results undiluted samples diluted sample measurement results will be mentioned in Chapter 14 than high.

1.4

Volatile samples (such as high vapor pressure gasoline or light hydrocarbons) as a selective loss of light components during the analysis, may not meet this standard Accurate precision.

A basic assumption of 1.5 standard is a standard sample matrix material and sample to be tested so as to match or 12.2 as described in the matrix Different substances. Hydrocarbon mass ratio of the difference between the standard sample and the sample or the presence of other elements or interfering substances (see Table 1), will be made Into a matrix does not match the material.

1.6

This standard uses SI SI units.

1.7

standard will be described only for some special risks associated with the testing process-related, but did not mention all the security issues. Accordingly, the user Before using this standard to establish appropriate safety and health practices and to develop appropriate management system.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 4756 petroleum liquids hand sampling method (GB/T 4756-1998, eqv ISO 3170. 1988) GB/T 8170 numerical rounding rules GB/T 17040 Petroleum and petroleum products Determination of sulfur content - Energy Dispersive X-ray Fluorescence Spectrometry SH/T 0631 Lubricating Oils and Additives barium, calcium, phosphorus, sulfur, and zinc assays (X-ray fluorescence spectrometry) ASTM D6259 measured to determine the lower limit of the standard utility methods Application of statistical methods ASTM D6299 quality certification technical evaluation and analysis of the performance measurement system ASTM D7343 by X-ray fluorescence spectroscopy of petroleum products and lubricants for sample processing and calibration verification and the elemental Analysis of Optimization

3 Method Summary

The sample is placed in the X-ray beam, the determination of sulfur K α line intensity 0.5373nm wavelength. The highest intensity is subtracted Background intensity measured at (rhodium anode X-ray tube 0.5437nm) recommended wavelength 0.5190nm, as net

count rate previously prepared Given calibration curves were compared (see Chapter 12), thereby obtaining a quality score or milligrams per kilogram (mg/kg) sulfur content expressed.