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

GB/T 18340.3-2010

Replacing GB/T 18340.3-2001

**Organic geochemical analysis method for geological samples -
Part 3: Determination of saturated hydrocarbon group
components in heavy fraction of oil - Mass spectrometry**

地质样品有机地球化学分析方法 第3部分：石油重馏分中饱和烃族组分测定 质谱
法

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Foreword

GB/T 18340 "organic geochemistry in geological samples analysis methods," There are six sections.

--- Part 1. Light Crude Gas Chromatography;

--- Part 2. Determination of Organic Matter stable carbon isotope isotope mass spectrometry;

--- Part 3. Determination of heavy petroleum fractions Mass Spectrometry saturated aliphatic hydrocarbon component;

--- Part 4. heavy petroleum distillate aromatic aliphatic component mass spectrometry;

--- Part 5. rock and extract crude oil saturated hydrocarbon analysis by gas chromatography;

--- Part 6. Gasoline Hydrocarbon Mass Spectrometry. This section GB/T 18340 Part 3. This section of the reference standard American Society for Testing Materials ASTM D2786-91 (2006) "gas oil saturated hydrocarbon fraction hydrocarbons high Ionizing Voltage Mass Spectrometry. " This Part replaces GB/T 18340.3-2001 "organic geochemical analysis of geological samples tested heavy petroleum fractions consisting of saturated aliphatic hydrocarbons Mass Method ", compared with the GB/T 18340.3-2001, the main changes are as follows:

--- By the name of the standard "Organic geochemical measurements of geological samples heavy fraction oil saturated aliphatic hydrocarbon mass spectrometry method of composition" to "geological Organic geochemical sample analysis methods - Part 3. Determination of mass spectrometry heavy oil "fraction saturated aliphatic hydrocarbon component;

--- Increased caution, warning section;

--- Chapter 1, the original standard range boiling range to 205 °C ~ 540 °C;

--- Original standard has been adjusted the structure and content, and make appropriate editorial changes; sections of the reference ASTM D2786-91 (2006) made the relevant sections of major changes. This section presents the People's Republic of China Ministry of Land Resources. This part of the National Standardization Technical Committee under the jurisdiction of Land and Resources. This standard is drafted by: National Geological Experimental Test Center. This section is drafted. Wuxi Institute of Petroleum Geology Research Institute of Petroleum Exploration and Development Co., Ltd. China Petroleum & Chemical. The main drafters of this section. Zhang Zhirong, Zhang canal, Song Xiaoying, Cao Yin. This part of the standard replaces the previous editions as. GB/T 18340.3-2001. Organic geochemical analysis of geological samples Part 3. petroleum heavy fractions of saturated hydrocarbons Aromatic component mass spectrometry Warning

--- Use this section shall be a person experiences regular laboratory work. This section does not point out all possible security asked question. Users have the responsibility to take appropriate safety and health practices and to ensure compliance with the conditions relevant national regulations.

1 Scope

GB/T 18340.3-2010 is the Chinese national standard on organic geochemical analysis method for geological samples - part 3: determination of saturated hydrocarbon group components in heavy fraction of oil - mass spectrometry, in the field of mining and minerals. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 10 November 2010 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 February 2011. Classification: ICS 73-010, CCS D04. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This section GB/T 18340 specifies the mass fraction of heavy oil saturated hydrocarbon group components analysis, quantitative calculation and precision Claim. This section applies to heavy petroleum fractions (boiling range 205 °C ~ 540 °C) saturated hydrocarbon fraction seven and one kind of aromatic hydrocarbon saturated aliphatic Quantitative analysis of the components. That no large olefins, aromatics content of less than 5%.
Principle

2 Crude oil is separated by column chromatography, saturated hydrocarbon fraction obtained by direct injection into the mass spectrometer gasification system, the ion source

of electronic boom Strike to give the mixed mass chromatogram saturated hydrocarbon fraction. The mass spectral data of each characteristic peak intensity plus hydrocarbons and post the corresponding inverse matrix system Multiplication, can be obtained relative content of saturated hydrocarbon group components.

3 Reagents and materials

3.1 perfluorinated kerosene (PFK), perfluoro tributylamine (FC-43) or other known accurate mass reference materials.

3.2 hexadecane. chromatography.

3.3 dichloromethane. AR.

3.5 silica gel. chromatography.

3.6 Alumina. chromatography.

4 Instruments and equipment

4.1 MS. having EI ion source and sample mass spectrometer equipped with a direct injection system and data acquisition and processing system.

4.2 Injection system. programmable up to 125 °C ~ 350 °C (heating rate. 30 °C/min ~ 130 °C/min) direct injection system.

4.3 micro syringe or constant volume pipette (1μL ~ 10μL).

4.4 column (length. 40cm ~ 60cm, Nei Jing. 0.8cm ~ 1.2cm).

5 Sample Preparation

Weigh 30mg ~ 50mg crude oil sample with 30mL of n-hexane was dissolved overnight asphaltene precipitation; solution was concentrated to 60 °C water bath 1mL ~ 2mL, transferred to a sample containing 2mg 4mg alumina and silica gel chromatography column, rinsed four times with 20mL of n-hexane to give Saturated hydrocarbon fraction, a saturated hydrocarbon solution was concentrated with 40 °C transferred to stoppered vials small opening in the back. Step

6.1 Analysis conditions

6.1.1 Quality Resolution. not less than 500.