

ICS 73-010
CCS D04



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

GB/T 18340.2-2010

Replacing GB/T 18340.2-2001

**Organic geochemical analysis method for geological samples -
Part 2: Determination of organic carbon stable isotopic
component - Isotopic mass spectrometry**

地质样品有机地球化学分析方法 第2部分：有机质稳定碳同位素测定 同位素质谱
法

Issued on: November 10, 2010

Implemented on: February 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China;
Standardization Administration of China**

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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 2. This Part replaces GB/T 18340.2-2001 "Organic geochemical measurements of geological samples stable carbon isotope composition of organic matter analytical Law, "compared with the GB/T 18340.2-2001, the main changes are as follows: Name
- The section from "Organic geochemical measurements of geological samples stable carbon isotope composition of organic matter analysis method" to "geological samples Geochemical analysis of organic products - Part 2. Determination of Organic Matter stable carbon isotope isotope mass spectrometry. "
- Increased elemental carbon isotope analysis of online content.
- Original standard has been adjusted the structure and content, and make appropriate editorial changes.
- This section with precision repeatability r and reproducibility R relative standard instead of the original double differential D . Appendix A of this section is informative appendix. The standard proposed by the People's Republic of China Ministry of Land Resources. This standard by the National Standardization Technical Committee 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. to stand strong, Li Guangyou, pottery percent. This part of the standard replaces the previous editions as. GB/T 18340.2-2001. Organic geochemical analysis of geological samples Part 2. Determination of stable carbon isotope of organic matter Isotope 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 18340.2-2010 is the Chinese national standard on organic geochemical analysis method for geological samples - part 2: determination of organic carbon stable isotopic component - isotopic 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.

GB/T 18340 provisions of this part of the stable carbon isotope composition of organic matter in the mass spectrometer analysis of technical performance, sample preparation, The method of mass spectrometry and precisions. This section applies to crude oil and its ethnic components, kerogen, coal, bituminous rocks and other sedimentary organic matter stable carbon isotope composition points Analysis; NA contain carbonate minerals stable carbon isotope composition of organic sample analysis, to analyze the need to remove the carbonate minerals. Principle

2 Sample decomposition in flowing oxygen isotope sample preparation device (or elemental analyzer) combustion and oxidation, fully translated into CO₂, purified after CO₂ collected into a sample tube (or elemental analyzer of the interface), stable carbon isotope composition in a stable isotope ratio mass spectrometer analysis.

3.1 Reagents

3.1.1 wire copper oxide. AR.

3.1.2 reduced copper. AR.

3.1.3 chromium oxide. AR.

3.1.4 cobalt oxide. AR.

3.1.5 anhydrous magnesium perchlorate. AR.

3.1.6 ethanol. AR (or chemically pure).

3.2 Oxygen (purity not less than 99.99%).

3.3 liquid nitrogen.

3.4 vacuum grease.

4 instruments and equipment

4.1 stable isotope ratio mass spectrometer with dual injection system, stable carbon ion beams Receiver Tri-isotope ratio mass spectrometer requires skill Art performance indicators are as follows:

- a) Sensitivity. S greater than $10A/Pa$ ($0.1A/mbar$);
- b) Resolution. $M/\Delta M$ is greater than 95 (10% valley);
- c) Accuracy. EP is less than 0.004 (%).