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

GB/T 47297-2026

Determination of total carbon, nitrogen and sulfur in soil

土壤总碳、总氮、总硫含量的测定

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Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
4.Method Principles	1
5.Instruments and Equipment	1
6.Reagents and Materials	2
7.Sample Preparation	2
8.Experimental Procedure	2
9.Result Calculation and Representation	3
9 Reference	11

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the Ministry of Agriculture and Rural Affairs of the People's Republic of China. This document is under the jurisdiction of the National Technical Committee on Soil Quality Standardization (SAC/TC404). This document was drafted by: Nanjing Institute of Soil Science, Chinese Academy of Sciences; and the Center for Supervision and Protection of Cultivated Land Quality and Farmland Engineering, Ministry of Agriculture and Rural Affairs. Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences; Nanjing Normal University; Huazhong Agricultural University; Jiangsu Provincial Institute of Geological Survey Institute of Agricultural Environment and Sustainable Development, Chinese Academy of Agricultural Sciences; Institute of Plant Nutrition and Resource Environment, Henan Academy of Agricultural Sciences; China Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences; Shandong Provincial Institute of Geophysical and Geochemical Exploration; Jilin Provincial Soil and Fertilizer Station; Liaoning Materials Laboratory; Nanjing Information... Engineering University, Sichuan Provincial Farmland Quality and Fertilizer Station, Institute of Agricultural Quality Standards and Testing Technology, Chinese Academy of Agricultural Sciences, Jiangsu Province Institute of Quality and Standardization. The main drafters of this document are. Shen Renfang, Sun Yufang, Fan Qiaojun, Ma Changbao, Tang Haoye,

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1 Scope

GB/T 47297-2026 is the Chinese national standard covering the three elements measured together by combustion analysis - soil organic carbon above all, which is the quantity every soil carbon programme and every fertility assessment starts from. First edition, in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, as a first edition. The document is under the responsibility of the Ministry of Agriculture and Rural Affairs. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes a method for determining the total carbon, total nitrogen, and total sulfur content in soil using a high-temperature combustion method. This document applies to the simultaneous determination of various soil samples with total carbon, total nitrogen, and total sulfur contents of not less than 2 per mille, 0.2 per mille, and 0.2 per mille, respectively. This document is also applicable to the individual determination of total carbon, total nitrogen, and total sulfur content in various soil samples.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document. NY/T

52 Soil Moisture Determination Method

NY/T 1121.1 Soil Testing - Part

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.Method Principles Soil samples were burned at high temperatures under pure oxygen conditions, producing carbon dioxide, sulfur oxides, and nitrogen oxides, respectively. The combustion process was then carried out... Through catalysis, nitrogen oxides are reduced

to nitrogen gas and excess oxygen is removed, while sulfur oxides are completely converted into sulfur dioxide. The resulting mixed gas... Under the action of a carrier gas, the gas is separated into nitrogen, carbon dioxide, and sulfur dioxide through an adsorption-desorption column, chromatographic column, or other separation system, and then enters the detection... The detectors measure and calculate the content. The principle is illustrated in Figure 1. Figure

5.1 Electronic balance. Scale division values of

0.1 mg,

0.01 mg, or

0.001 mg. Select the appropriate scale based on the sample size; for sample sizes less than 10 mg, use a scale with a scale division of

0.1 mg,

0.01 mg, or

0.001 mg. A balance with a concentration of

0.001 mg.

5.2 High-Temperature Combustion Analyzer. Composed of a sample introduction system, combustion system, separation system, detection system, and data analysis system, it can be customized according to requirements. For details on instrument type selection, please refer to Appendix A for the determination of one element or multiple elements simultaneously.