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

**GB/Z 170-2026**

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**Soil quality - Measurement of enzyme activity patterns in soil  
samples - Using fluorogenic substrates in micro-well plates**

土壤质量 土壤酶活性测定 荧光底物微孔板法

**(English Translation)**

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## Foreword

This document is a standard or guiding technical document.

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.

This document is equivalent to ISO /T S22939.2019 "Soil quality - Determination of soil

enzyme activity using fluorescent substrates in microplates".

The document type has been changed from ISO technical specifications to my country's standardized guiding technical documents.

The following minimal editorial changes have been made to this document.

---To align with existing standards, the standard name has been changed to "Soil Quality and Soil Enzyme Activity Determination. Fluorescent Substrate Microplate Method";

---Added Appendix NA (Informative) and Appendix NB (Informative).

## 1 Scope

This document describes a method for determining the activities of 10 soil enzymes in soil samples, either alone or simultaneously, using fluorescent substrates, including aryl thiocyanates, arylsulfatase, alpha-glucosidase, beta-glucosidase, cellobiase Enzyme (alanine-aminopeptidase).

This document applies to the individual or simultaneous determination of the activities of the above 10 enzymes in soil.

Soil enzyme activity varies with the seasons and is influenced by a combination of soil chemical properties, physical structure, and biological characteristics.

When using this method to detect the harmful effects of toxic chemicals or other human activities, it is necessary to rely on soils with properties similar to the test soil.

Comparative analysis can be performed based on enzyme activity in the soil, or an assessment can be conducted by implementing chemical exposure tests or specific test treatments.

## 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.

ISO 10390 Soil quality - Determination of pH

ISO 18400-206 Soil quality sampling - Part 206: Laboratory assessment of microbial processes, biomass and diversity using aerobic methods Soil collection, handling and storage under certain conditions (Soil quality - Sampling - Part 206: Collection, handling and storage) (tyinthelaboratory)

### 3 Terms and Definitions

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

The following abbreviations apply to this document.

EC. Enzyme coding scheme defined by the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology (NC-IUBMB). CodeNumber)

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