
**Soil quality — Determination of total
nitrogen content by dry combustion
("elemental analysis")**

*Qualité du sol — Détermination de la teneur totale en azote par combustion
sèche («analyse élémentaire»)*



Foreword

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International Standard ISO 13878 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical methods and soil characteristics*.

Annexes A and B of this International Standard are for information only.

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Soil quality — Determination of total nitrogen content by dry combustion (“elemental analysis”)

1 Scope

This International Standard describes a method for the determination of the total nitrogen of soil after dry combustion.

It is applicable to all types of soil.

NOTE — The method was developed originally as a manual method by Dumas [3]. Its applicability is improved greatly due to the use of modern automated equipment.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 11464:1994, *Soil quality — Pretreatment of samples for physico-chemical analyses*.

ISO 11465:1993, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method*.

3 Principle

The nitrogen content of a soil pretreated in accordance with ISO 11464 is determined by heating to a temperature of at least 900 °C in the presence of oxygen gas. Mineral and organic nitrogen compounds are oxidized and/or volatilized. The combustion products are oxides of nitrogen (NO_x) and molecular nitrogen (N_2). After transforming all nitrogen forms into N_2 , the content of total nitrogen is measured using thermal conductivity.

4 Reagents

All reagents shall be of recognized analytical grade.

4.1 Combustion gas (oxygen)

For special requirements, see the instruction manual of the apparatus used.