

Soil improvers and growing media — Extraction of aqua regia soluble elements

The European Standard EN 13650:2001 has the status of a
British Standard

ICS 65.080

National foreword

This British Standard is the official English language version of EN 13650:2001.

The UK participation in its preparation was entrusted to Technical Committee AW/20, Top soil and other growing media, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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This British Standard, having been prepared under the direction of the Consumer Products and Services Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 09 November 2001

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English version

Soil improvers and growing media - Extraction of aqua regia soluble elements

Amendements du sol et supports de culture - Extraction
d'éléments solubles dans l'eau régale

Bodenverbesserungsmittel und Kultursubstrate - Extraktion
von in Königswasser löslichen Elementen

This European Standard was approved by CEN on 11 August 2001.

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 223 "Soil improvers and growing media", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2002, and conflicting national standards shall be withdrawn at the latest by March 2002.

The annexes A and B are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

SAFETY PRECAUTIONS — Care should be taken when handling samples that may contain sharps or are of a dusty nature.

1 Scope

This European Standard specifies a method for the routine extraction of *aqua regia* soluble elements (as listed in annex B) from soil improvers or growing media. Materials containing more than about 28 % (m/m) organic matter will require treatment with additional nitric acid. With high solute concentrations in extract solutions, spectral interference's and background enhancement should be expected.

The method is not applicable to liming materials and preformed materials such as mineral wool slabs and foam slabs.

NOTE 1 *Aqua regia* will not totally dissolve most soil improvers or growing media, and the efficiency of extraction for particular elements differs from element to element. Such efficiency might also differ for the same element in different matrices. Elements extractable in *aqua regia* cannot therefore, be described as "Totals"; conversely they cannot be regarded as the "bio-available" fraction, as the extraction procedure is too vigorous to represent any biological process.

NOTE 2 The requirements of the standard may differ from the national legal requirements for the declaration of the products concerned.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods* (ISO 3696:1987).

EN 13039, *Soil improvers and growing media - Determination of organic matter content and ash*.

EN 13040:1999, *Soil improvers and growing media - Sample preparation for chemical and physical tests, determination of dry matter content, moisture content and laboratory compacted bulk density*.

3 Terms and definitions

For the purposes of this standard the terms and definitions given in EN 13039 and EN 13040 apply.

4 Principle

The dried sample is finely ground and extracted with a hydrochloric/nitric acid mixture by standing for 16 h at room temperature, followed by boiling under reflux for 2 h. The extract is clarified and the extracted elements determined.

The test sample shall be ground to less than 500 µm prior to *aqua regia* digestion. Such grinding is designed to

- a) give a more homogeneous sample from which a sub-sample is taken;
- b) increase the efficiency of acid attack by increasing the surface area of the particles.