BSI Standards Publication

Soil improvers and growing media — Determination of the aerobic biological activity

Part 1: Oxygen uptake rate (OUR)

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National foreword

This British Standard is the UK implementation of EN 16087-1:2020. It supersedes BS EN 16087-1:2011, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AW/20, Topsoil, other growing media and turf.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Soil improvers and growing media — Determination of the aerobic biological activity — Part 1: Oxygen uptake rate (OUR)

Amendements du sol et supports de culture — Détermination de l'activité biologique aérobie — Partie 1 : Cinétique d'absorption de l'oxygène (OUR)

Bodenverbesserungsmittel und Substrate — Bestimmung der aeroben biologischen Aktivität — Teil 1: Sauerstoffaufnahme (OUR)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European Foreword

This document (EN 16087-1:2020) has been prepared by Technical Committee CEN/TC 223 “Soil improvers and growing media”, the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by July 2020, and conflicting national standards shall be withdrawn at the latest by July 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 16087-1:2011.

The main changes compared with the previous edition are as follows:

— For the balance (5.6) requirements are added;

— Clarification of sample preparation (7.1) is added;

— Formula 3 and 5 are corrected;

— The figures in Annex B have been updated;

— The Bibliography has been corrected.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document describes a method to determine the aerobic biological activity of growing media and soil improvers or constituents thereof by measuring the oxygen uptake rate (OUR). The oxygen uptake rate is an indicator of the extent to which biodegradable organic matter is being broken down within a specified time period. The method is not suitable for material with a content of particle sizes > 10 mm exceeding 20 %.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

EN 45501, *Metrological aspects of non-automatic weighing instruments*

EN ISO 3696, *Water for analytical laboratory use – Specification and test methods (ISO 3696)*

3 Terms and Definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp/ui

4 Principle

The material is suspended in water. The respiration rate (i.e. oxygen uptake rate) is estimated by measuring the pressure drop in the headspace (i.e. gas phase in the closed space above the water phase). The produced CO_2 (carbon dioxide) is removed by a suitable alkaline absorbent. The measurements are performed under defined conditions.

5 Apparatus

5.1 Testing facility

Temperature controlled room, climate cabinet or water bath, temperature adjustable to (30 ± 2) °C.

5.2 Pressure transducer

Operating range 0 kPa to 20 kPa (accuracy ± 0,1 kPa) and record for measuring 2 to 4 times per hour for seven days.

5.3 CO_2-absorbent containing unit