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Plastics — Methods for determining the density of non-cellular plastics —

Part 2: Density gradient column method

Plastiques — Méthodes de détermination de la masse volumique des plastiques non alvéolaires —

Partie 2: Méthode de la colonne à gradient de masse volumique

Reference number
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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 1183-2:2019), which has been technically revised.

The main changes are as follows:

— reference to this document, any deviations and any unusual features observed have been added to the test report.

A list of all parts in the ISO 1183 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Density is frequently used to follow variations in physical structure or composition of plastic materials. Density can also be useful in assessing the uniformity of samples or specimens. The density of plastic materials can depend upon the choice of specimen preparation method. When this is the case, precise details of the specimen preparation method are intended to be included in the appropriate material specification.

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Plastics — Methods for determining the density of non-cellular plastics —

Part 2: Density gradient column method

WARNING — The use of this document can involve hazardous materials, operations or equipment. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate health and safety practices.

1 Scope

This document specifies a gradient column method for the determination of the density of non-cellular moulded or extruded plastics or pellets in void-free form.

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.

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
density
ρ
ratio of the mass m of a sample to its volume V (at the temperature T) expressed in kg/m^3, kg/dm^3 (g/cm^3), or kg/l (g/ml)

Note 1 to entry: The following terms, based upon ISO 80000-4,[1] are given in 3.2 for clarification.

3.1.2
density gradient column
column containing a mixture of two liquids, the density in the column increasing uniformly from top to bottom

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