INTERNATIONAL STANDARD

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Footwear — Critical substances potentially present in footwear and footwear components —

Part 2: Determination of phthalate without solvent extraction

Chaussures — Substances critiques potentiellement présentes dans les chaussures et les composants des chaussures —

Partie 2: Détermination des phtalates sans extraction par solvant

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 documents 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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 216, *Footwear*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 309, *Footwear,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 16181-2, together with ISO 16181-1, cancels and replaces ISO/TS 16181:2011, which has been technically revised.

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

— phthalates were added to the list in Table A.1 (from 7 onwards);

— this document introduces a new technique.

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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Footwear — Critical substances potentially present in footwear and footwear components —

Part 2: Determination of phthalate without solvent extraction

WARNING — The use of this document can involve hazardous materials, operations and equipment. It does not purport to address all of the safety or environmental problems associated with its use. It is the responsibility of users of this document to take appropriate measures to ensure the safety and health of personnel and the environment prior to application of the document, and to determine the applicability of regulatory limitations for this purpose.

1 Scope

This document specifies a method for the determination of the content of specific phthalates (see Annex A) by pyrolyzer/thermal desorption gas chromatography-mass spectrometry (Py/TD-GC-MS). This document is applicable to all types of footwear materials except textiles.

NOTE See also CEN/TR 16417 for a list of the specific phthalates to which this document applies.

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 16181-1, *Footwear — Critical substances potentially present in footwear and footwear components — Part 1: Determination of phthalate with solvent extraction*

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:

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

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

4 Principle

The sample is directly introduced into a pyrolyzer, the phthalates are thermally extracted under a specific heat zone and then transferred to the gas chromatograph. Phthalate compounds are separated by the gas chromatographic capillary column and detected by a mass spectrometer.

When compared to ISO 16181-1, the two analytical methods should present similar trends but at the same time, not necessarily the same absolute result. Therefore, in case of any dispute, ISO 16181-1 shall be used in preference.

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