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Textiles — Determination of the phthalate content — Tetrahydrofuran method

Textiles — Détermination de la teneur en phtalates — Méthode au tétrahydrofurane

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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 38, *Textiles,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248,*Textiles and textile products,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14389:2014), which has been technically revised.

The main changes are as follows:

— addition of the Clause 2 “Normative references” and renumbering of subsequent clauses;

— replacement of the original internal standard (DCHP) with Benzyl 2-ethyl-hexyl phthalate;

— addition of five detected phthalates (including DCHP);

— replacement of the term “plasticized or soften material” with “plasticized material” in 3.1 (former 2.1);

— revision of the terms and definitions in 3.2 (former 2.2) and 3.3 (former 2.3);

— deletion of the frequency of thermostatic ultrasonic bath in 6.3 (former 5.3);

— deletion of “in duplicate” in 7.3.1 (former 6.2.1);

— revision of extract temperature from “(60 ± 5) °C” to “about 60 °C” in 7.3.3 (former 6.2.3);

— revision of Formula (1) and Formula (2) in Clause 8 (former Clause 7);

— addition of the example of determining the mass of the plastic component (coating) in Annex A.

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

This document covers a test method for the determination of some phthalates in textile articles.

Phthalates are commonly used as plasticizers in polymers. Phthalates are an issue for textile manufacturers and retailers due to their use within motifs, coated fabrics, plastisol prints, buttons, etc.

Phthalates are controversial because high doses of many phthalates have shown hormonal activity in rodent studies. Studies on rodents involving large amounts of phthalates have shown damage to the liver, the kidneys, the lungs, and the developing testes.

Due to their potential effect as endocrine disruptors, some of the listed phthalates are toxic in reproduction. The listed phthalates are based on those which have been restricted in some regulations (for example, in the European Union).

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Textiles — Determination of the phthalate content — Tetrahydrofuran method

WARNING — This document calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage. It has been assumed in the drafting of this document that the execution of its provisions is entrusted to appropriately qualified and experienced operators.

1 Scope

This document specifies a method of determining phthalates in textiles with gas chromatography–mass spectrometry (GC-MS).

This document is applicable to textile products where there is a risk of the presence of some phthalates.

2 Normative references

There are no normative references in this document.

3 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
plasticized material
plastic material that is treated with chemicals to make it more flexible

Note 1 to entry: For this specific document, the chemicals are phthalates.

EXAMPLE Examples of plastic material: coating, pigment print binder, etc.

3.2
overall treated
with a continuous finish, coating or print

3.3
locally treated
with a discontinuous finish, coating or print

3.4
representative specimen
specimen obtained by mixing pieces of all the different treated parts and colours

4 Principle

The phthalates are extracted from textile specimen by ultrasonic bath with tetrahydrofuran. As the plastic polymer is partially or completed dissolved, the phthalate extraction is followed by the

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