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Leather — Chemical tests — Guidelines for testing critical chemicals in leather

Cuir — Essais chimiques — Lignes directrices pour les essais de produits chimiques critiques sur le cuir

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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 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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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.

IULTCS, originally formed in 1897, is a world-wide organization of professional leather societies to further the advancement of leather science and technology. IULTCS has three Commissions, which are responsible for establishing international methods for the sampling and testing of leather. ISO recognizes IULTCS as an international standardizing body for the preparation of test methods for leather.

This document was prepared by the Chemical Tests Commission of the International Union of Leather Technologists and Chemists Societies (IUC Commission, IULTCS), in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 289, *Leather*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20137:2017), which has been technically revised.

The main changes are as follows:

— testing standards updated;

— new substances added in Table 1 (bisphenols, glutaraldehyde);

— new substance added in Table 3 (brominated flame retardants);

— new Tables A.3 and A.5 added to 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

0.1 General

This document is intended to provide an overview of chemical test methods for the leather industry. It can be used by those involved in setting specifications for leather, especially for those parameters relating to restricted chemical substances.

Regulations restrict the use of certain chemicals in consumer products. The leather industry has already taken action by replacing restricted substances or assuming the limits imposed by these restrictions. Many brand-name manufacturers require certificates of compliance from their suppliers but too often these refer to analytical methods from other industries that are not suitable for use in testing leather.

Through the collaboration of IULTCS and CEN/TC 289, a considerable number of leather-specific International and European standard test methods have been developed for the chemical analysis of leather. The International Standards are tested by interlaboratory studies, have been proven scientifically valid and are subjected to updating processes according to ISO protocols.

0.2 Chemical analysis of leather

Leather is a complex substrate to chemically analyse. After tanning, leather typically undergoes wet-processing in aqueous media at low temperatures (<60 °C) and in an acid pH range of 3,5 to 5,5. The characteristic properties of leather are achieved by mostly using a range of anionic retanning agents (natural and/or synthetic), polymers and oils, as well as anionic dyes for achieving the required colour. In analytical procedures, when leather is extracted, some of these substances can be removed and make a complex matrix for the analysis. This should be considered when establishing quantification limits for leather analyses. Too often, unrealistic limits established in aqueous solutions, for example waste water analysis, are quoted in specifications for leather.

This document gives an overview of those internationally accepted chemical test methods established specifically for leather.

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Leather — Chemical tests — Guidelines for testing critical chemicals in leather

1 Scope

This document provides lists of chemicals that have already been detected in leather and guidelines for applying the available chemical test methods for leather. This information can be used by those involved in setting specifications for leather, especially for those parameters relating to restricted chemical substances.

Generic lists of restricted chemicals used on the market contain many substances that are not relevant to the leather industry. Those chemical substances that are not mentioned in this document do not need to be determined, thus avoiding unnecessary analytical costs.

NOTE Due to the constantly changing legal requirements and toxicological evaluation of chemical substances, this document cannot address all potentially critical substances.

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 15115, *Leather — Vocabulary*

EN 15987, *Leather — Terminology — Key definitions for the leather trade*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15115 and EN 15987 apply.

ISO and IEC maintain terminology 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/

4 Chemical substances potentially found in leather

4.1 Chemical test methods for substances used by the leather industry with no current legal restrictions for leather

Table 1 includes those chemical substances conventionally used in the various leather manufacturing processes worldwide. While not currently legally restricted (as of May 2023), some of these substances can be restricted in specifications for the final leather article.

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