



SLOVENSKI STANDARD
SIST EN ISO 23702-1:2023

01-september-2023

Usnje - Per- in polifluoroalkil snovi - 1. del: Določevanje nehlapnih spojin z metodo ekstrakcije z uporabo tekoče kromatografije (ISO 23702-1:2023)

Leather - Per- and polyfluoroalkyl substances - Part 1: Determination of non-volatile compounds by extraction method using liquid chromatography (ISO 23702-1:2023)

Leder - Per- und Polyfluoralkylsubstanzen - Teil 1: Bestimmung von nichtflüchtigen Verbindungen durch Extraktion mit Flüssigchromatographie (ISO 23702-1:2023)

Cuir - Substances perfluoroalkylées et polyfluoroalkylées - Partie 1: Détermination des composés non volatils par une méthode d'extraction utilisant la chromatographie en phase liquide (ISO 23702-1:2023)

Ta slovenski standard je istoveten z: EN ISO 23702-1:2023

ICS:

59.140.30 Usnje in krzno Leather and furs

SIST EN ISO 23702-1:2023 en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 23702-1

June 2023

ICS 59.140.30

Supersedes EN ISO 23702-1:2018

English Version

**Leather - Per- and polyfluoroalkyl substances - Part 1:
Determination of non-volatile compounds by extraction
method using liquid chromatography (ISO 23702-1:2023)**

Cuir - Substances perfluoroalkylées et
polyfluoroalkylées - Partie 1: Détermination des
composés non volatils par une méthode d'extraction
utilisant la chromatographie en phase liquide (ISO
23702-1:2023)

Leder - Per- und Polyfluoralkylsubstanzen - Teil 1:
Bestimmung von nichtflüchtigen Verbindungen durch
Extraktion mit Flüssigchromatographie (ISO 23702-
1:2023)

This European Standard was approved by CEN on 19 June 2023.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Türkiye and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 23702-1:2023

<https://standards.iteh.ai/catalog/standards/sist/b01d5cb6-6f41-41fb-9a75-610f345e7627/sist-en-iso-23702-1-2023>

European foreword

This document (EN ISO 23702-1:2023) has been prepared by Technical Committee ISO/IULTCS "International Union of Leather Technologists and Chemists Societies" in collaboration with Technical Committee CEN/TC 289 "Leather" the secretariat of which is held by UNI.

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 December 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.

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 ISO 23702-1:2018.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Türkiye and the United Kingdom.

(standards.iteh.ai)

Endorsement notice

SIST EN ISO 23702-1:2023

The text of ISO 23702-1:2023 has been approved by CEN as EN ISO 23702-1:2023 without any modification.

INTERNATIONAL
STANDARD

ISO
23702-1

IULTCS
IUC 39-1

Second edition
2023-06

**Leather — Per- and polyfluoroalkyl
substances —**

**Part 1:
Determination of non-volatile
compounds by extraction method
using liquid chromatography**

Cuir — Substances perfluoroalkylées et polyfluoroalkylées —

*Partie 1: Détermination des composés non volatils par une méthode
d'extraction utilisant la chromatographie en phase liquide*

SIST EN ISO 23702-1:2023

<https://standards.iteh.ai/catalog/standards/sist/b01d5cb6-6f41-41fb-9a75-610f345e7627/sist-en-iso-23702-1-2023>



Reference numbers
ISO 23702-1:2023(E)
IULTCS/IUC 39-1:2023(E)

ISO 23702-1:2023(E)
IULTCS/IUC 39-1:2023(E)

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 23702-1:2023

<https://standards.iteh.ai/catalog/standards/sist/b01d5cb6-6f41-41fb-9a75-610f345e7627/sist-en-iso-23702-1-2023>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Principle.....	2
5 Reagents.....	2
6 Apparatus.....	3
7 Sampling.....	4
8 Procedure.....	4
9 Expression of results.....	5
9.1 Calibration.....	5
9.2 Calculation of the result.....	5
9.3 Calculation of the results of a sum.....	5
9.4 Precision.....	6
10 Test report.....	6
Annex A (informative) PFAS substance categories and applications.....	7
Annex B (informative) PFAS regulated substances.....	8
Annex C (informative) PFAS non-regulated substances.....	11
Annex D (informative) Usable ions and possible quantification limits for PFAS analysis by LC-MS/MS.....	12
Annex E (informative) LC-MS/MS chromatographic conditions.....	14
Annex F (informative) Interferences.....	22
Annex G (informative) Accuracy.....	23
Bibliography.....	25

ISO 23702-1:2023(E)
IULTCS/IUC 39-1:2023(E)

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 Test 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 23702-1:2018), which has been technically revised.

The main changes are as follows:

- to clarify the relevant organic fluorine compounds, the title has been modified;
- the Introduction, Scope and [Clauses 3](#) to [10](#) have been editorially and technically modified;
- the previous Clause 7 has been split into two separate clauses, [Clause 7](#), “Sampling”, and [Clause 8](#), “Procedure”;
- the previous Clause 8 is now [Clause 9](#), “Expression of results” and includes the previous Clause 9, “Precision”, as [9.4](#);
- a new [Annex A](#), listing the category of application of the per- and polyfluoroalkyl substances (PFAS), has been inserted and the subsequent annexes relettered accordingly;
- [Annexes B](#) and [C](#) have been technically modified and are now lists of “PFAS regulated substances” and “PFAS non-regulated substances”, respectively;

- a new [Annex D](#), listing the usable ions and possible quantification limits for PFAS analysis by LC-MS/MS, has been inserted and the subsequent annexes relettered accordingly;
- [Annex E](#) has been technically modified.

A list of all parts in the ISO 23702 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 23702-1:2023

<https://standards.iteh.ai/catalog/standards/sist/b01d5cb6-6f41-41fb-9a75-610f345e7627/sist-en-iso-23702-1-2023>

ISO 23702-1:2023(E)
IULTCS/IUC 39-1:2023(E)

Introduction

The per- and polyfluoroalkyl substances (PFAS) consists of a large group of surface active compounds. The most well-known are perfluorooctanoic sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). [Table A.1](#) presents PFAS substance categories and applications.

Perfluorooctanoic sulfonic acid (PFOS) is classified as persistent, bio-accumulative and toxic (PBT). PFOS and its salts are restricted and regulated in many countries regarding their marketing and use (see References [4] and [7]).

Perfluorooctanoic acid (PFOA) and its salts and related substances are suspected of having a similar risk profile to PFOS and are also restricted and regulated in many countries regarding their marketing and use (see Reference [4]).

Furthermore, restrictions on perfluorocarboxylic acids containing 9 to 14 carbon atoms in the chain (C₉-C₁₄ PFCAs), their salts and C₉-C₁₄ PFCA-related substances are restricted in some countries (see References [5] and [8])

A number of long-chain per- and polyfluoroalkyl compounds have been included in the EU Candidate List of Substances of Very High Concern (SVHC), which is available at: <https://echa.europa.eu/candidate-list-table>.^[6]

The regulatory thresholds for restricted per- and polyfluoroalkyl compounds limit their use to a level below which they cannot be meaningfully used. The thresholds must take into consideration the possible presence of unavoidable impurities and unintentional trace contaminants.

The long-chain, fully fluorinated anions are non-volatile. They are heat-stable and resistant to breaking down in the environment. The per- and polyfluoroalkyl compounds have been widely used in many industries, including in oil-, soil- and water-repellent finishes for textiles, leather products, paper, furniture and carpets.

[SIST EN ISO 23702-1:2023](https://standards.iteh.ai/catalog/standards/sist/b01d5cb6-6f41-41fb-9a75-610f345e7627/sist-en-iso-23702-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/b01d5cb6-6f41-41fb-9a75-610f345e7627/sist-en-iso-23702-1-2023>