



NSAI
Standards

Irish Standard
I.S. EN ISO 19577:2019

Footwear - Critical substances potentially present in footwear and footwear components - Determination of Nitrosamines (ISO 19577:2019)

I.S. EN ISO 19577:2019

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National Foreword

I.S. EN ISO 19577:2019 is the adopted Irish version of the European Document EN ISO 19577:2019, Footwear - Critical substances potentially present in footwear and footwear components - Determination of Nitrosamines (ISO 19577:2019)

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EUROPEAN STANDARD

EN ISO 19577

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2019

ICS 61.060

English Version

**Footwear - Critical substances potentially present in
footwear and footwear components - Determination of
Nitrosamines (ISO 19577:2019)**

Chaussure - Substances critiques potentiellement
présentes dans les chaussures et les composants de
chaussure - Détermination des nitrosamines (ISO
19577:2019)

Schuhe - Möglicherweise in Schuhen oder
Schuhbestandteilen vorhandene kritische Substanzen -
Bestimmung von Nitrosaminen (ISO 19577:2019)

This European Standard was approved by CEN on 9 November 2019.

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European foreword

This document (EN ISO 19577:2019) has been prepared by Technical Committee ISO/TC 216 "Footwear" in collaboration with Technical Committee CEN/TC 309 "Footwear" the secretariat of which is held by UNE.

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of an identical text or by endorsement, at the latest by June 2020, and conflicting national standards shall be withdrawn at the latest by June 2020.

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.

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Endorsement notice

The text of ISO 19577:2019 has been approved by CEN as EN ISO 19577:2019 without any modification.

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INTERNATIONAL STANDARD

ISO
19577

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2019-11

Footwear — Critical substances potentially present in footwear and footwear components — Determination of Nitrosamines

*Chaussure — Substances critiques potentiellement présentes dans
les chaussures et les composants de chaussure — Détermination des
nitrosamines*



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ISO 19577:2019(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).

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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*.

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.

Footwear — Critical substances potentially present in footwear and footwear components — Determination of Nitrosamines

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.

1 Scope

This document specifies a method for the determination of the content of 12 kinds of Nitrosamines (see [Annex A](#)) in footwear and footwear components by using solvent extraction and Gas chromatography with mass selective detector (GC-MS).

This document is applicable to rubber in footwear materials.

NOTE ISO/TR 16178 defines which materials are concerned by this determination.

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 4787, *Laboratory glassware — Volumetric instruments — Methods for testing of capacity and for use*

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

Extract Nitrosamines in the sample with methanol using an ultrasonic bath. The extract is concentrated in a rotary vacuum evaporator and purified by passing through C₁₈ solid-phase separation column. The Nitrosamines in test solutions are analysed by GC-MS, using full scan detection mode for qualitative analysis and selected ion monitoring (SIM) mode for quantitative analysis with an external standard solution.

5 Reagents and materials

Unless otherwise specified, all the reagents used are chromatographic grade.

5.1 Methanol, CAS number: 67-56-1.

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