

TNI	<p style="text-align: center;">Obuv Kritické látky potenciálne prítomné v obuvi a v dielcoch obuvi Zoznam kritických chemických látok (ISO/TR 16178: 2021)</p>	<p style="text-align: center;">TNI CEN ISO/TR 16178</p>
		79 5903

Footwear - Critical substances potentially present in footwear and footwear components - Lists of critical chemical substances (ISO/TR 16178:2021)

Táto technická normalizačná informácia obsahuje anglickú verziu CEN ISO/TR 16178:2021, ISO/TR 16178:2021.

This Technical standard information includes the English version of CEN ISO/TR 16178:2021, ISO/TR 16178:2021.

Táto technická normalizačná informácia bola označená vo Vestníku ÚNMS SR č. 01/22

Označením tohto dokumentu sa ruší
TNI CEN ISO/TR 16178 (79 5903) z januára 2013

134006

TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CEN ISO/TR 16178

October 2021

ICS 61.060

Supersedes CEN ISO/TR 16178:2012

English Version

**Footwear - Critical substances potentially present in
footwear and footwear components - Lists of critical
chemical substances (ISO/TR 16178:2021)**

Chaussures - Substances critiques potentiellement
présentes dans la chaussure et les composants de
chaussures - Listes des substances chimiques critiques
(ISO/TR 16178:2021)

Schuhe - Möglicherweise in Schuhen und
Schuhbestandteilen vorhandene kritische Substanzen
(ISO/TR 16178:2021)

This Technical Report was approved by CEN on 26 July 2021. It has been drawn up by the Technical Committee CEN/TC 309.

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, Turkey 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

CEN ISO/TR 16178:2021 (E)**Contents**

Page

European foreword.....	3
-------------------------------	----------

European foreword

This document (CEN ISO/TR 16178:2021) 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.

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 CEN ISO/TR 16178:2012.

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.

Endorsement notice

The text of ISO/TR 16178:2021 has been approved by CEN as CEN ISO/TR 16178:2021 without any modification.

TECHNICAL REPORT

**ISO/TR
16178**

Third edition
2021-09

Footwear — Critical substances potentially present in footwear and footwear components — Lists of critical chemical substances

*Chaussures — Substances critiques potentiellement présentes dans la
chaussure et les composants de chaussures — Listes des substances
chimiques critiques*



Reference number
ISO/TR 16178:2021(E)

ISO/TR 16178:2021(E)**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021

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	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Presence of chemicals in footwear materials	2
5 Critical substances potentially present in footwear and footwear components	8
5.1 Acrylonitrile	8
5.1.1 General	8
5.1.2 Potential risks	8
5.1.3 Test methods	8
5.2 Alkylphenols and Alkylphenol ethoxylates (NP, OP, NPEO, OPEO)	8
5.2.1 General	8
5.2.2 Potential risks	9
5.2.3 Test methods	9
5.3 Aromatic amines	10
5.3.1 General	10
5.3.2 Potential risks	11
5.3.3 Test methods	11
5.4 Benzene	11
5.4.1 General	11
5.4.2 Potential risks	11
5.4.3 Test methods	11
5.5 Biocides	12
5.5.1 Orthophenylphenol	12
5.5.2 2-(thiocyanatomethylthio)-1,3-benzothiazole (TCMTB)	12
5.5.3 2-octylisothiazol-3(2H)-one (OIT)	13
5.5.4 4-Chloro-3-methylphenol (CMK)	13
5.5.5 Triclosan	14
5.6 Bisphenol	15
5.6.1 General	15
5.6.2 Potential risks	15
5.6.3 Test methods	15
5.7 Cadmium – Cd	15
5.8 Chlorinated paraffins	15
5.8.1 General	15
5.8.2 Potential risks	16
5.8.3 Test methods	16
5.9 Chlorobenzenes and chlorotoluenes	16
5.9.1 General	16
5.9.2 Potential risks	17
5.9.3 Test methods	17
5.10 Chromium and Chromium VI	17
5.11 Colophony	18
5.11.1 General	18
5.11.2 Potential risks	18
5.11.3 Test methods	18
5.12 Dimethylformamide	18
5.12.1 General	18
5.12.2 Potential risks	19
5.12.3 Test methods	19
5.13 Dimethylfumarate (DMFu)	19
5.13.1 General	19
5.13.2 Potential risks	19

ISO/TR 16178:2021(E)

5.13.3	Test methods	20
5.14	Disperses dyes	20
5.14.1	General	20
5.14.2	Potential risks	21
5.14.3	Test methods	21
5.15	Flame retardants	21
5.15.1	General	21
5.15.2	Potential risks	22
5.15.3	Test methods	22
5.16	Formaldehyde	22
5.16.1	General	22
5.16.2	Potential risks	22
5.16.3	Test methods	23
5.17	Heavy metals	23
5.17.1	General	23
5.17.2	List of heavy metals	23
5.17.3	Potential risks	23
5.17.4	Test methods	25
5.17.5	Special cases	25
5.18	Mercaptobenzothiazole	26
5.18.1	General	26
5.18.2	Potential risks	27
5.18.3	Test methods	27
5.19	N-ethylphenylamine	27
5.19.1	General	27
5.19.2	Potential risks	27
5.19.3	Test methods	27
5.20	N methyl-2-pyrrolidone (NMP)	27
5.20.1	General	27
5.20.2	Potential risks	28
5.20.3	Test methods	28
5.21	N,N-dimethylacetamide	28
5.21.1	General	28
5.21.2	Potential risks	28
5.21.3	Test methods	28
5.22	Nickel – Ni	28
5.23	Nitrosamines	28
5.23.1	General	28
5.23.2	Potential risks	29
5.23.3	Test methods	29
5.24	Organotins compounds	29
5.24.1	General	29
5.24.2	Potential risks	30
5.24.3	Test methods	30
5.25	PAHs (Polycyclic aromatic hydrocarbons)	31
5.25.1	General	31
5.25.2	Potential risks	31
5.25.3	Test methods	32
5.26	Paraphenylenediamine	32
5.26.1	General	32
5.26.2	Potential risks	32
5.26.3	Test methods	32
5.27	Pesticides	32
5.27.1	General	32
5.27.2	Potential risks	32
5.27.3	Test methods	33
5.28	Perfluorinated and polyfluorinated chemicals-PFC	33
5.28.1	Different substances	33

5.29	5.28.2 Potential risks.....	36
	pH	36
	5.29.1 General.....	36
	5.29.2 Potential risks.....	37
	5.29.3 Test methods.....	37
5.30	Phenol.....	37
	5.30.1 General.....	37
	5.30.2 Potential risks.....	37
	5.30.3 Test methods.....	37
5.31	Phenyl mercury	37
	5.31.1 General.....	37
	5.31.2 Potential risks.....	38
	5.31.3 Test methods.....	38
5.32	Phthalates	38
	5.32.1 General.....	38
	5.32.2 Potential risks.....	40
	5.32.3 Test methods.....	40
5.33	Polychlorophenols	40
	5.33.1 General.....	40
	5.33.2 Potential risks.....	42
	5.33.3 Test methods.....	42
5.34	Paratertiary butyl phenol formaldehyde (PTBF)	42
	5.34.1 General.....	42
	5.34.2 Potential risks.....	42
	5.34.3 Test methods.....	42
5.35	Quinoline.....	42
	5.35.1 General.....	42
	5.35.2 Potential risks.....	43
	5.35.3 Test methods.....	43
5.36	Thiuram and thiocarbamate.....	43
	5.36.1 General.....	43
	5.36.2 Potential risks.....	43
	5.36.3 Test methods.....	43
5.37	Volatile organic compounds (VOC).....	44
	5.37.1 General.....	44
	5.37.2 Potential risks.....	44
	5.37.3 Test methods.....	44
	Bibliography	46

ISO/TR 16178:2021(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.

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 third edition cancels and replaces the second edition (ISO/TR 16178:2012), which has been technically revised.

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

- new [Table 1](#) including a new system of grading;
- withdrawn substances:
proteins in latex, substances destroying ozone layer, polychlorobiphenyls, polychloroprene, vinyl chloride;
- added substances:
benzene, bisphenol, NMP, DMAC, phenyl mercury, quinoline, VOC;
- biocides are grouped together (CMK, OIT, OPP, TCMTB);
- Annex A is now in ISO 21061^[67];
- Annex B is now [Clause 5](#);
- bibliography, updated.

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 — Lists of critical chemical substances

1 Scope

This document defines lists of critical chemical substances potentially present in footwear and footwear components.

This document describes the critical chemical substances, their potential risks of nocuousness, in which materials they could be found, and which test method(s) can be used to quantify them.

The test methods listed indicate the state of the art. For some substances, a test method is not available.

This document is applicable to any kind of footwear and footwear components.

2 Normative references

There are no normative references in this document.

koniec náhľadu – text d'alej pokračuje v platenej verzii STN