



SLOVENSKI STANDARD
SIST EN ISO/ASTM 52933:2024

01-september-2024

Aditivna proizvodnja - Okolje, zdravje in varnost - Preskusna metoda za oceno emisije nevarnih snovi iz 3D tiskalnikov za iztiskanje materiala v neindustrijskih prostorih (ISO/ASTM 52933:2024)

Additive manufacturing - Environment, health and safety - Test method for the hazardous substances emitted from material extrusion type 3D printers in the non-industrial places (ISO/ASTM 52933:2024)

Additive Fertigung - Umwelt, Gesundheit und Sicherheit - Prüfverfahren für die gefährlichen Stoffe, die von 3D-Druckern mit Materialeextrusion in nicht-industriellen Bereichen emittiert werden (ISO/ASTM 52933:2024)

Fabrication additive - Environnement, santé et sécurité - Méthode d'essai pour les substances dangereuses émises par les imprimantes 3D de type à extrusion de matière dans les lieux non industriels (ISO/ASTM 52933:2024)

<https://standards.iteh.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024>

Ta slovenski standard je istoveten z: EN ISO/ASTM 52933:2024

ICS:

13.040.30	Kakovost zraka na delovnem mestu	Workplace atmospheres
13.100	Varnost pri delu. Industrijska higiena	Occupational safety. Industrial hygiene
25.030	3D-tiskanje	Additive manufacturing

SIST EN ISO/ASTM 52933:2024 en,fr,de

EUROPEAN STANDARD

EN ISO/ASTM 52933

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2024

ICS 13.040.30; 13.100; 25.030

English Version

Additive manufacturing - Environment, health and safety -
Test method for the hazardous substances emitted from
material extrusion type 3D printers in the non-industrial
places (ISO/ASTM 52933:2024)

Fabrication additive - Environnement, santé et sécurité
- Méthode d'essai pour les substances dangereuses
émises par les imprimantes 3D de type à extrusion de
matière dans les lieux non industriels (ISO/ASTM
52933:2024)

Additive Fertigung - Umwelt, Gesundheit und
Sicherheit - Prüfverfahren für die gefährlichen Stoffe,
die von 3D-Druckern mit Materialeextrusion in nicht-
industriellen Bereichen emittiert werden (ISO/ASTM
52933:2024)

This European Standard was approved by CEN on 20 March 2024.

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 Standards
(<https://standards.itih.ai>)
Document Preview

[SIST EN ISO/ASTM 52933:2024](https://standards.itih.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024)

<https://standards.itih.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024>

European foreword

This document (EN ISO/ASTM 52933:2024) has been prepared by Technical Committee ISO/TC 261 "Additive manufacturing" in collaboration with Technical Committee CEN/TC 438 "Additive Manufacturing" the secretariat of which is held by AFNOR.

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 September 2024, and conflicting national standards shall be withdrawn at the latest by September 2024.

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.

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.

iTeh Standards
(<https://standards.iteh.ai>)
Endorsement notice

The text of ISO/ASTM 52933:2024 has been approved by CEN as EN ISO/ASTM 52933:2024 without any modification.

[SIST EN ISO/ASTM 52933:2024](https://standards.iteh.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024)

<https://standards.iteh.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024>



International Standard

ISO/ASTM 52933

Additive manufacturing — Environment, health and safety — Test method for the hazardous substances emitted from material extrusion type 3D printers in the non-industrial places

*Fabrication additive — Environnement, santé et sécurité —
Méthode d'essai pour les substances dangereuses émises par les
imprimantes 3D de type à extrusion de matière dans les lieux non
industriels*

**First edition
2024-03**

<https://standards.iteh.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024>

ISO/ASTM 52933:2024(en)

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN ISO/ASTM 52933:2024](https://standards.iteh.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024)

<https://standards.iteh.ai/catalog/standards/sist/ed22fed3-371d-450d-a620-aef7e3b34f74/sist-en-iso-astm-52933-2024>

**COPYRIGHT PROTECTED DOCUMENT**

© ISO/ASTM International 2024

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. In the United States, such requests should be sent to ASTM International.

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

ASTM International
100 Barr Harbor Drive, PO Box C700
West Conshohocken, PA 19428-2959, USA
Phone: +610 832 9634
Fax: +610 832 9635
Email: khooper@astm.org
Website: www.astm.org

© ISO/ASTM International 2024 – All rights reserved

ISO/ASTM 52933:2024(en)**Contents**

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Hazardous substance targets and major factors	3
5 Relevant test standards	3
6 Sampling conditions	4
6.1 Sampling location.....	4
6.2 Sampling planning.....	4
7 Measurement methods	6
7.1 Active and time-integrated methods.....	6
7.1.1 Purpose.....	6
7.1.2 VOCs analysis.....	6
7.1.3 Aldehyde method.....	9
7.2 Real-time method.....	11
7.2.1 Purpose.....	11
7.2.2 Sampling.....	11
7.2.3 Determination of particles concentration.....	11
8 Test report	13
Annex A (informative) Considerations for reducing the emission of hazardous substances	15
Annex B (informative) Checklist for reduction of hazardous substances	22
Bibliography	23

[SIST EN ISO/ASTM 52933:2024](https://standards.iteh.ai/catalog/standards/sist/en-iso-astm-52933-2024)

<https://standards.iteh.ai/catalog/standards/sist/en-iso-astm-52933-2024>

ISO/ASTM 52933:2024(en)

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had/had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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.

The committee responsible for this document is ISO/TC 261, *Additive manufacturing*, in cooperation with ASTM Committee F42, *Additive Manufacturing Technologies*, on the basis of a partnership agreement between ISO and ASTM International with the aim to create a common set of ISO/ASTM standards on Additive Manufacturing, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 438, *Additive manufacturing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

ISO/ASTM 52933:2024(en)**Introduction**

This document refers to the assessment of hazardous substances emitted during operation of material extrusion type AM machines, commonly known as “3D printers” installed in schools or public places for educational and hands-on purposes, and basic countermeasures for reducing the substances.

This document provides the necessary information and test procedures to reflect the characteristics of the AM process based on the previous international standards related to indoor air quality and to assess hazardous substances in the non-industrial places.

Operator, supervisor, and manager who are working at the non-industrial places will be able to use this document to measure and diagnose air quality. This document also includes appendices to help them try to reduce the hazardous substances emitted into the non-industrial spaces.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN ISO/ASTM 52933:2024](https://standards.iteh.ai/catalog/standards/sist/en-iso-astm-52933-2024)

<https://standards.iteh.ai/catalog/standards/sist/en-iso-astm-52933-2024>