

SLOVENSKI STANDARD SIST EN ISO/ASTM 52928:2025

01-marec-2025

Dodajalna izdelava kovinskih izdelkov - Surovine - Obvladovanje življenjskega cikla prahu (ISO/ASTM 52928:2024)

Additive manufacturing of metals - Feedstock materials - Powder life cycle management (ISO/ASTM 52928:2024)

Additive Fertigung von Metallen - Ausgangsmaterialien - Steuerung des Lebenszyklus von Pulvern (ISO/ASTM 52928:2024)

Fabrication additive de métaux - Matières premières - Gestion du cycle de vie de la poudre (ISO/ASTM 52928:2024)

Ta slovenski standard je istoveten z: EN ISO/ASTM 52928:2024

ICS:

25.030 3D-tiskanje Additive manufacturing

SIST EN ISO/ASTM 52928:2025 en,fr,de

SIST EN ISO/ASTM 52928:2025

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

SIST EN ISO/ASTM 52928:2025

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN ISO/ASTM 52928

May 2024

ICS 25.030

English Version

Additive manufacturing of metals - Feedstock materials - Powder life cycle management (ISO/ASTM 52928:2024)

Fabrication additive de métaux - Matières premières -Gestion du cycle de vie de la poudre (ISO/ASTM 52928:2024) Additive Fertigung von Metallen - Ausgangsmaterialien - Steuerung des Lebenszyklus von Pulvern (ISO/ASTM 52928:2024)

This European Standard was approved by CEN on 17 May 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.

SIST EN ISO/ASTM 52928:2025

https://standards.iteh.ai/catalog/standards/sist/9b2dd610-23b9-42f7-80f6-337f34c48bcd/sist-en-iso-astm-52928-202



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

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

EN ISO/ASTM 52928:2024 (E)

Contents	Page
European foreword	3

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

SIST EN ISO/ASTM 52928:2025

European foreword

This document (EN ISO/ASTM 52928:2024) 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 November 2024, and conflicting national standards shall be withdrawn at the latest by November 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.

Endorsement notice

The text of ISO/ASTM 52928:2024 has been approved by CEN as EN ISO/ASTM 52928:2024 without any modification.

SIST EN ISO/ASTM 52928:2025

SIST EN ISO/ASTM 52928:2025

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

SIST EN ISO/ASTM 52928:2025



International Standard

ISO/ASTM 52928

First edition

2024-05

Additive manufacturing of metal — Feedstock materials — Powder life cycle management

Fabrication additive de métaux — Matières premières — Gestion additive de la poudre

(https://standards.iteh.ai)
Document Preview

SIST EN ISO/ASTM 52928: 2025

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

SIST EN ISO/ASTM 52928:2025

https://standards.iteh.ai/catalog/standards/sist/9b2dd610-23b9-42f7-80f6-337f34c48bcd/sist-en-iso-astm-52928-2025



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

Contents		Page	
Fore	word		v
Intro	oductio	on	vi
1	Scon	oe	1
2	-	native references	
_			
3		ns and definitions	
4		bols and abbreviations	
5		der properties	
	5.1	General	
	5.2	Particle size distribution	
		5.2.1 General	
		5.2.3 Laser diffraction and light scattering	
		5.2.5 Light or scanning electron microscopy (SEM) images	
	5.3	Chemical composition	
	5.5	5.3.1 General	
		5.3.2 Combustion methods	
		5.3.3 Flame AAS	
		5.3.4 X-ray fluorescence spectroscopy (XRF)	
		5.3.5 Inductively coupled plasma optical emission spectrometry (ICP-OES)	
		5.3.6 Energy-dispersive X-ray spectroscopy (EDX)	
	5.4	Characteristic densities	
		5.4.1 General	8
		5.4.2 Apparent density/ Standard U.S. 10611	8
		5.4.3 Tap density	8
		5.4.4 Skeletal (true) density	8
		5.4.5 Packing behaviour	
	5.5	Determination of powder density	
		5.5.1 Determination of the closed porosity of particles via indirect methods	
		11 5.5.2 a Gas pycnometry 150 962 dd6 10 - 23 69 - 42 17 - 80 16 - 33 / 13 4 c 48 6 c d/sist - en - iso - as	
		5.5.3 Metallographic section with porosity analysis	
	5.6	Shape and morphology	
		5.6.1 General	
		5.6.2 Image analysis	
		5.6.3 Scanning electron microscopy (SEM) images	11
		5.6.4 Light microscopy images	12
	5.7	Flowability	
	3.7	5.7.1 General	
		5.7.2 Determination of flow rate	
		5.7.3 Measuring the angle of repose	
		5.7.4 Ring shear test method	
		5.7.5 Rotating drum with dynamic image analysis	13
		5.7.6 Powder rotational rheometer	13
		5.7.7 Hausner ratio (ratio of tapped to bulk density)	13
	5.8	Contamination	
		5.8.1 Moisture content	
		5.8.2 Impurities	
		5.8.3 O/H content	
		5.8.4 N content	15
	5.9	Absorption rate of the powder	
		5.9.1 General	
		5.9.2 Diffuse reflectance infrared Fourier transform (DRIFTS)	15

6	Powder life cycle		
	6.1	Batch requirement	
		6.1.1 General	16
		6.1.2 Specification	16
		6.1.3 Batch	16
		6.1.4 Blend	16
		6.1.5 Powder mix	16
		6.1.6 Combine	16
		6.1.7 Reuse metric	
	6.2	Traceability	17
		6.2.1 General	
		6.2.2 Event history	17
		6.2.3 Powder state	
		6.2.4 Labelling	17
	6.3	Handling	
		6.3.1 General	
		6.3.2 Storage	18
		6.3.3 Transfer	
		6.3.4 Repacking	19
	6.4	Recycling/reuse of feedstock	19
	6.5	Disposal	19
7	Powder quality assurance		20
	7.1	Documentation requirements	
	7.2	Certificate of analysis (CoA)	
	7.3	Sampling	20
		7.3.1 General remarks	20
		7.3.2 Characterization of virgin powder and powder blends	21
		7.3.3 Characterization of used powder	22
	7.4	Powder analysis test methods	22
	7.5	Monitoring and control of the environment	
	7.6	Test frequency Document Preview	
Bibli	Bibliography		

SIST EN ISO/ASTM 52928:2025

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).

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 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.

This document was prepared by Technical Committee 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, and 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.