AS ISO/ASTM 52907:2021
ISO/ASTM 52907:2019

Australian STANDARD®

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Additive manufacturing — Feedstock materials — Methods to characterize metal powders



AS ISO/ASTM 52907:2021

This Australian Standard ® was prepared by MB-028, Additive Manufacturing. It was approved on behalf of the Council of Standards Australia on 16 April 2021.

This Standard was published on 21 May 2021.

The following are represented on Committee MB-028:

Australian Automotive Aftermarket Association
Australian Manufacturing Technology Institute
Austroads
Charles Darwin University
Engineers Australia
Materials Australia
NSW Government
RMIT University
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This Standard was issued in draft form for comment as DR AS ISO/ASTM 52907:2021.

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ISBN 978 1 76113 305 3

AS ISO/ASTM 52907:2021
ISO/ASTM 52907:2019

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First published as AS ISO/ASTM 52907:2021.

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Preface

This Standard was prepared by the Standards Australia Committee MB-028, Additive Manufacturing.

The objective of this document is to provide technical specifications for metallic powders intended to be used in additive manufacturing and covers the following aspects:

(a) Documentation and traceability.

(b) Sampling.

(c) Particle size distribution.

(d) Chemical composition.

(e) Characteristic densities.

(f) Morphology.

(g) Flowability.

(h) Contamination.

(i) Packaging and storage.

This document does not deal with safety aspects.

In addition, this document gives specific requirements for used metallic powders in additive manufacturing.

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Foreword

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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 ISO/TC 261, *Additive manufacturing*, in cooperation with ASTM F 42, *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.

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.

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Introduction

The document aims to simplify the relation between the supplier and the customer for the supply of metallic powder for additive manufacturing purpose whatever the process involved.

The document does not aim to develop new standards but provides a list of existing standards dedicated to metallic powder that are suitable for additive manufacturing.

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NOTES

Australian Standard®

Additive manufacturing — Feedstock materials — Methods to characterize metal powders

1 Scope

This document provides technical specifications for metallic powders intended to be used in additive manufacturing and covers the following aspects:

— documentation and traceability;

— sampling;

— particle size distribution;

— chemical composition;

— characteristic densities;

— morphology;

— flowability;

— contamination;

— packaging and storage.

This document does not deal with safety aspects.

In addition, this document gives specific requirements for used metallic powders in additive manufacturing.

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 2591-1, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

ISO 3252, *Powder metallurgy — Vocabulary*

ISO 3923-1, *Metallic powders — Determination of apparent density — Part 1: Funnel method*

ISO 3923-2, *Metallic powders — Determination of apparent density — Part 2: Scott volumeter method*

ISO 3953, *Metallic powders — Determination of tap density*

ISO 3954, *Powders for powder metallurgical purposes — Sampling*

ISO 4497, *Metallic powders — Determination or particle size by dry sieving*

ISO 13320, *Particle size analysis — Laser diffraction methods*

ISO 13322-1, *Particle size analysis — Image analysis methods — Part 1: Static image analysis methods*

ISO 13322-2, *Particle size analysis — Image analysis methods — Part 2: Dynamic image analysis methods*

ISO 22412, *Particle size analysis — Dynamic light scattering (DLS)*

ISO/ASTM 52900, *Additive manufacturing — General principles — Fundamentals and vocabulary*

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