
Thermal spraying — Powders —
Part 1:
Characterization and technical supply
conditions

Projection thermique — Poudres —

Partie 1: Caractérisation et conditions techniques de livraison





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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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

This first edition of ISO 14232-1, together with ISO/TR 14232-2, cancels and replaces ISO 14232:2000.

A list of all parts in the ISO 14232 series can be found on the ISO website.

Introduction

For thermal spray processes that use material in a powder form, the powder can be considered as one of the main elements requiring control to produce an acceptable coating. The chemical and physical properties of powder play a fundamental role in the creation of desired coating properties. The size, shape and morphology of the powder particles determine the melting behaviour and therefore the processing of powders in general.

To keep the coating properties and the spray process as consistent as possible, it is very important to maintain all the characteristics of powder particles within limited tolerances.

An exception is granted to details on the properties of sprayed coatings. Such properties, which result from spraying conditions not covered by this document, e.g. gas composition, deposition efficiency, material flow rate, stand-off distance, etc., can differ greatly from the properties of the original powder.

The ISO 14232 series consists of two parts. This document examines the characterization of spray powders. ISO/TR 14232-2 is a technical report that examines how technical literature describes the application of powders.

Thermal spraying — Powders —

Part 1: Characterization and technical supply conditions

1 Scope

This document specifies measuring methods for the characterization of powders and their technical supply conditions. It is applicable to powders that are used in thermal spraying on the basis of their physical and chemical properties.

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

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

ISO 4490, *Metallic powders — Determination of flow rate by means of a calibrated funnel (Hall flowmeter)*

ISO 10474, *Steel and steel products — Inspection documents*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14917 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at <http://www.electropedia.org/>

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

particle size distribution

PSD

distribution of particle sizes in percentage within standard ranges

3.2

particle size range

range of particle sizes between an upper and lower limit

4 Properties and property determination of powders for thermal spraying

4.1 Sampling and sample splitting

Sampling and sample splitting is to be done from a homogeneous mixture uniform in particle size. Directions for adequate methods and equipment shall be as included in ISO 3954.