

Thermal spraying - Powders - Composition, technical supply conditions

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technical supply conditions

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1274:2005 sisaldab Euroopa standardi EN 1274:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 25.01.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1274:2005 consists of the English text of the European standard EN 1274:2004.</p> <p>This document is endorsed on 25.01.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This European Standard covers powders, which are currently applicable in thermal spraying on the basis of their physical and chemical properties. This European Standard specifies the composition and technical supply conditions of powders for thermal spraying.</p>	<p>Scope:</p> <p>This European Standard covers powders, which are currently applicable in thermal spraying on the basis of their physical and chemical properties. This European Standard specifies the composition and technical supply conditions of powders for thermal spraying.</p>
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Võtmesõnad:

English version

Thermal spraying - Powders - Composition, technical supply conditions

Projection thermique - Poudres - Composition, conditions techniques de livraison

Thermisches Spritzen - Pulver - Zusammensetzung, technische Lieferbedingungen

This European Standard was approved by CEN on 13 September 2004.

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Foreword

This document (EN 1274:2004) has been prepared by Technical Committee CEN/TC 240 "Thermal spraying and thermally sprayed coatings", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 1274:1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

The document has been aimed to designate the most important thermal spray-coating powders on the basis of their composition, their manufacturing process and their particle size distribution. The majority of commercially available powders is covered by and can be characterised and specified according to this document.

The document is meant to simplify understanding of the great product variety on the market for the manufacturer and user, and nevertheless offer a vast choice.

Due to the number of the spray powders referred to in this document, in some cases abbreviations are used.

Exception is granted to details on the properties of sprayed coatings. Such properties resulting 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.

Applications of powders for thermal spraying have been explicitly described in the relevant literature; therefore, a separate outline in this place is not necessary.

1 Scope

This document covers powders, which are currently applicable in thermal spraying on the basis of their physical and chemical properties. This document specifies the composition and technical supply conditions of powders for thermal spraying.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 10204, *Metallic products — Types of inspection documents*.

EN 23923-2, *Metallic powders — Determination of apparent density — Part 2: Scott volumeter method (ISO 3923-2:1981)*.

EN 23954, *Powders for powder metallurgical purposes — Sampling (ISO 3954:1977)*.

EN ISO 4490, *Metallic powders — Determination of flow time by means of a calibrated funnel (Hall flowmeter) (ISO 4490:2001)*.

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*.

3 Properties and property determination of powders for thermal spraying

3.1 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 EN 23954.

3.2 Chemical composition

The chemical composition shall be defined by any suitable testing procedure, e.g. wet chemical processes, atomic absorption spectrometry, flame emission spectroscopy, X-ray fluorescent analysis.

3.3 Particle size range

Powders for thermal spraying always show a distribution of different particle sizes. This particle size distribution (PSD) has an immense influence on the melting and the feedability the powder and thus, among other things, essential properties of the coating are assigned. The measuring of the PSD shall be made by standardised sieve analysis according to ISO 565 or better by optical measuring methods e.g. laser beam scattering because of its high accuracy and reproducibility.

Usually, the results of the different measuring procedures and also measuring devices do not coincide, even when identical powders are used. Therefore, when comparing particle size distributions or when alternating the particle size measuring procedure a correlation of the measurement results is necessary. For this reason it is essential to always indicate the measuring procedure together with the measurement results.

The minimum requirement in a powder according to this document is that it is permitted to exceed the upper limit of the PSD up to the next but one standard screen size and to under run the PSD lower limit by a maximum of 10 mass %. It should be noted, that the data for upper and lower limit depend on the chosen measuring procedure and when evaluating powders for HVOF (high velocity oxygen fuel-flame spraying)