SLOVENSKI STANDARD
oSIST prEN ISO 11124-5:2020

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Priprava jeklenih podlag pred nanašanjem barv in sorodnih premazov - Specifikacije za kovinske granulate za peskanje - 5. del: Kroglice (shot) iz jeklene žice (ISO 11124-5:2019)

Preparation of steel substrates before application of paints and related products - Specifications for metallic blast-cleaning abrasives - Part 5: Steel cut wire shot (ISO 11124-5:2019)

Vorbereitung von Stahloberflächen vor dem Auftragen von Beschichtungsstoffen - Anforderungen an metallische Strahlmittel - Teil 5: Stahldrahtschrot (ISO 11124-5:2019)

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés - Spécifications pour préparation par projection d'abrasifs métalliques - Partie 5: Fils d'acier coupés (ISO 11124-5:2019)

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Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives —

Part 5: Cut steel wire

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Spécifications pour préparation par projection d'abrasifs métalliques —
Partie 5: Fils d'acier coupés

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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).

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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 Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products*.

A list of all parts in the ISO 11124 series can be found on the ISO website.

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.

Preparation of steel substrates before application of paints and related products — Specifications for metallic blast-cleaning abrasives —

Part 5: Cut steel wire

1 Scope

This document specifies requirements for 13 grades of cut steel wire abrasives, as supplied for blast-cleaning processes. It specifies ranges of particle sizes, together with corresponding grade designations. Values are specified for hardness, density, defect/structural requirements, metallographic structure and chemical composition.

This document is suitable for cut steel wire supplied for blast-cleaning processes which is made by cutting new cold drawn wire.

The requirements specified in this document apply to abrasives manufactured from virgin wire supplied in the new and unconditioned state only. They do not apply to abrasives either during or after use.

NOTE 1 Information on commonly referenced national standards for cut steel wire abrasives and their approximate relationship with ISO 11124 is given in Annex A.

NOTE 2 Although this document has been developed specifically to meet requirements for preparation of steelwork, the properties specified will generally be appropriate for use when preparing other material surfaces, or components, using blast-cleaning techniques.

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 439, *Steel and iron — Determination of total silicon content — Gravimetric method*

ISO 629, *Steel and cast iron — Determination of manganese content — Spectrophotometric method*

ISO 4935, *Steel and iron — Determination of sulfur content — Infrared absorption method after combustion in an induction furnace*

ISO 9556, *Steel and iron — Determination of total carbon content — Infrared absorption method after combustion in an induction furnace*

ISO 10714, *Steel and iron — Determination of phosphorus content — Phosphovanadomolybdate spectrophotometric method*

ISO 11125-1, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 1: Sampling*

ISO 11125-3, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 3: Determination of hardness*

ISO 11125-4, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 4: Determination of apparent density*

ISO 11125-5, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 5: Determination of percentage defective particles and of microstructure*

ISO 11125-6, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 6: Determination of foreign matter*

ISO 11125-7, *Preparation of steel substrates before application of paints and related products — Test methods for metallic blast-cleaning abrasives — Part 7: Determination of moisture*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

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

3.1
cut steel wire
metallic blast-cleaning abrasive made by cutting cold drawn steel wire

3.2
virgin wire
wire which is unaltered from its original manufactured state, and which has not previously been used as a component in any other manufactured product or composite material

Note 1 to entry: Wire which has been previously used poses a potential risk of imparting invisible contaminants onto a prepared surface, which could have an adverse effect on the performance of subsequently applied coatings.

3.3
cylindrical
sharp-edged particles, having a diameter to length ratio of 1:1, cut so that their faces are approximately at right angles to their centreline

3.4
defect
fault or weakness in an abrasive which, if present at or above a given level, can be detrimental to the performance characteristics of the abrasive

Note 1 to entry: See Table 2.

3.5
over-length particles
particles of which the axial length to diameter ratio is equal to or greater than 2

3.6
crack
linear discontinuity that has a length-to-width ratio of 3:1 or greater, that extends over more than 20 % of the diameter or shortest dimension of a particle

3.7
foreign matter
material or particles mixed with the abrasive which are not attached to the abrasive particles and which are nonmagnetic

4 Designation of abrasives

Cut steel wire shall be identified by "Abrasive ISO 11124" and the abbreviation "M/CW", indicating metallic, cut steel wire abrasive. The symbol “C” shall follow to indicate the required cylindrical particle shape of the cut steel wire as purchased. The designation shall be completed by a 3-digit number denoting the grade, or nominal particle size, required. Grade requirements and codes are specified in Table 1. The grade code is based on the 3-digit number indicating the diameter of the wire, for each grade, expressed in millimetres ×100. If alternative hardness of abrasive is available, the particular Vickers hardness (HV) range required shall be specified (see Example 2).

EXAMPLE 1

Abrasive ISO 11124 M/CW/C100.

Denotes an abrasive of the metallic, cut steel wire type, conforming to the requirements of this document, of cylindrical particle shape and grade 100 (i.e. nominal particle size 1,00 mm).

EXAMPLE 2

Abrasive ISO 11124 M/CW/C080/570-710HV.

Denotes an abrasive of the metallic, cut steel wire type, conforming with the requirements of this document, of cylindrical particle shape and grade 080 (i.e. nominal particle size 0,80 mm), and with a hardness range of 570 HV to 710 HV.

This full product designation shall be quoted on all orders.

NOTE Annex A provides guidance on approximately equivalent grades and codings in other commonly referenced national standards for cut steel wire abrasives.

Table 1 — Mass specifications by grade — Cut steel wire

<table>
<tr><th>Grade code</th><th>Nominal size
mm</th><th>Mass of N random particles
g</th><th>Number of particles (N)</th></tr>
<tr><td>C250</td><td>2,5</td><td>4,080 to 5,620</td><td rowspan="11">N = 50</td></tr>
<tr><td>C200</td><td>2,0</td><td>2,050 to 2,920</td></tr>
<tr><td>C160</td><td>1,6</td><td>1,030 to 1,520</td></tr>
<tr><td>C140</td><td>1,4</td><td>0,680 to 1,030</td></tr>
<tr><td>C120</td><td>1,2</td><td>0,420 to 0,660</td></tr>
<tr><td>C100</td><td>1,0</td><td>0,260 to 0,400</td></tr>
<tr><td>C090</td><td>0,9</td><td>0,190 to 0,260</td></tr>
<tr><td>C080</td><td>0,8</td><td>0,130 to 0,190</td></tr>
<tr><td>C070</td><td>0,7</td><td>0,080 to 0,130</td></tr>
<tr><td>C060</td><td>0,6</td><td>0,050 to 0,080</td></tr>
<tr><td>C050</td><td>0,5</td><td>0,030 to 0,050</td></tr>
<tr><td>C040</td><td>0,4</td><td>0,030 to 0,055</td><td rowspan="2">N = 100</td></tr>
<tr><td>C030</td><td>0,3</td><td>0,010 to 0,030</td></tr>
<tr><td colspan="4">By agreement between interested, parties non-standard wire diameters can be used but mass tolerances should be established as part of the specification.</td></tr>
</table>

5 Sampling

Sampling procedures shall be as specified in ISO 11125-1.

6 Requirements for cut steel wire abrasives

The requirements for cut steel wire abrasives shall be as specified in Table 2.

Table 2 — Requirements of cut steel wire abrasives

Property	Requirement		Test method
Particle size	See Table 1		Weighing random particles to an accuracy of 0,001 g
Hardness	90 % of the particles tested shall have a hardness value within one of the ranges specified below: Standard hardnesses: 390 HV to 520 HV 470 HV to 610 HV 570 HV to 710 HV Equal or greater than 700 HV Special hardnesses: Other hardness ranges can be specified by both supply and demand sides, with a minimum of 90 % of the particles within the regulation range.		ISO 11125-3
Apparent density	Min. 7,8 × 10^3 kg/m^3 (7,8 g/cm^3)		ISO 11125-4
Defects	Defects present in the particles examined shall not exceed the following levels: Over-length particles: Max. 5 % Crack: Max. 5 % Total defects: Max. 10 % For the particles with more defects than above, the number should be calculated only once in total defects.		ISO 11125-5
Foreign matter	Max. 0,5 % (mass fraction)		ISO 11125-6
Metallographic structure	Shall be the deformed sorbite.		ISO 11125-5
Chemical composition	carbon	0,45 % (mass fraction) to 0,85 % (mass fraction)	ISO 9556
	manganese	0,30 % (mass fraction) to 1,30 % (mass fraction)	ISO 629
	silicon	0,15 % (mass fraction) to 0,35 % (mass fraction)	ISO 439
	sulfur	Max. 0,050 % (mass fraction)	ISO 4935
	phosphorus	Max. 0,040 % (mass fraction)	ISO 10714
Moisture	Max. 0,2 % (mass fraction)		ISO 11125-7
NOTE The cut steel wire abrasives can be stored indoors in dry surroundings to prevent condensation, rusting and deterioration of the abrasive, rendering it unsuitable for use.			

7 Package identification and lot traceability

All supplies shall be clearly marked and identified using the designation system specified in Clause 4. The unit of sale, i.e. commercial packaging unit, shall be clearly labelled with the full product coding, including hardness range, if applicable.

Sub-units, i.e. bags, shall be marked with the particle shape and grade codes.