SLOVENSKI STANDARD
oSIST prEN 407:2017

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Varovalne rokavice za zaščito pred toplotnimi tveganji (toplote in/ali ognja)

Protective gloves against thermal risks (heat and/or fire)

Schutzhandschuhe gegen thermische Risiken (Hitze und/oder Feuer)

Gants de protection contre les risques thermiques (chaleur et/ou feu)

Ta slovenski standard je istoveten z: **prEN 407**

ICS:

13.340.40 Varovanje dlani in rok Hand and arm protection

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Protective gloves against thermal risks (heat and/or fire)

Gants de protection contre les risques thermiques (chaleur et/ou feu)

Schutzhandschuhe gegen thermische Risiken (Hitze und/oder Feuer)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 162.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 407:2017) has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and lifejackets”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 407:2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Regulation, see informative Annex ZA, which is an integral part of this document.

1 Scope

This European Standard specifies requirements, test methods, marking and information for protective gloves against heat and/or flame and hands protective equipment against domestic thermal risks.

It should be used for all gloves and hands protective equipment which protect the hands or part of the hand against heat and/or flame in one or more of the following forms: flame, contact heat, convective heat, radiant heat, small splashes or large quantities of molten metal.

This standard is only applicable in conjunction with EN 420.

There are other standards relevant to specific applications, as for example fire-fighting or welding.

Product tests may only give performance levels and not protection levels.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 348, *Protective clothing — Test method: Determination of behaviour of materials on impact of small splashes of molten metal*

EN 388, *Protective gloves against mechanical risks*

EN 420, *Protective gloves — General requirements and test methods*

EN 659:2003+A1:2008, *Protective gloves for firefighters*

EN ISO 6942, *Protective clothing — Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat (ISO 6942)*

EN ISO 9151, *Protective clothing against heat and flame — Determination of heat transmission on exposure to flame (ISO 9151)*

EN ISO 9185, *Protective clothing — Assessment of resistance of materials to molten metal splash (ISO 9185)*

EN ISO 12127-1, *Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials — Part 1: Contact heat produced by heating cylinder (ISO 12127-1)*

EN ISO 15025, *Protective clothing — Protection against flame — Method of test for limited flame spread (ISO 15025)*

3 Terms and definitions

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

3.1
afterflame time
duration of flaming after removal of ignition source; length of time for which a material continues to flame, under the specified test conditions, after the ignition source has been removed

Note 1 to entry: Afterflame time is measured to the nearest second and afterflame times of less than 1,0 s should be recorded as zero.

3.2
afterglow time
duration of afterglow; time for which a material continues to afterglow, under specified test conditions after cessation of after flaming or after removal of the ignition source

Note 1 to entry: Afterglow time is measured to the nearest second and afterglow times of less than 1,0 s should be recorded as zero.

3.3
back of the glove
back of hand, excluding fingers

3.4
char
formation of a carbonaceous brittle residue when material is exposed to thermal energy

3.5
debris
material separating from the specimen during the test procedure and falling from the specimen without flaming

3.6
dripping
detachment of molten droplets during the melting process

3.7
flaming debris
material separating from the specimen during the test procedure and igniting the filter paper

3.8
hole
break in test specimen of at least 5 mm in any dimension and having a continuous perimeter caused by melting, glowing or flaming

3.9
melting
liquefaction of the material under the influence of heat

3.10
hands protective equipment against domestic thermal risks
equipment which protect areas of the hand intended to be exposed to thermal risks

Note 1 to entry: See examples in Annex A.

3.11
high thermal resistant gloves
gloves which claimed at least level 3 for one of the following properties: convective heat, contact heat, radiant heat, small metal splashes, large quantities of molten metal

4 General requirements

4.1 Mechanical requirements

If mechanical protection characterization is needed then it shall be assessed and shall comply with EN 388.

4.2 Protective gloves for thermal risks

4.2.1 General

The protective gloves according to this standard shall meet all the applicable requirements of EN 420.

When parts of the glove are made from dissimilar materials, these dissimilar materials shall be tested separately, except if another way is specified in the standard.

In those circumstances when the sample size is significantly larger than the particular part of the glove being tested, then the manufacturer shall be requested to supply samples of the appropriate materials.

4.2.2 Sizes

The gloves shall correspond to the relevant requirements of EN 420.

Unless otherwise requested, protective gloves of performance levels 3 and 4 in 1 of the tests described in 4.2.3.2 to 4.2.3.7 shall be manufactured so that they can easily be removed in case of an emergency. Test shall be performed according to EN 659:2003+A1:2008, 3.15 using the same requirement.

The removal test can be carried out only in the dry state if the manufacturer's information states that the glove is not intended for use in wet conditions.

If protection against metal splashes as described in 4.2.3.6 and/or 4.2.3.7 is claimed, the minimal length of the glove shall correspond to the requirements of Table 1.

Table 1 — Minimal length of the glove

Size of the hand	6	7	8	9	10	11
Minimal length of glove (mm)	300	310	320	330	340	350

4.2.3 Thermal performances

4.2.3.1 General

For each of the following test methods the defined performance level depends upon the intended field of application of the glove. Only the tests which are relevant to the risks in the intended end-use application shall be carried out.

Table 2 — Specimen location

Property	Sub-clause	Specimen location
Flame resistance	6.1	Fingers area All other materials for high thermal resistant glove
Contact heat	6.2	At least palm and area(s) intended to be exposed
Convective heat	6.3	Palm, Back (if different)
Radiant heat	6.4	Back
Small splashes of molten metal	6.5	Palm, Back (if different) Cuff (if different)
Large quantities of molten metal	6.6	Palm, Back (if different) Cuff (if different)

4.2.3.2 Flame resistance

Using test method 6.1 the material shall correspond to the requirements of Table 3.

Table 3 — Performance levels for flame resistance

Performance level	After flame time s	After glow time s
1	≤ 20	no requirement
2	≤ 10	≤ 120
3	≤ 3	≤ 25
4	≤ 2	≤ 5

If the outermost layer melts, the material shall not produce molten debris. The innermost surface of the glove shall be inspected, it shall show no sign of melting. No hole shall appear on all layers of the tested area. The seam shall not come apart after the ignition time

For high thermal resistant gloves, all materials different of the finger area shall be tested according to EN ISO 15025, method A and comply with level 3 of Table 3.

4.2.3.3 Contact heat

Using the test method 6.2 the material shall correspond to the requirements of Table 4.