

# ***Personal Protective Equipment (PPE)***

Overview Testing & Certifying





# Content

- 5 Overview certification process
- 6 Checklist according to regulation (EU) 2016/425
- 7 PPE categories & CE labelling
- 8 Requirement standards: Personal protective clothing/-equipment
- 38 Requirement standards: Respiratory protective devices
- 42 Requirement standards: Protective gloves



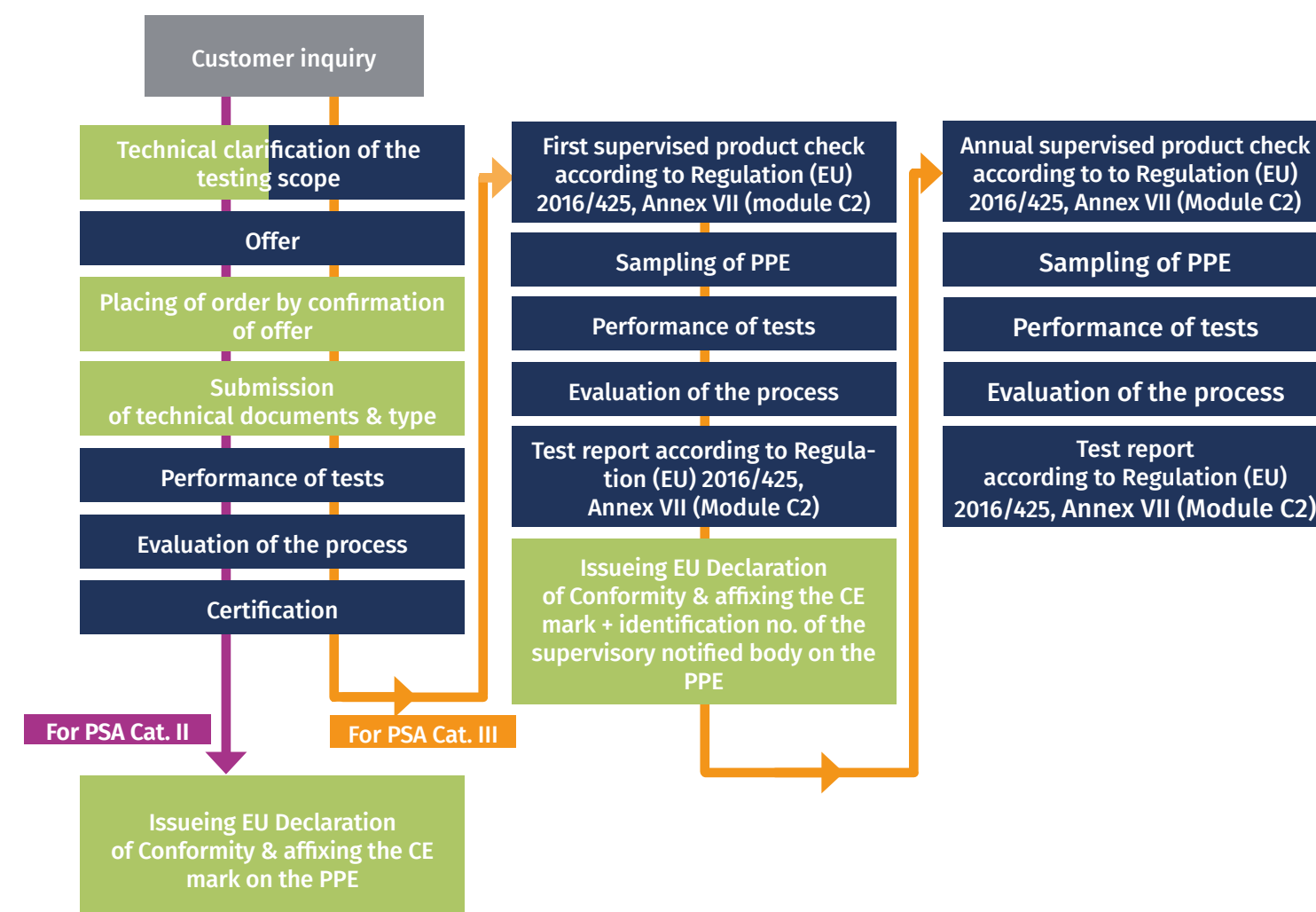
# Overview

## Certification Process PPE

PSA Cat. II and Cat. III

**Hohenstein –  
Independent and neutral!**

*As accredited testing laboratory  
and Notified Body for Personal  
Protective Equipment (PPE) with  
decades of experience and a  
worldwide network, we offer you  
a comprehensive service.*



Tasks  
Manufacturer

Tasks Notified Body  
Hohenstein

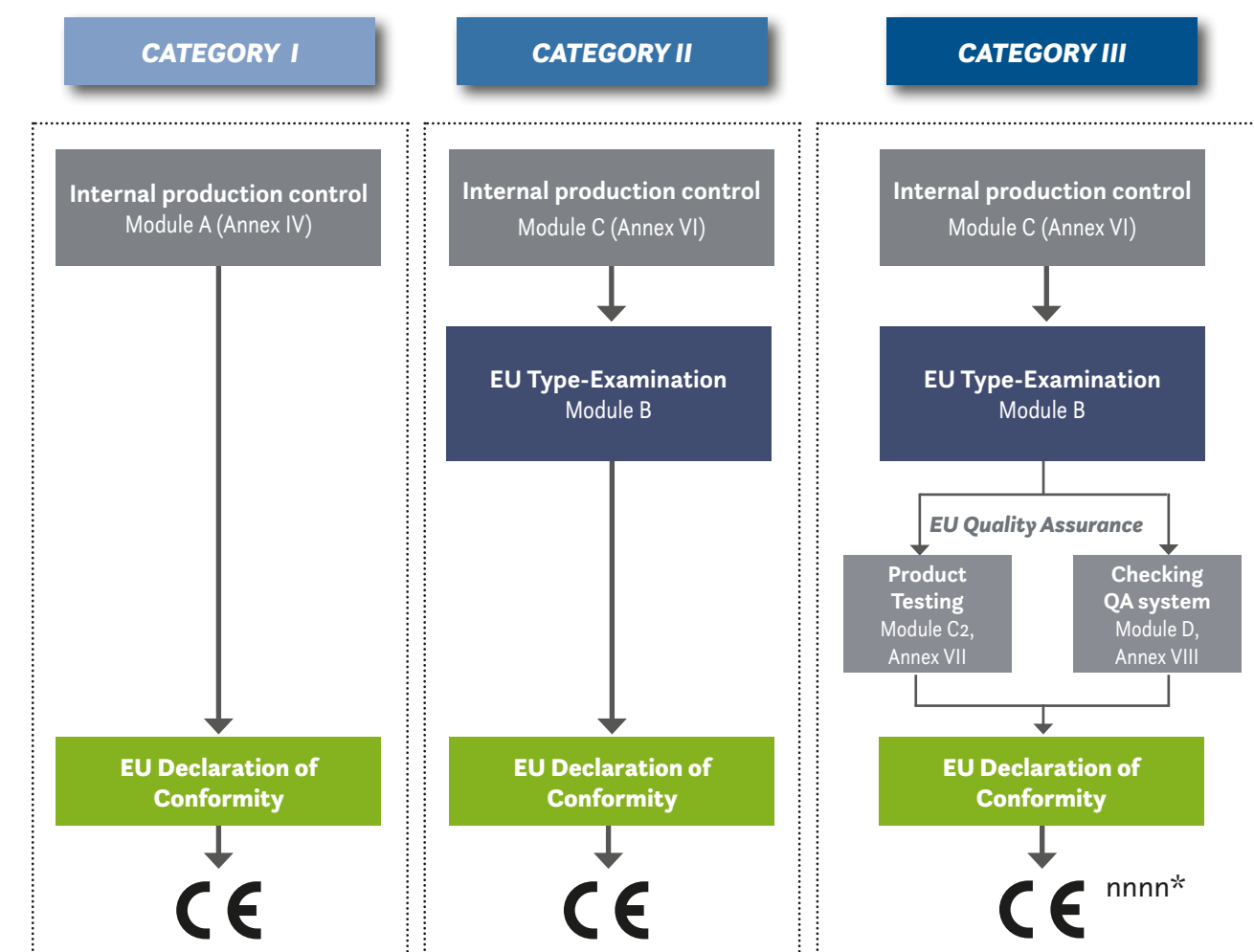
# Checklist according to Regulation (EU) 2016/425

When applying for certification, the certification body requires the following technical documents and samples:

- ✓ Signed application for certification including certification agreement
- ✓ Proof of ensuring of product conformity / quality control
- ✓ Risk assessment of PPE (list of health and safety requirements in accordance with Regulation (EU) 2016/425, Annex II and description of the risks from which the PPE is intended to protect).
- ✓ Manufacturer 's declaration on harmful substances
- ✓ Label  
Manufacturer's information
- ✓ Sufficient number of representative products in necessary sizes, (*minimum 2 products*)
- ✓ Sufficient testing material (*approx. 2 5 running meters*)
- ✓ Detailed description of the product  
(*e.g. drawings, construction overview, design description, photos, finished measurement tables, bill of materials [BOM]*)
- ✓ Test reports of the materials used in the type  
(*documents must be issued and signed by an accredited body*)

# PPE Categories & CE Marking

based on the Regulation (EU) 2016/425



\* Identification number Notified Body



# Requirement standards

Personal Protective Equipment

**NOTE:**

*The following overview is an excerpt from the standards. The requirements are summarised analogously. Only the harmonised standards are binding.*



*Our Customer Service  
will be happy to help you:  
[customerservice@hohenstein.com](mailto:customerservice@hohenstein.com)*





# Protective clothing – General requirements

EN ISO 13688:2013 + A1:2021  
(complementary to the following product standards)

Test	Test method	Pictogram
4.2 Innocuousness (e.g. AZO dyestuffs and pH value)	ISO 17075 (chromium VI) ISO 3071 (pH textile) ISO 4045 (pH leather) EN 1811 (nickel) EN 14362-1 (AZO dyestuffs)	<div> Basic pictogram for protection</div> <div> Information supplied by the manufacturer</div>
4.3 Design	—	
4.4 Wearing comfort	—	
5 Ageing	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 to -4 (dry cleaning) ISO 5077 (dimensional change)	
6 General size designation	ISO 3635	
7 Marking		
8 Information supplied by the manufacturer		

Note




Graphic symbols (pictograms) in the form of a shield, display the hazard against which the clothing shall offer protection. The type of hazard is symbolized by the picture within the shield frame.



Graphic symbols (pictograms) in the form of a quadrat show the intended use of the clothing. The type of use is symbolized by the picture within the frame of the quadrat, e. g. protective clothing (-equipment) for firefighters.


# Protective clothing – Ensembles & garments for protection against cold

EN 342:2017  
(Temperatures below -5 °C)

Test	Test method	Pictogram
4.2 Resulting thermal insulation I <sub>cler</sub>	EN ISO 15831 after pretreatment	
4.3 Air permeability	EN ISO 9237 after pretreatment	
4.4 Resistance to water penetration (surface), optional	EN 20811 after pretreatment	
4.5 Water vapour resistance (only if water penetration was tested)	EN ISO 11092 in new state	
4.6.1 Tear resistance of woven fabrics	EN ISO 4674-1, method A, in new state	
4.6.2 Bursting strength of knitted fabrics	EN ISO 13938-1 or EN ISO 13938-2 in new state	
4.6.3 Flexibility of coated or laminated material with protection below -50 °C	ISO 4675	
4.7 Dimensional change	EN ISO 5077	
5. Pretreatment: Washing and drying or Dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (Dry cleaning)	


# Protective clothing – Protection against rain

EN 343:2019

Test	Test method	Pictogram
4.2 Resistance to water penetration on functional layer	EN ISO 811 in new state <i>or</i> after pretreatment	
Resistance to water penetration, seam	EN ISO 811 in new state <i>or</i> after pretreatment	
4.3 Water vapour resistance $R_{et}$	EN ISO 11092 in new state	
4.4 Tensile strength of woven outer shell material	ISO 1421 <i>or</i> EN ISO 13934-1 in new state	
4.5 Tear strength of woven outer shell material	EN ISO 4674-1, method A in new state	
4.6 Bursting strength of knitted outer shell material	EN ISO 13938-2 in new state	
4.7 Dimensional change	ISO 5077	
4.8 Maximum force to seam strength, surface	EN ISO 13935-2	
4.9 Water resistance of a finished garment ( <i>optional</i> )	EN 14360 Not accredited	
5.2 Pretreatment: Cleaning	ISO 15797 (industrial) <i>or</i> ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
5.3 Pretreatment – abrasion	EN 530, method 2 <i>or</i> EN ISO 12947-1 and -2 (for coated material)	
5.4 Pretreatment – flexing	EN ISO 7854, method C 9,000 cycles	
5.5 Pretreatment – influence of fuel and oil	ISO 1817	


# Protective clothing – for users of hand-held chain saws

EN ISO 11393-2:2019  
Performance requirements and test methods for leg protectors  
*Page 1/2*

Test	Test method	Pictogram
4.4 Ergonomics	EN ISO 11393-2, section 6.6	
4.5 Dimensional change (EN ISO 11393-2, section 6.2)	ISO 5077	
4.6 Protective coverage	EN ISO 11393-2, section 6.3	
4.7 Resistance to cutting	EN ISO 11393-2, section 6.4	
4.8 Requirements to attachment of protective padding	EN ISO 11393-2, section 6.5	
6.1 Pretreatment for EN ISO 11393-2; section 6.2, 6.3, 6.4 and 6.5 5 x washing and drying <i>or</i> dry cleaning	ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	


# Protective clothing – for users of hand-held chain saws

EN ISO 11393-6:2019  
Performance requirements and test methods for upper body protectors  
Page 2/2

	Test	Test method	Pictogram
4.4	Ergonomics	EN ISO 11393-6, section 11	
4.5	Protective coverage	EN ISO 11393-6, section 8	
4.6	Dimensional change (EN ISO 11393-6, section 7)	ISO 5077	
4.7	Resistance to cutting	EN ISO 11393-6, section 9	
4.8	Requirements to attachment of protective padding	EN ISO 11393-6, section 10	
6.1	Pretreatment for EN ISO 11393-6; Section 7, 8, 9 and 10 5 x washing and drying or dry cleaning	ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	

# Protective clothing for firefighters – Protective clothing for firefighting


EN 469:2020  
Performance requirements  
Page 1/2

	Test	Test method	Pictogram
4.	Clothing design		
5.3	Pretreatment: Washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
6.2.1.1	Limited flame spread – Face ignition	EN ISO 15025, method A – in new state and after pretreatment	
	Limited flame spread – Seam ignition	EN ISO 15025, method A – in new state and after pretreatment	
	Limited flame formation – Hardware (e.g. zip fasteners, etc.)	EN ISO 15025, method A – in new state and after pretreatment	
6.2.1.2	Contact heat transmission	EN ISO 12127-1 – in new state and after pretreatment	
6.2.1.3	Heat transmission on exposure to flame	EN ISO 9151 – in new state and after pretreatment	
6.2.1.4	Heat transmission on exposure to radiant heat	EN ISO 6942 – in new state and after pretreatment	
6.2.1.5	Remaining material strength after thermal radiation	EN ISO 6942 + EN ISO 13934-1	
6.2.1.6	Heat resistance	ISO 17493 – in new state	




# Protective clothing for firefighters – protective clothing for firefighting

EN 469:2020  
Performance requirements  
Page 2/2

Test	Test method	Pictogram
6.2.1.7 Heat resistance of sewing thread used in main seams	EN ISO 13937-2 ISO 4674-1 (coated material) in new state	
6.2.2 Resistance to penetration by liquid chemicals	EN ISO 6530 - after pretreatment	
6.2.3 Tensile strength	EN ISO 13934-1 or EN ISO 1421 (coated material) – after pretreatment	
Seam strength	EN ISO 13935-2 – after pretreatment	
6.2.4 Tear strength	EN ISO 13937-2 or ISO 4674-1 (coated material) – after pretreatment	
6.2.4 Water penetration resistance, surface Water penetration resistance, seams	EN ISO 811 – after pretreatment	
6.2.5 Dimensional change	ISO 5077	
6.2.6 High visibility (optional)	EN ISO 20471, section 5.1 / 5.2 EN 469 Annex B (normative)	
6.3.1 Water vapour resistance	EN ISO 11092 after pretreatment	
7 Test method for complete garments (optional)	EN 469 Annex D (informative)	


# Requirements for protective clothing for use where there is a risk of entanglement with moving parts

EN 510:2019

Test	Test method	Pictogram
3.1 Check of the design and functionality of the locking devices		
3.2 Sizes		
– Pretreatment: 5 x washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
3.3 Dimensional change	ISO 5077	
4.2 Effectiveness of locking devices	after pretreatment	




Protective clothing –  
Electrostatic properties

EN 1149-5:2018

Test	Test method	Pictogram
– Pretreatment: 5 x washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
4.2.1 Surface resistance  or:  Shielding factor and half-decay time (induction charging)	EN 1149-1 after pretreatment  EN 1149-3 after pretreatment	
4.2.1 Check of distance between electrically conductive yarns for material containing conductive threads		
4.2.2 Check of construction		

Protective clothing – Enhanced visibility  
equipment for medium risk situations


EN 17353:2020


Test	Test method	Pictogram
4 Types and minimum area requirements		
5 Design (type A, B1, B2, B3 or AB)		
6.1.1 Requirements for colour behaviour of materials in new condition	7.2	
6.1.2 Colour after Xenon exposure	7.2 After irradiation (EN ISO 105-Bo2, Method 3)	or 
6.1.3.2 Colour fastness to rubbing (Type A and Type AB)	EN ISO 105-X12	
6.1.3.3 Colour fastness to perspiration	EN ISO 105-Eo4	
6.1.3.4 Colour fastness to washing	Domestic: EN ISO 105-Co6 or Industrial: EN ISO 105-Co6 Test No. D1S	
	EN ISO 105-D01	
	EN 20105-No1	
	EN ISO 105-X11 per temperature level	
6.2 Dimensional change of fluorescent and non-fluorescent material	EN ISO 5077	
6.3 Photometric and physical performance requirements for materials with individual properties and with combined properties	7.3 (CIE 54.2) in new state	
6.4 Performance requirements for retro reflection after test load	7.3 (CIE 54.2) and 7.4 (test loads)	



# Protective clothing for use in welding and allied processes


EN ISO 11611:2015


Test	Test method	Pictogram
4 General and design requirements		
5.2 Pretreatment: washing and drying <i>or</i> dry cleaning	ISO 15797 (industrial) <i>or</i> ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
6.1 Classification		
6.2 Tensile strength	ISO 13934-1 (woven fabric) ISO 3376 (leather) after pretreatment	
6.3 Tear strength	ISO 13937-2 (woven fabric) ISO 3377-1 (leather) after pretreatment	
6.4 Bursting strength of knitted materials and seams	ISO 13938-1 <i>or</i> -2 after pretreatment	
6.5 Maximum force to seam/strength	ISO 13935-2, grab method, after pretreatment	
6.6 Dimensional change	ISO 5077	

Test	Test method	Pictogram
6.7 Limited flame spread – Face ignition (Code A 1)	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread – Edge ignition (Code A 2), <i>optional</i>	EN ISO 15025, method B in new state and after pretreatment	
Limited flame spread on seams – Face ignition (Code A 1)	EN ISO 15025, method A after pretreatment	
Limited flame spread on seams – Edge ignition (Code A 2), <i>optional</i>	EN ISO 15025, method B after pretreatment	
Limited flame spread on fittings (e.g. zip fasteners, etc.)	EN ISO 15025, method A after pretreatment	
Limited flame spread on badges (if larger than 10 cm <sup>2</sup> ) – Face ignition	EN ISO 15025, method A after pretreatment	
6.8 Behaviour of materials on impact of small splashes of molten metal	ISO 9150 after pretreatment	
6.9 Heat transmission on exposure to radiant heat	ISO 6942, method B after pretreatment	
6.10 Electrical resistance	EN 1149-2 after pretreatment	
6.11 Fat content – <i>only for leather items</i>	ISO 4048	

# Protective clothing – Protection against heat and flames

EN ISO 11612:2015

Test	Test method	Pictogram
4. General and design requirements		
5.2 Pretreatment: Washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
6.2 Heat resistance	ISO 17493 after pretreatment	
6.3 Limited flame spread – Face ignition (Code A 1)	ISO 15025, method A in new state and after pretreatment	
Limited flame spread – Face ignition (Code A 2), optional	ISO 15025, method B in new state and after pretreatment	
Limited flame spread on seams – Edge ignition (Code A 2), optional	ISO 15025, method B in new state and after pretreatment	
Limited flame spread on seams – Face ignition (Code A 1)	ISO 15025, method A after pretreatment	
Limited flame spread on seams – Edge ignition (Code A 2), optional	ISO 15025, method B in new state and after pretreatment	
Limited flame spread – Hardware (e.g. zip fasteners, etc.)	EN ISO 15025, method A after pretreatment	
Limited flame spread on badges (larger than 10 cm²) – Face ignition (optional)	EN ISO 15025, method A after pretreatment	
6.4 Dimensional change	ISO 5077	
6.5.1 Tensile strength	ISO 13934-1 (woven fabric) ISO 3376 (leather) after pretreatment	

Test	Test method	Pictogram
6.5.2 Tear strength	ISO 13937-2 (woven fabric) ISO 3377-1 (leather) after pretreatment	
6.5.3 Bursting strength of knitted fabrics, materials and seams	ISO 13938-1 or -2 dry, after pretreatment	
6.5.4 Maximum force to seam strength	ISO 13935-2, grab method after pretreatment	
6.6 Fat content – <i>only for leather</i>	ISO 4048	
<i>Compliance with at least one requirement Code B to F – depending on the intended use of the clothing</i>		
7.2 Heat transmission on exposure to flame (Code B)	ISO 9151 after pretreatment	
7.3 Heat transmission on exposure to radiant heat (Code C)	EN ISO 6942, method B after pretreatment	
7.4 Resistance of materials to molten metal splash – aluminium (Code D)	EN ISO 9185 after pretreatment	
7.5 Resistance of materials to molten metal splash – iron (Code E)	EN ISO 9185 after pretreatment	
7.6 Contact heat transmission (Code F)	EN ISO 12127-1 after pretreatment	
9 Manikin test ( <i>optional</i> )	ISO 13506	



# Protective clothing – Hand, arm, chest, abdomen, leg, genital and face protectors for fencers \*

EN 13567:2002+A1:2007  
Performance requirements and test methods

	Test	Test method	Pictogram
4.2	Innocuousness		
4.3	Ergonomics		
4.4	Restraint requirement		
4.5	Sizing		
4.6	Minimum dimensions of zones of protection		
4.7.3	Materials and details for the manufacture of fencing apparel		
4.8.1	Penetration resistance – General	5.10.5.4	
4.8.3	Penetration resistance – Fencing jackets	5.10.5.4	
4.8.4	Penetration resistance – Fencing breeches	5.10.5.4	
4.8.5	Penetration resistance – Fencing under pants	5.10.5.4	
4.8.6	Penetration resistance – Fencing under plastrons	5.10.5.4	
4.8.7	Thickness – Fencing gloves	EN ISO 5084:1996	
	Penetration resistance – Fencing gloves	5.10.5.4	
4.8.8	Thickness – Fencing socks	EN ISO 5084:1996	
4.9	Burst strength of seams	EN ISO 13938-1:1999 or EN ISO 13938-2:1999	

Note

\* Certification of textile products only.


# Protective clothing against liquid chemicals Chemical protective clothing with liquid-tight (Type 3) or spray-tight (Type 4) connections, including items providing protection to parts of the body only (Types PB [3] and PB [4])

EN 14605:2005+A1:2009

	Test	Test method	Pictogram
4.1	Abrasion resistance	EN ISO 12947-2 in new state or after pretreatment	
	Flex cracking resistance	EN ISO 7854 in new state or after pretreatment	
	Tear resistance	EN ISO 9073-4 in new state or after pretreatment	
	Tensile strength and tensile elongation	EN ISO 13934-1 in new state or after pretreatment	
	Puncture resistance	EN 863 in new state or after pretreatment	
4.2	Resistance to permeation of liquids	EN 6529 in new state or after pretreatment	
	Jet test (Type 3)	EN ISO 17491-3 in new state or after pretreatment	
	Spray test (Type 4)	EN ISO 17491-4 in new state or after pretreatment	
	Seam strength	EN ISO 13935-2 in new state or after pretreatment	


**Protective clothing against liquid chemicals**  
**Chemical protective clothing offering limited protective**  
**performance against liquid chemicals (Type 6 and Type**  
**PB [6] equipment)**

EN 13034:2005+A1:2009

Test	Test method	Pictogram
4.1 Abrasion resistance	EN ISO 12947-2 in new state <i>or</i> after pretreatment	
Tear strength	EN ISO 9073-4 in new state <i>or</i> after pretreatment	
Tensile strength and tensile elongation	EN ISO 13934-1 in new state <i>or</i> after pretreatment	
Puncture resistance	EN 863 in new state <i>or</i> after pretreatment	
Liquid repellency	EN 6530 in new state <i>or</i> after pretreatment	
4.2.2 Maximum force to seam strength	EN ISO 13935-2 in new state <i>or</i> after pretreatment	
5.2 Resistance to penetration by liquids in the form of a light spray (type 6)	EN ISO 17491-4 in new state <i>or</i> after pretreatment	

**Protective clothing for firefighters –**  
**requirements and test methods**  
**for fire hoods**


EN 13911:2017

Test	Test method	Pictogram
5.2 Pretreatment: Washing and drying	EN ISO 6330 (domestic)	
6.1.2 Limited flame spread – Face ignition	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread on seams – Face ignition	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread – hardware (e.g. zip fasteners, etc.)	EN ISO 15025, method A in new state and after pretreatment	
6.1.3 Heat transfer on exposure to flame	EN ISO 9151 in new state	
6.1.4 Heat transfer on exposure to radiant heat	EN ISO 6942, method B in new state and after pretreatment	
6.1.5 Residual material strength when exposed to radiant heat	EN ISO 6942, method A + EN ISO 13938-1 after pretreatment	
6.1.6 Heat resistance	ISO 17493 after pretreatment	
6.1.7 Seam breaking strength	EN ISO 13938-1 after pretreatment	
6.1.8 Dimensional change	ISO 5077	
6.2.1 Performance requirements – complete firehood	EN 13911, Annex B after pretreatment	




# Protective clothing – Protection against cool environments

EN 14058:2017+A1:2023

Test	Test method	Pictogram
4.2 Thermal resistance $R_{ct}$	EN ISO 11092 after pretreatment	
4.3 Air permeability <i>if clothing is worn outdoors</i>	EN ISO 9237 after pretreatment	
4.4 Water penetration, surface material ( <i>optional</i> )	EN ISO 811 after pretreatment	
4.5 Water vapour resistance $R_{et}$ – <i>only if water penetration is tested</i>	EN ISO 11092 after pretreatment	
4.6 Resulting thermal insulation $I_{cler}$ ( <i>optional</i> )	EN ISO 15831 after pretreatment	
4.7.1 Tensile strength	ISO 13937-2 (woven fabric) ISO 3377-1 (leather) in new state	
4.7.2 Bursting strength of knitted fabrics	ISO 13938-1 or -2 dry, in new state	
4.8 Dimensional change	ISO 5077	


# Protective clothing – Protection against heat and flame – Limited flame spread

EN ISO 14116:2015

Test	Test method	Pictogram
4. Clothing design		
5.2 Pretreatment: Washing and drying <i>or</i> dry cleaning	ISO 15797 (industrial) <i>or</i> ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
6.1 Limited flame spread – Face ignition	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread on seams – Face ignition	EN ISO 15025, method A after pretreatment	
Limited flame spread on badges and hardware – Face ignition	EN ISO 15025, method A after pretreatment	
6.2.1 Tensile strength	EN ISO 13934-1 after pretreatment	
6.2.2 Tear strength	ISO 13937-2 (woven fabric) ISO 9073-4 (nonwoven fabric) after pretreatment	
6.2.3 Bursting strength of knitted fabric	EN ISO 13938-1 <i>or</i> -2 after pretreatment	
6.2.4 Maximum force to seam strength	ISO 13935-2, grab method after pretreatment	
6.3 Dimensional change	ISO 5077	


# Personal protective equipment – Knee protector for work in the kneeling position

EN 14404:2004 + A1:2010

Test	Test method	Pictogram
5.1 General requirements	EN 14404, section 6.4	
5.2.3 + 5.2.4 Size and dimensions		
5.2.5 Puncture resistance	EN 863 in new state	
5.2.6 Force distribution	in new state	
5.2.7 Impact testing	in new state	
5.2.8 Restraint testing	in new state	
5.3 Water resistance – only applicable for type 1, 3 or 4 (optional)	in new state	
5.4 Ergonomics (attachment and comfort while wearing and flexibility of bands)		

# Protective clothing for firefighters – wildland firefighting clothing


EN ISO 15384:2020 + A1:2021  
Laboratory test methods and performance requirements  
Page 1/2

Test	Test method	Pictogram
4. Clothing design		
5.3 Pretreatment: Washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
6.1.2 Limited flame spread – Face ignition	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread – Seam ignition	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread – Hardware (e.g. zip fasteners, etc.)	EN ISO 15025, method A in new state and after pretreatment	
6.1.3 Limited flame spread on seams – Edge ignition	EN ISO 15025, method B in new state and after pretreatment	
6.2 Heat transfer – Radiation	EN ISO 6942 after pretreatment	



# Protective clothing for firefighters – wildland firefighting clothing

EN ISO 15384:2020 + A1:2021  
Laboratory test methods and performance requirements  
Page 2/2

Test	Test method	Pictogram
6.3 Heat resistance	ISO 17493 - after pretreatment (materials and hardware) DIN EN ISO 3146 In new state (sewing thread)	
7.1 Tensile strength	EN ISO 13934-1 after pretreatment	
7.2 Tear strength	ISO 4674-1, method B after pretreatment	
7.3 Main seam strength	EN ISO 13935-2 after pretreatment	
7.4 Abrasion resistance	ISO 12947-2 after pretreatment	
8.1 + 8.2 Thermal resistance and Water vapour resistance	EN ISO 11092	
9.1 Dimensional change	ISO 5077	
9.2 Retroreflective and/or fluorescent performance	EN ISO 20471	


# Protective clothing for firefighters - Protective clothing for technical rescue

EN 16689:2017  
Performance requirements  
Page 1/2

Test	Test method	Pictogram
5.2 Pretreatment: Washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
6.2 Limited flame spread	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread – seam	EN ISO 15025, method A in new state and after pretreatment	
Limited flame spread – hardware	EN ISO 15025, method A in new state and after pretreatment	
6.3 Heat transmission on exposure to radiant heat	EN ISO 6942 in new state and after pretreatment	
6.4 Contact heat	EN ISO 12127-1 after pretreatment	
7.1 Tensile strength	EN ISO 13934-1 after pretreatment	
7.2 Tear strength	Coated woven fabrics: EN ISO 4674-1, method B Non-coated woven fabrics: EN ISO 13937-2 after pretreatment	


# Protective clothing for firefighters - Performance requirements for protective clothing for technical rescue

EN 16689:2017  
Page 2/2

Test	Test method	Pictogram
7.3 Abrasion resistance	EN ISO 12947-2 after pretreatment	
7.4 Surface wetting (optional)	EN ISO 4920 after pretreatment	
7.5 Electrostatic properties (optional)	EN 1149-5 after pretreatment	
7.6 Dimensional change	EN ISO 5077 after pretreatment	
7.7 Water vapour resistance	EN ISO 11092 after pretreatment	
7.8 Resistance against penetration of blood borne pathogens (optional)	ISO 16604 after pretreatment	
7.9 Visibility	EN ISO 20471, Colour coordinates factor in new state and after Xenon-exposure and minimum area / visibility	
7.10 Bursting strength	EN ISO 13938-2 after pretreatment	

# High visibility clothing – Test methods and requirements


EN ISO 20471:2013 + A1:2016  
Page 1/2

Test	Test method	Pictogram
4.1 Classification – types and classes		
4.2 Specific requirements to design		
4.3 Size designation	EN ISO 13688	
7.5 Pretreatment: Washing and drying or dry cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
5.2 Pretreatment – Xenon-exposure	ISO 105-Bo2, method 3	
5.1 Colour coordinates and luminance factor for background material	in new state	
7.5 + 5.2 Colour coordinates and luminance factor for background material	after pretreatments	
5.3.1 Colour fastness to rubbing	ISO 105-X12 dry	
5.3.2 Colour fastness to perspiration	ISO 105-Eo4 alkaline + acid	



# High visibility clothing – Test methods and requirements

EN ISO 20471:2013 + A1:2016  
Page 2/2


Test	Test method	Pictogram
5.3.3 Colour fastness to washing	ISO 105-Co6	
Colour fastness to dry cleaning	ISO 105-Do1	
Colour fastness to hypo-chlorite bleaching	ISO 105-No1	
Colour fastness to hot pressing	ISO 105-X11	
5.4 Dimensional change	ISO 5077	
5.5.1 Tensile strength (woven fabric)	ISO 13934-1 in new state	
5.5.2 Bursting strength (knitted fabric)	ISO 13938-2 in new state	
5.5.3 Tear strength (coated fabric) and tensile strength	ISO 4674-1 ISO 1421, method 1 in new state	
5.6 * Water vapour resistance $R_{et}$	ISO 11092 in new state	
Thermal resistance $R_{ct}$ – if necessary	ISO 11092 in new state	
Water vapour permeability index $i_{mt}$ – if necessary	ISO 11092 Calculation from $R_{ct}$ and $R_{et}$	
6 Requirements to retroreflective material	CIE 54.2 in new state and after testing exposure	

Note

\* Clothing with protection against rain shall be tested and classified according to EN 343.

# Protective clothing against the thermal hazards of an electric arc

EN 61482-2:2020  
Requirements

Test	Test method	Pictogram
4.2 Design requirements	EN 61482-2 section 5.2	 <div>EN 61482-2 ELIM = xxx cal/cm²</div> <div>or</div> <div>EN 61482-2 APC y</div> <div>oder</div> <div>EN 61482-2 ELIM = xxx cal/cm² APC z</div> <div>or</div> <div>EN 61482-2 undershirt ref. AAA: not determined jacket ref. BBB: ELIM = xxx cal/cm² / APC y parka ref. CCC: ELIM = xxx cal/cm² / APC y Garment System: ELIM = xxx cal/cm² / APC z</div>
4.3.1 Heat resistance	ISO 17493 after pretreatment	
4.3.2 Volume resistance	IEC 61340-2-3 section 8.2.3 / EN 1149-2 after pretreatment	
4.3.3 Limited flame spread of material	ISO 15025, method A after pretreatment	
4.3.4.1 Tear resistance of outer material (woven fabric or laminate)	ISO 13937-2 after pretreatment	
4.3.4.2 Tensile strength of outer material (woven fabric or laminate)	ISO 13934-1 after pretreatment	
4.3.4.3 Bursting strength of outer material (knitted fabric)	ISO 13938-1 after pretreatment	
4.3.5 Dimensional change	ISO 5077	
4.4.2 Arc rating	IEC 61482-1-1 after pretreatment	
4.4.3 Arc protection class	IEC 61482-1-2 after pretreatment	
5.1.3 Pretreatment	ISO 15797 (industrial) or ISO 6330 (household)	
5.2.3 Sizes and ergonomics		
5.2.5 Sewing thread and fasteners	ISO 3146, method B	
5.5.2 Durability of the marking	in new state	

# Requirement Standards

Respiratory Protective Devices

**NOTE:**

*The following overview is an excerpt from the standards. The requirements are summarised analogously. Only the harmonised standards are binding.*

*Our Customer Service  
will be happy to help you:  
[customerservice@hohenstein.com](mailto:customerservice@hohenstein.com)*



# Respiratory protective devices – Filtering half masks to protect against particles –

EN 149:2001 + A1:2009

	Prüfung	Prüfmethode	Piktogramm
8.3.1	Pretreatment: simulated wearing treatment S.W		Zum Beispiel FFP3 NR FFP2 R D
8.3.2	Pretreatment: temperature conditioning T.C		
8.3.3	Pretreatment: mechanical strength M.S		
8.3.4	Pretreatment: Flow Conditioning F.C (Valved masks)		
7.6	Pretreatment: Cleaning and disinfection C.D (Reusable masks)	EN 149 section 8.2	
7.4, 7.5, 7.8, 7.15 + 7.18	Material requirements		
7.7	Practical performance and		
7.10, 7.13 + 7.14	Assessment of the skin compatibility and head harness		
7.9.1	Total inward leakage	EN 149 section 8.5	

	Prüfung	Prüfmethode	Piktogramm
7.9.2	Penetration of filter material (Sodium chloride und paraffin oil)	EN 149, section 8.11 / DIN EN 13274-7	
7.11	Flammability	EN 149 section 8.6	
7.12	Carbon dioxide content of the inhalation air	EN 149 section 8.7	
7.15	Exhalation valve und Befestigung des Ausatemventilgehäuses (Valved masks)	EN 149 section 8.3.4 and section 8.8	
7.16	Breathing resistance	EN 149 section 8.9	
7.17.1 + 7.17.2	Clogging – breathing resistance (Optional for non-reusable masks)	EN 149: section 8.10 and 8.9	
7.9.2 + 7.17.3	Clogging – Penetration of filter material *	EN 14, section 8.11 and DIN EN 13274	

Note

\* Only for masks which meet the clogging test requirements



# Requirement Standards

Protective Gloves

**NOTE:**

*The following overview is an excerpt from the standards. The requirements are summarised analogously. Only the harmonised standards are binding.*

*Our Customer Service  
will be happy to help you:  
[customerservice@hohenstein.com](mailto:customerservice@hohenstein.com)*





# Protective gloves – General requirements and test methods

EN ISO 21420:2020  
(complementary to the following requirement standards)

	Test	Test method	Pictogram
4.1	Design and fabrication of glove		Depending on protection objective
4.2	Innocuousness of protective gloves:		
	Chromium (VI) content ( <i>leather</i> )	ISO 17075-1 or ISO 17075-2	
	Nickel release ( <i>metal</i> )	EN 1811+A1:2015	
	pH value ( <i>Glove materials</i> )	ISO 4045 (Leather) or ISO 3071 (other materials)	
	Azo dyes	ISO 14362-1 (Textile) ISO 17234-1 (Leather)	
	Dimethylformamide (DMFa) (PU-containing gloves)	EN 16778	
	Polycyclic aromatic hydrocarbons (PAH) (Rubber / containing plastics)	ISO/TS 16190	
4.2*	Cleaning		


	Test	Test method	Pictogram
4.4.1	Electrostatic properties ( <i>if applicable</i> )	EN 16350 or EN 1149-1 or EN 1149-3	
5.1	Glove size and dimensions	EN ISO 21420, section 6.1	
5.2	Mobility	EN ISO 21420, section 6.2	
5.3.1	Water vapour permeability ( <i>optional</i> )	EN ISO 21420, section 6.3.1 (leather) / ISO 14268 EN ISO 21420,section 6.3.2 (textile) / ISO 11092	
5.3.2	Water vapour absorption ( <i>optional</i> )	EN ISO 21420, section 6.4.2 (leather) / ISO 20344:2011, section 6.7	
7.2	Labelling (glove labelling and packaging labelling)		
7.3	Manufacturers' information		

Note

\* All tests required in the relevant requirement standards shall be performed on unused gloves. If care instructions are provided, the relevant tests of the specific standards shall be performed on the gloves, before and after they have been subjected to the maximum recommended number of cleaning cycles.


# Protective gloves against chemicals and microorganisms

EN ISO 374-1:2016+A1:2018  
Terminology and performance requirements

	Test	Test method	Pictogram
4.1	Permeation	EN 16523-1 in new state or after pretreatment	
4.2	Penetration	EN 374-2 in new state or after pretreatment	
4.3	Degradation	EN 374-4 in new state or after pretreatment	

# Protective gloves against mechanical risks

EN 388:2016 + A1:2018

	Test	Test method	Pictogram
4	General requirement *	EN 21420	
6.1	Abrasion resistance		
6.2	Blade cut resistance (Coupe-Test)		
6.3	Cut resistance – if 6.2 leads to dulling of the blade	EN ISO 13997	
6.4	Tear resistance		
6.5	Puncture resistance		
6.6	Impact test (optional)	EN 13594	



\* Protective gloves against mechanical risks must achieve at least one performance level for at least one of the properties (abrasion, cut, tear and puncture resistance).

Note




# Protective gloves and other hand protective equipments against thermal risks (heat and/or fire)

EN 407:2020

Test	Test method	Pictogram
4.1 General	EN ISO 21420	 (Gloves with limited flame formation)  or   (Gloves without limited flame formation)
4.2 Cleaning	ISO 15797 (industrial) or ISO 6330 (domestic) ISO 3175-2 (dry cleaning)	
4.3 Tear resistance	EN 407, section 6.8	
4.4 Size and dimensions	EN ISO 21420 or EN 659	
Compliance with at least one requirement – depending on the intended use of the clothing		
4.5.2 Limited flame formation	EN 407, section 6.2 / EN ISO 15025	
4.5.3 Contact heat	EN 407, section 6.4 / EN ISO 9151	
4.5.4 Convective heat	EN 407, section 6.4 / EN ISO 9151	
4.5.5 Radiant heat	EN 407, section 6.5 / EN ISO 6942	
4.5.6 Small splashes of molten metal	EN 407, section 6.6 / EN 348	
4.5.7 Large quantities of molten metal (iron)	EN 407, section 6.7 / EN ISO 9185	

# Protective gloves against cold

EN 511:2006

Test	Test method	Pictogram
3 Design Requirements	EN 21420	 EN 511
4.1 Abrasion resistance	EN 388	
Tear resistance	EN 388	
4.2 Long term folding resistance (only for coated materials)	EN 511, section 5.2 / EN ISO 7854, method A	
4.3 Whole glove integrity (only for coated materials)	EN 511, section 5.3 / ISO 15383	
4.4 Low temperature bend	EN 511, section 5.4 / ISO 4675	
4.5 Convective cold	DIN EN 511, section 5.5	
4.6 Contact cold	ISO 5085-1	



# Protective gloves for firefighters

EN 659:2003 + A1:2008

	Test	Test method	Pictogram
3.1	General	EN 420	
3.2	Size of glove	EN 420	
3.3	Abrasion resistance	EN 388	
3.4	Blade cut resistance	EN 388	
3.5	Tear resistance	EN 388	
3.6	Puncture resistance	EN 388	
3.7	Burning behaviour	EN ISO 6941	
3.8	Convective heat	ISO 9151	
3.9	Radiant heat	EN ISO 6942	
3.10	Contact heat	EN ISO 12127-1	
3.11	Heat resistance of lining material	ISO 17493	
3.12	Heat shrinkage of glove	ISO 17493	
3.13	Finger dexterity – moveability	EN 21420	
3.14	Maximum force to seam	EN ISO 13935-2	
3.15	Time for the removal of glove	–	
3.16	Water penetration ( <i>optional</i> )	EN ISO 20344 (for leather) EN 20811 (for textiles)	
3.17	For waterproof glove: Test for penetration by liquids (complete glove)	ISO 15383	
3.18	Resistance to penetration by liquid chemicals	EN ISO 6530	

# Protective gloves for welders

EN 12477:2001 + A1:2005

	Test	Test method	Pictogram
3.1	General requirements	EN 21420	 
3.2	Sizes	EN 21420	
3.3	Abrasion resistance	EN 388	
	Blade cut resistance	EN 388	
	Tear resistance	EN 388	
	Puncture resistance	EN 863	
	Burning behaviour	EN ISO 6941	
	Contact heat	EN ISO 12127-1	
	Convective heat	ISO 9151	
	Resistance to small splash of molten metal	EN 348	
	Finger dexterity – moveability	–	
3.4	Test for protective gloves for arc welding – electrical resistance ( <i>optional</i> )	EN 1149-2	

# Protective gloves: Electrostatic properties

EN 16350:2014

Test		Test method	Pictogram
4.1	General	EN 21420	
4.2.1	Electrical vertical resistance	EN 1149-2	
4.2.2	Test of the construction		





## Your Partner for Textile Expertise.

Hohenstein  
Schlosssteige 1  
74357 Bönningheim  
Germany  
[customerservice@hohenstein.com](mailto:customerservice@hohenstein.com)  
[hohenstein.com](https://www.hohenstein.com)

The appointed and accredited conformity assessment bodies and their staff perform the tests, evaluations and certifications independently and impartially. These are subject to the confidentiality obligation and any conflicts of interest that arise are to be reported. No development, consulting, training or similar activity is carried out by the employees in the appointed and accredited conformity assessment bodies. The possibility of exchanging technical information between the client and the employees of the appointed and accredited conformity assessment bodies is not excluded thereby.