



# Manufacturer information

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EU-type examination carried out by one of the Notified Bodies listed in the sewn-in label:  
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Finnish Institute of Occupational Health FIOH, Topelinksenkatu 41 B, FI-00250 Helsinki, NoBo no.: 0403  
SGS Fimko Ltd, Takomotie 8, FI-00380 Helsinki, ID. No. 0598 (ex. FIOH)  
Centexbel, Technolgiepark 7, B-9052 Zwijnaarde, Belgium, NoBo no.: 0493  
British Textile Technology Group, BTTG Ltd, Wira House, West Park Ring Road, UK LS16 6QL, Leeds, NoBo no.: 0339  
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ASOCIACION DE INVESTIGACION DE LA INDUSTRIA TEXTIL, (AITEK), Plaza Emilio Sala 1, 03801 ALCOY (ALICANTE), NoBO no. 0161

The manufacturer information refers to REGULATION (EU) 2016/425 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2016 on personal protective equipment. The PPE complies with the essential requirements of Regulation (EU)2016/425, Annex II. The protective clothing meets the performance requirements of Cat. I–III in accordance with Annex I, Regulation (EU) 2016/425. The actual performance level is based on certain standards and is stated on the clothing label.

**PPE Cat. I** comprises products that protect the user against minor risks. The user is able to assess the effectiveness of the personal protective equipment for themselves.

**PPE Cat. III** comprises complex personal protective equipment that protects against risk of death and irreversible damage to health. The PPE should protect against hazards that the user is unable to assess for themselves.

**PPE Cat. II** PPE that does not fit into Category I or Category III is assigned to this category.

**Identifying the categories on the label:**

Personal protective equipment in Category III has the number of the notified body printed on the clothing label next to the CE marking. Personal protective equipment in Categories I and II only has the CE marking printed on the label. Personal protective equipment in Category I does not require an EC type examination certificate.



It is essential to read through this manufacturer information carefully before wearing the clothing for the first time. This pictogram on the clothing label informs the wearer that the information provided by the manufacturer must be observed before the clothing is worn for the first time.

### **Selection of clothing**

Before selecting the appropriate protective work clothing, the potential hazards associated with the relevant place of use must be analysed. The protective clothing to be used should be selected by trained safety engineers only. The user is not relieved from their obligation to test products and procedures with regard to their suitability for their particular application purposes. The user must choose PPE that, under the intended, foreseeable conditions of use, allows the user to perform the activity associated with the respective risks without hindrance and provides adequate protection. The protective function of the PPE is indicated by the relevant tested harmonised standards, which can be found on the product label. Although some garments are manufactured in orange or with orange and reflective materials, they are not necessarily certified to EN ISO 20471 (high-visibility clothing) or EN 17353 (enhanced visibility equipment for medium risk situations), and the reflective strips do not claim to be protective. There is a corresponding note on the product's sewn-in label.

As the wearer bears the ultimate responsibility for their own safety, it is recommended that they carry out their own washing tests with the garments to ensure that the washing process is optimally matched to the garment.

The user must always check that the PPE fulfils its protective function and is appropriate for the respective task before putting the clothing on.

Protective clothing must always be chosen to fit correctly: the corresponding body measurements are indicated on the pictogram on the label.

### **Important information:**

The functionality of the clothing can be impaired and reduced by a wide variety of factors, for example, soiling, washing/care procedures and their residue, wear and tear, the way in which it is worn, an improper clothing combination. Significant mechanical influences on clothing (abrasion, crawling, etc.) exert stress on the raw material and weaken the extent of protective function. Visible, major changes (chafe marks, thinning, tears, holes, etc.) indicate that the clothing can only fulfil its protective function to a reduced extent or not at all in these areas.

If the clothing is contaminated with any type of chemical agent, it should be immediately changed, as its protective function may be compromised.

Defective or damaged clothing must be replaced by suitable new products without delay.

The protective clothing is designed to protect the wearer's upper and lower body, neck, arms and legs.

When wearing single items of clothing (e.g. vest, jacket only, trousers only), it must be borne in mind that uncovered parts of the body are not protected.

Sewn-on knee pads or knee pockets on bib trousers, overalls or trousers do not constitute knee protection within the meaning of EN 14404 and do not offer protection during kneeling work and activities if protection in the kneeling position in accordance with EN 14404:2005 is not indicated on the label.

Damaged zips, clearly frayed or otherwise damaged seams, as well as reflective strips that are extensively and significantly abraded, frayed or detached, may reduce the level of protection provided. Any necessary repairs may only be carried out by a specialist company using original materials.

The following points must be observed with respect to the application and use of protective clothing:

- No certification-relevant modifications or repairs may be made to the clothing after the EC type examination.
- It must be worn closed, be the right length for the arms and legs (it is important that the clothing is neither too short nor too long), fit well and not cause any ergonomic restrictions.
- A significant overlap must be ensured for a two-part clothing system; the wearer must wear the correct clothing size and fit, and the overlap must be guaranteed for any movement and position.
- The protective effect of the clothing is only provided if the entire ensemble (including the underclothing) complies with the relevant standards and performance levels and is combined as follows:

- |                                       |   |   |
|---------------------------------------|---|---|
| 1. Jacket with waistband trousers     | 6. Coat with bib trousers   | system) of any kind combined with underclothes/head cover combined with helmet and eye protection (combination possibilities 1–8) |
| 2. Waistband jacket with bib trousers | 7. Shirt with waistband trousers and jacket                           |   |
| 3. Jacket with bib trousers           | 8. Shirt with bib trousers and jacket or blouson                      |   |
| 4. One-piece overall                  | 9. metallising/aluminising clothing (partial body protection and suit |   |
| 5. Coat with waistband trousers       |   |   |
- In addition, we recommend only wearing suitable shirts/T shirts/polo shirts underneath the outer clothing.

If a waistcoat or other article of clothing is worn over the proposed protective clothing/PPE or in combination with other protective clothing, the function of the certified personal protective equipment must not be impaired.

The wearer must make sure that:

- No parts of the skin come into contact with contaminated and/or soiled clothing
- Tops are always worn closed right up
- Hoods that are not actually being worn are generally rolled away or removed
- Hoods that cannot be rolled away or removed must be worn
- Pockets with flaps are kept closed at all times
- Sleeve and trouser leg closures are always closed to fit tightly  
It is not permitted to fold/roll up sleeves and trouser legs
- Metal elements are fully covered
- In the case of pockets without a flap, any work equipment that is being carried (e.g. tools) also meets requirements for use in the workplace

It is important to remember that all the protection ratings given are only guaranteed for complete body coverage, i.e. upper and lower parts worn in combination must offer the same level of protection. For each selected combination, the user must ensure that the body cover (sleeves, trouser legs, minimum overlap, etc.) is maintained during movement. The user must check this in accordance with the applied standards before selecting the clothing composition.

**There is no direct relationship between the maximum number of cleaning cycles which may be specified and the clothing service life. The service life depends on how the products are used, cared for and stored, etc.**

### Ageing

The Clothing should be withdrawn from use after approximately ten years following the date of sale, depending on the amount of use, level of care and storage.

### Transportation/storage/disposal

- Clothing must be transported and stored at normal room temperature (approx. 20–21 degrees Celsius).
- Protect clothing from UV light. For disposal, please contact your local waste disposal company.

### Declaration of conformity


The relevant declaration of conformity for your product can be found at the following link:

<https://www.hb-online.com/de/service/konformitatserklarungen/>. There you enter the 13-digit item number, followed by an underscore and the 2, 3 or 4-digit colour code, e.g. 0100410028004\_2027.

### Labelling







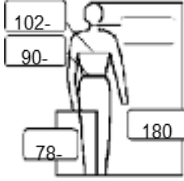
Labels in type-examined protective clothing contain the following information:

- CE marking + number of the notified body
- Cut number
- If specified, the description/brand name of the fabric
- Number of the European standard (with associated pictograms) + the performance levels achieved
- Full sales item number
- Size information
- Fibre content
- Care recommendations
- Size converted into body dimensions as per EN 13688
- Additional information
- Information about which institute carried out the certification
- Manufacturer's production number

 This pictogram on the clothing label informs the wearer of the month and year the garment was manufactured. The date of manufacture (month/year) is printed behind the pictogram.

Example:  07/2017 This garment was produced in July 2017.

**Explanation of labelling in the clothing using example of labels:**

 xxxx	Code of the Monitoring Notified Body (Cat. III only)	<b>Outer fabric 1+2</b>	Material composition
10049 000	Tested cut number	...% modacrylic ...% cotton ...% carbon	...of the outer fabric
INDURA® UltraSoft®	Fabric designation	<b>Lining</b>	
  	Standards, pictograms	...% modacrylic ...% cotton ...% carbon	...of the lining
	Book pictogram		Ginetex care recommendations
IEC 61482-2 APC 1 EN ISO 20471	European standard + performance level achieved	Do not use fabric softeners.	Additional information
 07/2017	Date of manufacture, here as example July/2017		Pictogram
01004 10049 000	Manufacturer product number		in body dimensions [cm]
2027	+ colour number		
<b>52</b>	Size information	Designation of the notified body (example) 106273	Certified by: Hohenstein NB 0555 Manufacturer's production number (PA)

The material composition and care instructions are indicated on the sewn-in label in every finished product and must be strictly observed.

The label in the finished product recommends a care treatment for the item based on Ginetex or ISO 30023 labelling.

Each product must always be subjected to a wash test in advance in order to prevent visual and mechanical problems occurring after an industrial, commercial or domestic wash.

We therefore recommend carrying out test laundering prior to industrial laundering.

**ISO 30023 care symbols for industrial laundering**



**Pictogram for professional industrial laundering**

Square box containing the word "PRO" in capital letters in negative font indicates the suitability for care in a professional laundry

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

**Symbol for the laundering process**

Example of a laundry symbol; the selected laundering process is displayed inversely. The figure in the small box of the laundry symbol correlates to one of the eight laundry processes described in ISO 15797

1	Table 1/1
2	Table 1/2
3	Table 2/1
4	Table 2/2
5	Table 3/1
6	Table 3/2
7	Table 4/1
8	Table 4/2



**Symbol for the drying process**

**Drum dryer**

Drying in the tumbler is indicated by a hexagon in a square







**Tunnel finisher/drying cabinet**

Use of a tunnel finisher or drying cabinet is represented by a square divided into three equally sized rectangles.

**INTERNATIONAL TEXTILE CARE SYMBOLS**

<b>WASHING</b> (wash tub) 											
	Normal wash cycle	Normal wash cycle	Mild wash cycle	Normal wash cycle	Mild wash cycle	Very mild wash cycle	Normal wash cycle	Mild wash cycle	Very mild wash cycle	Hand wash	Do not wash
	<p>The figures in the wash tub correspond to the maximum washing temperatures, which must not be exceeded. 1 bar below the wash tub = mild treatment with reduced washing quantity and low speed during spinning. 2 bars = very mild treatment with reduced mechanics (e.g. wool washing).</p>										
<b>BLEACHING</b> (Triangle) 											
	Chlorine and oxygen bleach allowed			Only oxygen bleach allowed / no chlorine bleach			Do not bleach				
<b>DRYING</b> (Square with a circle) 											
	Tumble drying possible, normal drying process			Tumble drying possible, gentle drying process			Do not tumble dry				
	<p>The dots indicate the severity of the temperature in the tumble dryer.</p>										
<b>IRONING</b> (iron) 											
	Hot iron (200°C)			Iron at moderate temperature (150°C)			Iron at low temperature (110°C). Caution when using steam irons			Do not iron	
	<p>The dots indicate the temperature ranges for the iron.</p>										
<b>PROFESSIONAL CARE</b> (Circle) 											
	Professional dry-cleaning, normal cleaning process		Professional dry-cleaning, gentle cleaning process		Professional dry-cleaning, normal cleaning process		Professional dry-cleaning, gentle cleaning process		Do not dry-clean		
	<p>This symbol is used for articles that may be treated in water by a professional wet-cleaning process. The letters in the circle (P, F) indicate the solvents used in dry cleaning. The bar(s) under the symbol indicates a milder treatment.</p>										

				
	Professional dry-cleaning, normal cleaning process	Mild professional wet-cleaning	Very mild professional wet-cleaning	Do not wet-clean
	This symbol (W) is used for articles that may be treated in water by a professional wet-cleaning process. It appears in a second line below the symbol for dry cleaning. 1 bar under the symbol = milder treatment (delicate cycle). 2 bars = care levels with especially gentle treatment.			

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**The following must also be observed for all products:**

- Care must follow the specifications on the care label. If indicated on the care label, we usually recommend industrial washing procedures for our clothing.
- Do not use water softeners, fabric softeners, brighteners, bleaching agents of any type or starch and do not treat the clothing with agents that have a strong oxidative effect.
- Wash white fabrics separately from coloured ones; do not handle together with other materials that could bleed or stain significantly.
- Wash flame-resistant clothing separately.
- Avoid over-drying the clothing. Observe the care labelling (tumbler or finisher) on the respective label. The clothing must always have sufficient residual moisture content to prevent it from shrinking excessively.
- Iron at the temperature specified on the care label.
- Do not overload the washing machine. Excessive loading can subject the clothing to increased wear and tear, have an adverse effect on its appearance and stop it being cleaned correctly.
- We recommend checking the protective function of the clothing before each wear.
- To prevent significant wrinkling, a significant drop in the temperature during the care procedure should be avoided.
- There must be no detergents or auxiliary agents whatsoever left behind in the clothing after washing. Warning: If this instruction is not observed, the protective effect may be impaired.
- PH values in the care process that are too high or too low can have a negative impact on the material and its protective effect.
- The clothing must be re-impregnated after every wash and continually checked with regard to the EN 13034 properties. Furthermore, you should check with the manufacturer that you are using the correct dosage of a suitable re-impregnation agent.
- Wash items of clothing inside out and do not package them when damp or wet.
- Exposure to extreme heat can cause temporary and partial changes to the colours of fabrics.

**Please observe the following information on the specific standards.**

**Please note that not all the standards listed below are applicable to your protective clothing. The standard(s) applicable to your protective clothing can be found on the sewn-in label.**

**If the wearer is still unclear about anything, they should contact the safety officer in their company.**



**IEC 61482-2, EN 61482-2**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, IEC 61482-2:2009 / in conjunction with IEC 61482-1-2 Ed.2:2014, or IEC 61482-2:2018 (EN 61482-2:2020) in conjunction with IEC 61482-1-2 Ed.2:2014, and EN ISO 13688:2013*

**Protective clothing against the thermal hazards of an electric arc EN 61482-1-2/IEC 61482-2:**

The protective clothing meets the requirements of the European standards IEC 61482-2:2009 or IEC 61482-2:2018 (DIN EN 61482-2:2020) in conjunction with IEC 61482-1-2 Ed.2:2014 (DIN EN 61482-1-2:2015-08) and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective clothing – General Requirements/ EN 340:2003 (DIN EN 340:2004-03) – Protective clothing – General Requirements.

Special clothing for protecting the upper and lower part of the body, the arms, and the legs of the wearer; head, hands, and feet are excluded.

This protective clothing protects the wearer against the thermal hazards of a defined electric arc and prevents further burning. This clothing protects the wearer against heat. The heat can be caused by convection, radiation, liquid metal spatters or a combination of these.

The protective clothing presented here is not insulating protective clothing and does not provide protection against accidental contact with live parts, e.g. according to EN 50286:1999 "Electrical insulating protective clothing for low-voltage installations". The environmental conditions and risks in the workplace must be noted. Conditions with higher energy levels and longer exposure times than the test parameters can lead to more serious injuries. For full personal protection, additional suitable protective equipment such as a safety helmet/visor, protective gloves etc. are also needed. Under no circumstances should other garments with melting fibres, e.g. polyamide, polyester, acrylic, be worn underneath the clothing. However, the use of flame-retardant undergarments cannot exclude the possibility of injury, e.g. burns. In the case of jointly tested clothing systems (e.g. shirt and jacket worn over the top), the protection rating is only guaranteed for combinations being named on the garment label and if the body is completely covered, i.e. in combination with certified trousers of the same level of protection.



#### **Performance classes and description according to IEC 61482-2 2009**

IEC 61482-2 tested in accordance with EN 61482-1-2 may define the following classes, which differ with regard to the test current: Class 1: 4 kA, 500 ms, Class 2: 7 kA, 500 ms.

The respective performance class of the protective clothing is indicated on its label. Class 1 is the lower class and class 2 the higher.

Protective clothing produced with a double thickness of material on jacket front, sleeves and front of trousers, and tested according to EN 61482-1-2/ IEC 61482-2 Class 2, is marked "multilayer/double-layered areas in front/sleeves = Class 2".



#### **Performance classes and description according to IEC 61482-2 : 2018 / EN 61482-2:2020**

IEC 61482-2 tested in accordance with EN 61482-1-2 may define the following classes, which differ with regard to the test current:

Arc protection class 2 (APC=2): 7 kA, 500 ms

The respective performance class of the protective clothing is indicated on its label. Class 1 (APC=1) is the lowest class and class 2 (APC=2) the highest.

Protective clothing produced with a double thickness of material on jacket front, sleeves and front of trousers and tested in accordance with EN 61482-1-2/ IEC 61482-2 Arc protection class 2 is marked "multilayer/double-layered areas in front/sleeves APC = 2".

#### **The clothing does not have a protective effect if**

- soiling on the clothes reduces their protective performance, due to contamination with flammable or highly flammable substances, for example
- it is not worn closed right up at the neck

**Caution:** Metal spatters can get into open pockets. Therefore, make sure no welding or cutting work is done behind the wearer.



#### **EN ISO 11612**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN ISO 11612:2015, and EN ISO 13688:2013*

#### **Protective clothing to protect against heat and flame**

The protective clothing meets the requirements of the European standards EN ISO 11612:2015 (DIN EN ISO 11612:2015-11) or EN ISO 11612:2008 (DIN EN ISO 11612:2009-05) – Clothing to protect against heat and flame, and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.

**Clothing certified in accordance with EN ISO 11612** is special clothing for protecting the upper and lower part of the body, the arms, the legs and, depending on the collection, the head of the wearer; hands, feet and eyes are excluded. This protective clothing protects the wearer from brief contact with flames and radiant heat.

### **Defined performance levels**

EN ISO 11612 may cover the following individual tests:

- limited flame spread (code letter A1 = surface ignition, A2 = edge ignition)
- Convective heat (code letter B; three performance levels)
- Radiant heat (code letter C; four performance levels)
- Liquid aluminium spatters (code letter D; three performance levels)
- Liquid iron spatters (code letter E; three performance levels)
- Contact with heat (code letter F; three performance levels)

For the specified performance levels, 1 is the lowest performance level and 3 or 4 is the highest.

### **The clothing still has a protective effect if**

partial body protection such as a flame-retardant vest is additionally worn along with a jacket or waistband jacket, provided that it is certified accordingly.

### **The clothing does not have a protective effect if**

- an item of clothing that is only certified according to code letter A, B or C is used to protect against liquid metals
- it is not worn closed right up at the neck
- Shirts with a protective function are tucked into the trousers and so the required overlap is not given.

**Caution:** if clothing is contaminated with flammable or highly flammable substances, the wearer must move back at once and carefully take off the clothing. The clothing must then be replaced immediately. Metal spatters can get into open pockets. Therefore, make sure no welding or cutting work is done behind the wearer.

### **Important information on intended use**

This protective clothing is intended to protect its wearer against brief contact with flames and at least one further kind of heat. Clothing that has been tested according to EN ISO 11612:2015, is always tested with respect to limited flame spread.

Even if clothing has been rated under code D and/or code E in accordance with DIN EN ISO 11612, in case of splashes of molten metal, the wearer must immediately leave the workplace and remove the clothing items.

In addition, risks of burns from splashes of molten metal cannot be ruled out if a clothing item is worn next to the skin.

### **Information on aluminised goods:**

Due to the wear of metallised coatings, the wearer, when putting on the clothing, must make sure that the material shows no damage at any point on the garment, and that the aluminised coating is not damaged or impaired in any way.

Metallized / aluminised partial body protection (trousers, neck protection, hoods, arm protectors, overshoes, aprons and gaiters) may only be worn in conjunction with appropriately certified underwear (with the fundamental requirements according to DIN EN ISO 11612) and a suitable suit system if this corresponds to the level determined by the risk assessment. Please note that the headgear belonging to the collection must be worn with a suitable helmet. Any windows must be combined with eye protection offering characteristics that meet the requirements of the workplace.



### **EN ISO 11611**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN ISO 11611:2015 and EN ISO 13688:2013*

### **Protective clothing for use in welding and related processes**

The protective clothing meets the requirements of the European standards EN ISO 11611:2015 (DIN EN ISO 11611:2015-11) or EN ISO 11611:2007 (DIN EN ISO 11611:2008-01) – Protective clothing for welding and



allied processes – and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.

This type of protective clothing is intended to protect the wearer against weld spatter (small splashes of molten metal only) and brief contact with flames.

### **Performance classes**

The protective clothing is divided into two classes that differ in terms of their resistance to very small weld spatter and their heat transfer.

Class 1:  $\geq 15$  drops,  $RHTI_{24} \geq 7$  s, tear-propagation resistance 15 N

Class 2:  $\geq 25$  drops,  $RHTI_{24} \geq 16$  s, tear-propagation resistance 20 N

Both requirements must be met for a class to be achieved. Class 1 is the lower class and class 2 the higher.

After the hazard analysis, Annex A of EN ISO 11611 will provide you with an initial guide to selecting the correct clothing:

**Class 1 – Criteria for choice based on the type of process:** Manual welding operations during which small amounts of spatter or droplets of molten metal are formed, e.g.: gas welding, TIG welding, MIG welding (low voltage), micro plasma welding, soldering brass, spot welding, shielded electrode MMA welding (with a rutile-coated electrode).

**Criteria for choice based on the type of work:** operation of machines, e.g.: oxygen cutting machines, plasma cutting machines, resistance pressure welding machines, thermal spraying, welding tables

**Class 2 – Criteria for choice based on the type of process:** Manual welding operations during which large amounts of spatter or droplets of molten metal are formed, e.g.: MMA welding (using alkaline or cellulose electrodes), MAG welding (with  $CO_2$  or mixed gasses), MIG welding (high-voltage), flux-cored arc welding, plasma cutting, gouging, oxygen cutting, thermal spraying.

**Criteria for choice based on the type of work:** operating machines, e.g.: in enclosed spaces, when welding/cutting operations require reaching above head height or take place in comparable difficult positions

The limited flame spread of the clothing after washing is always tested as part of EN ISO 11611.

Surface ignition is identified by code A1 and edge ignition by code A2.

Definition of ignition procedures according to EN ISO 15025

EN ISO 15025 Procedure A – surface ignition, corresponds to code A1

EN ISO 15025 Procedure B – bottom edge ignition, corresponds to code A2

### **The clothing does not have a protective effect if**

- it is not worn closed right up at the neck
- the protective performance of clothes is reduced by contamination on the clothing, such as that caused by unintentionally coming into contact with live conductors
- there is an electrically conductive connection between the outside and inside of the clothing, for example, through metal closures
- the oxygen content in the air has increased, e.g. during welding in confined spaces
- the clothing is wet, dirty or soaked with sweat
- Shirts with a protective function are tucked into the trousers and so the required overlap is not given.

### **Important information on intended use**

This protective clothing is intended to protect the wearer against very small metal spatters and brief contact with flames. During arc welding, the clothing will only provide protection against brief accidental contact with the live elements of a circuit. In the event of increased electrical risk, additional insulating layers are required.

If repeated thermal exposure (e.g. contact with open flames, metal spatters, penetration beads, etc.) leads to visible, lasting changes to the raw material of the clothing (scorch marks, traces of smoke residue, burn holes, etc.), a reduced protective function is to be expected in these areas.

Additional partial body protection must be worn for overhead welding and similar tasks.

**The tested protective clothing does not provide electrical insulation like clothing that meets the requirements of EN 50286:1999 “Electrical insulating protective clothing for low-voltage installations”.**



EN 1149-5

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 1149-5:2018 / EN 1149-5:2008 in conjunction with EN 1149-3:2004 or EN 1149-1:2006 and EN ISO 13688:2013.*

### **Protective clothing – Electrostatic properties**

The protective clothing meets the requirements of the European standards EN 1149-5:2018 (DIN EN 1149-5:2018-11) or EN 1149-5:2008 (DIN EN 1149-5:2008-04) Protective Clothing – Electrostatic properties – Part 5: Material performance and design requirements in conjunction with EN 1149-1:2006 (DIN EN 1149-1:2006-09) Protective Clothing – Electrostatic properties – Part 1: Test method for measuring surface resistivity or EN 1149-3:2004 (DIN EN 1149-3:2004-07) Protective Clothing – Electrostatic properties – Part 3: Test method for measuring charge decay and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.

This electrostatic dissipative protective clothing is intended to protect against incendiary discharge in potentially explosive atmospheres where the minimum ignition energy is not less than 0.016 mJ and the wearer is earthed with a system connected to earth via a resistance of less than  $10^8 \Omega$ .

**The protective clothing is designed to protect against incendiary discharges and not as electro-insulating clothing.**

### **General performance requirements**

The performance requirements for electrostatic dissipative protective clothing designed to avoid incendiary discharges are described in EN 1149-5:2018 / EN 1149-5:2008.

### **Test methods**

- Surface resistance in Ohm  $\Omega$  (EN 1149-1: 2006)
- Measurement of charge decay in seconds (EN 1149-3:2004)

Well-fitting, electrostatic dissipative protective clothing must be put on and closed completely before entering explosion-prone areas (zones 1, 2, 20, 21 & 22) , and every wearer must check the functionality of the closures before putting it on.

### **The clothing only has a protective effect if**

- all non-antistatic components are covered at all times
- the person is definitely earthed, for example, by means of antistatic footwear
- it is worn closed right up to the top

### **The clothing does not have a protective effect if**

- objects are poking out of the pockets.
- the clothing does not fit properly.

**Caution:** additional elements that are attached to the electrostatic dissipative protective clothing for safety reasons must be permanently attached to the electrostatic dissipative base material (e.g. glued/stitched). If the clothing features tabs, only ATEX-certified accessories may be attached to them. Name badges and other badges fixed to Velcro fastening strips attached to the outside of the clothing are not permitted. Optional accessories, such as belts, that do not have electrostatic dissipative properties, must always be covered by a closed jacket when worn and must not be worn over clothing, e.g. a coverall. Work clothing or protective clothing must not be worn in an oxygen-enriched atmosphere or in Zone 0 without the prior consent of the responsible safety officer and must not be changed, put on or taken off in explosion-prone areas and when handling flammable and explosive substances. **Please note:** standard clothing and protective clothing can become charged. However, when worn it does not present an explosion hazard in general, provided the person is earthed by means of appropriate footwear and suitable flooring, for example. Nevertheless, in certain cases, such as with PU-coated weather protection clothing, dangerous charges may occur. If constant contact between the skin and clothing is not ensured, additional measures must be taken to dissipate the possible electrical charge of the clothing, or the entire clothing system worn should comply with EN 1149-5 (underwear, shirts, jackets, trousers and shoes). When handling explosives, the suitability of the clothing should be assessed separately. The dissipative property of the clothing must not be impaired by washing, for

example, the clothing must be re-treated or entirely replaced if applicable. The use of softening agents in the washing and cleaning process is strictly prohibited. **Please note:** If the dissipative property of the textile surface is achieved via integrated conductive threads, it must be ensured that these threads do not break or become damaged during the service life. Too much mechanical stress should be avoided, to avoid damaging the antistatic elements.

### **Important information on intended use**

This protective clothing does not provide protection against mains voltage and cannot meet requirements in a combustible atmosphere enriched with oxygen. If the volume resistivity is below 100 kilo-ohms, the minimum level of protection against electric shock from current-carrying elements is not present. It must also be ensured that adequate earthing is available. If the clothing is contaminated with any type of chemical agent, it should be immediately changed, as its protective function may be compromised.



### **EN 13034 (equipment type 6 or type PB [6])**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 13034+A1:2009 and EN ISO 13688:2013*

### **Protective clothing against liquid chemicals EN 13034 (type 6 or type PB [6]) equipment)**

The protective clothing meets the requirements of the European standards EN 13034:2005+A1:2009 (DIN EN 13034:2005+A1:2009-08) – Protective clothing against liquid chemicals – Performance requirements for chemical protective clothing offering limited protective performance against liquid chemicals (type 6 and type PB [6] equipment) and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.

Type 6 and Type PB (6) protective clothing against liquid chemicals represent the lowest performance level of chemical protection and are suitable where there may be exposure to minor chemical spraying, liquid aerosols or low-pressure spattering.

Type 6 protective suits against liquid chemicals cover and protect at least the torso and haunches. The clothing offers limited protective performance against liquid chemicals (Type 6 and Type PB [6]). After chemical action, the item of clothing should be changed immediately. The protective effect is mainly due to the dense texture and acid-repellent properties of the fabric.

### **The clothing does not have a protective effect if**

- it is contaminated with flammable or highly flammable substances.
- Shirts with a protective function are tucked into the trousers and so the required overlap is not given.

**Caution:** We recommend wearing the appropriate clothing underneath the protective clothing.

Acids and bases can get into open pockets. Therefore, always ensure that pockets are closed. If chemical substances (acids, bases, solvents, etc.) affect the clothing, subsequent damage of the raw material due to long-term exposure cannot be ruled out, even if the protective function of the clothing is fully guaranteed for the wearer. Indicators of chemical damage can be significant, visual changes (the beginning of pitting) in the area of the contamination that can result in reduced protective functionality.

### **Test methods for EN 13034 Type 6 or type PB (6)(core tests):**

- Chemical resistance is primarily determined and classified by the repellency index (R) (minimum requirement  $R > 80\%$ ) and the penetration index (P) (minimum requirement  $P < 10\%$ ).

Class 1 corresponds to the lowest and class 3 the highest value.

The following chemicals are used for this test: 30% sulphuric acid ( $H_2SO_4$ ), sodium hydroxide 10% (NaOH), o-Xylene (undiluted) and Butan-1-ol (undiluted). If other chemicals or concentrations are used, these must be explicitly tested.

EN 13034 stipulates a number of requirements for chemical protection. These include requirements regarding the material, seams and joins. One of these many requirements is resistance to chemicals. The standard is met regarding this point when one of four chemicals passes the test. In the worst-case scenario, this means that resistance is only guaranteed for a single chemical, at a single concentration, at a single temperature and for a single period of time. Chemical resistance is defined by a number of factors, however:

chemical, concentration, temperature, duration, type and manner of the chemical's impact on the protective clothing, and the mechanical stress to which the protective clothing is exposed.

The confirmation of chemical protection corresponding to type 6 can therefore only be seen as an initial indication.

The suitability of protective clothing must be individually checked for each workplace under its specific conditions.

**Important information on intended use**

The impregnating agent used to re-impregnate the FC clothing must be adapted to the respective product and its protective functions, and its application should be carried out by an industrial launderer. All items of clothing certified to EN 13034 Type 6 offer only partial body protection. Contaminated clothing must be disposed of immediately.

**The repellency index, penetration index and the attained strength values of the outer material can be read off an additional label on the clothing, e.g. EN 13034 type 6 and type PB (6):**

Sulphuric acid 30%		Butan-1-ol	
Repellency index (R)	Class x	Repellency index (R)	Class x
Penetration index (P)	Class x	Penetration index (P)	Class x
Sodium hydroxide 10%		Abrasion resistance	Class x
Repellency index (R)	Class x	Tear-propagation resistance	Class x
Penetration index (P)	Class x	Tensile strength	Class x
o-Xylene		Puncture resistance	Class x
Repellency index (R)	Class x	Seam resistance	Class x
Penetration index (P)	Class x		



**EN 343**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 343 +A1:2007, EN 343:2019 and EN ISO 13688:2013.*

**Protective clothing – Protection against rain**

The protective clothing meets the requirements of the European standards EN 343:2003+A1:2007+AC:2009 (DIN EN 343:2010-05) or EN 343:2019 (DIN EN 343:2019-06) – Protective Clothing – Protection against rain and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.

This European standard specifies requirements and test methods for materials and seams used in clothing to protect against precipitation (e.g. rain, snowflakes), fog and ground humidity.

According to PPE Regulation (EU) 2016/425, Annex I, weather-protection clothing assessed according to EN 343:2010 falls under Category I, point e): atmospheric conditions that are not of an extreme nature. An internal production control according to module A can be carried out.

**Performance classes**

Both performance classes achieved are always printed on the label, next to the EN 343 pictogram.

- Water penetration resistance class [Pa; WP value]. Determines the protective effect of the clothing against the penetration of rain water. Class 1 is the lowest class and class 4 the highest class
- Resistance to water vapour penetration class [m<sup>2</sup>Pa/W; R<sub>et</sub> value]. This indicates how much resistance the material offers to the penetration of water vapour. The lower the RET value of a garment, the more breathable it is. Here, too, class 1 is the lowest class and class 4 the highest.
- Finished garment R tested in the rain tower (optional)



- Y Resistance to water penetration class
- Y Resistance to water vapour presentation class
- R Garment tested in the rain tower (optional)

**EN 343:2019**

The performance levels can be found on the label.  
An **X** on the label indicates that this point was not tested.

An initial indication of the recommended maximum wear period can be found in this table from EN 343:

Ambient temp. °C	Class/period of wear in min			
	1 $R_{et} > 40 \text{ m}^2\text{Pa/W}$	2 $25 < R_{et} \leq 40 \text{ m}^2\text{Pa/W}$	3 $15 < R_{et} \leq 25 \text{ m}^2\text{Pa/W}$	4 $R_{et} \leq 15 \text{ m}^2\text{Pa/W}$
25	60 min	105 min	180 min	-
20	75 min	250 min	-	-
15	100 min	-	-	-
10	240 min	-	-	-
5	-	-	-	-

“ - “ = no limitation on the period of wear.

**The clothing does not have a protective effect if**

- pointed objects are attached to or transported in pockets;
- the garment is punctured.



**EN 14058**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 14058:2017 and EN ISO 13688:2013*

**Garments for protection against cool environments**

This protective clothing is capable of providing protection against cool environments (-5°C and above) for a specific period of time subject to a specific temperature limit. However, the protective effect depends on the wearer's physical condition and level of activity, the other clothing worn and environmental conditions such as wind speed, temperature or humidity. It does not include specific requirements regarding headgear, shoes and gloves for preventing localised hypothermia. The insulation effect can be reduced by cleaning procedures.

**The clothing does not have a protective effect if**

- the wearer perspires profusely

**Pictogram and performance level for cold protection clothing**



**EN 14058**

- Y Thermal resistance class,  $R_{ct}$
- Y Air permeability class, AP
- Y Measured resulting basic thermal insulation  $I_{cler}$  in  $\text{m}^2 \times \text{K/W}$  (optional)
- Y Water penetration resistance, WP (optional)

The performance levels can be found on the label.

An **X** on the label indicates that this point was not tested.

**Performance classes (core tests indicated on the label):**

- Thermal resistance [ $\text{m}^2\text{K/W}$ ;  $R_{ct}$  value]. Determines the flow of dry heat through the material  
Classification in 4 classes; class 1 corresponds to the lowest and class 4 the highest insulation value. The higher the class, the higher the clothing's heat insulation.
- Air permeability [ $\text{mm/s}$ ; AP value]. Divided into 3 classes, class 1 is the lowest class and class 3 the highest class. The higher the class, the lower the air permeability
- Resulting basic thermal insulation  $I_{cler}$  of the clothing (tested with reference clothing R) (optional)
- Water penetration resistance [ $\text{Pa}$ ; WP value] (optional)

**Important information on intended use**

The clothing should be worn in a cool environment that is generally characterised by a potential combination of air moisture and wind at temperatures of -5°C and above. If no WP value is indicated on the label, the garment is not designed to protect against water penetration.

Basic thermal insulation  $I_{cler}$  for the clothing and ambient temperatures in °C for heat compensation with different load durations

Insulation $I_{cler} m^2 \cdot K/W$	Wearer with standing activity, 75 W/m <sup>2</sup>			
	Air speed			
	0.4 m/s		3 m/s	
	8 h	1 h	8 h	1 h
0.170	21	9	24	15
0.265	13	0	19	7
0.310	10	-4	17	3

Resulting basic thermal insulation  $I_{cler}$  for the clothing and ambient temperatures in °C for heat compensation with different load levels and periods of use

Insulation $I_{cler} m^2 \cdot K/W$	Wearer with activity in movement							
	Light 115 w/m <sup>2</sup>				Medium 170 W/m <sup>2</sup>			
	Air speed							
	0.4 m/s		3 m/s		0.4 m/s		3 m/s	
	8 h	1 h	8 h	1 h	8 h	1 h	8 h	1 h
0.170	13	0	18	7	1	-12	8	-4
0.265	3	-12	9	-3	-12	-28	-2	-16
0.310	-2	-18	6	-8	-18	-36	-7	-22



EN ISO 20471

The information contained in the general instructions must be observed.

Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN ISO 20471:2013 or EN ISO 20471+A1:2016 and EN ISO 13688:2013.

### High visibility clothing -- Test methods and requirements

The protective clothing meets the requirements of the European standards EN ISO 20471:2013 / EN ISO 20471:2013+A1:2016 – High-visibility clothing – and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.

### High visibility clothing – Test methods and requirements according to EN ISO 20471

The high visibility clothing is intended to provide conspicuity of the wearer in any light condition when viewed by operators of vehicles or other mechanized equipment during daylight conditions and under illumination of headlights in the dark.

Guidance on the selection of PPE taking into account the risk to be met:

The following influencing factors can be used in a risk assessment:

- Passive behaviour of the wearer when working in traffic flowing at a speed >60km/h = high risk = clothing design high-visibility class 3.
- Passive / active behaviour of the wearer when working in traffic flowing at a speed ≤60km/h = high risk = clothing design as per high-visibility class 2.
- Passive behaviour of the wearer when working in traffic flowing at a speed ≤30km/h = high risk = clothing design as per high-visibility class 1.

Despite the guidance given, the wearer bears the ultimate responsibility for their own safety. It is therefore essential to prepare a hazard analysis.

The highest level of protection is generally achieved by wearing clothing (jacket alone or jacket and trousers) from high-visibility class 3. Upper and lower parts of the clothing certified according to this standard must, if certified as single pieces, always be evaluated separately. The assessment of a clothing combination of jacket and trousers according to the high-visibility class must also be checked by an independent testing agency. The clothing must be worn closed in the danger area.

### Performance classes:

- Minimum surface of visible material [m<sup>2</sup>]

The different high-visibility clothing classes (1–3) indicate the different surface areas of the visible fluorescent background material (e.g. orange-red) and the retroreflective (reflective) material (reflective strips). The larger the surface, the higher the classification, which means that class 3 meets the maximum requirements.

**Important:** in the pictogram, X specifies the high-visibility protection class. Class 3 high-visibility clothing must surround the torso (upper body) and cover one pair of limbs – either legs or arms – which means that high-

visibility vests can never meet class 3 criteria. Trousers worn alone do not meet high-visibility class 3 criteria, either.

**The clothing does not have a protective effect if**

- the clothing items are defective or soiled (e.g. wear and tear, holes, closures)
- High-visibility clothing must not be shortened or turned up.
- No sew-on badges, embroidery appliqués, patch emblems or similar accessories may be added to the clothing.
- It is not permitted to separate or remove clothing elements (e.g. pockets or reflective strips).

Repairs may only be carried out by a specialist company using original material.

**Important information on intended use**

The protective clothing must be chosen based on a risk assessment and according to the place and the day or night-vision conditions and categorised according to the risk classes of the standard. The garment's fit, as well as the clothing size, wearing comfort and freedom of movement of the wearer, must also be taken into consideration. The protective function of the fluorescent material and the retroreflective material (for example, reflective strips) must be checked each time the clothing is washed and put on.

Fluorescent and retroreflective materials must not be worn covered up.

If a waistcoat or other article of clothing is worn over the proposed high-visibility clothing/high-visibility PPE or in combination with other protective clothing or carrying straps/harnesses, the function of the certified personal protective equipment must not be impaired. The clothing must maintain the minimum surface of fluorescent or retroreflective material serving as a basis for the required safety class.

The maximum number of washing and/or cleaning cycles specified is not the only factor influencing the clothing's service life. The service life and visual conspicuousness by day and night depend on use (e.g. dirt), care (e.g. cleaning product, repairs) and storage (e.g. storing away from light). Therefore, it must be possible to see clothing in high-visibility materials from all sides (360°). If the maximum number of cleaning cycles is not stated on the care label, the material was tested after at least 5 care cycles. Subsequent repair work must be carried out using original materials and only in consultation with the manufacturer or distributing company.

**EN ISO 20471:2013 + A1:2016, RIS-3279-TOM Issue 2 (2019) Railway Industry Standard**

Clothing tested in accordance with the requirements of RIS-3279-TOM is marked accordingly on the label. Class 1 (RIS 3279) trousers must be worn together with tops from the required class RIS 3279.



**EN 17353**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 17353:2020 and EN ISO 13688:2013*

**Protective clothing – Enhanced visibility equipment for medium risk situations – Test methods and requirements.**

The protective clothing meets the requirements of the European standards EN 17353:2020 (DIN EN 17353:2020) – Enhanced visibility equipment for medium risk situations – and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements.




The enhanced visibility features are provided to make the wearer's presence noticeable in medium-risk situations, in all possible daylight conditions and/or when illuminated by vehicle headlights or searchlights in the dark.

**Guidance on the selection of PPE taking into account the risk to be met:**

Despite the guidance given, the wearer bears the ultimate responsibility for their own safety. It is therefore essential to prepare a hazard analysis. Clothing suitable for a medium risk is not to be used for high-visibility equipment in high-risk situations, which is covered by EN ISO 20471. After the hazard analysis, Annex A of EN 17353:2020 will provide you with an initial guide on selection. The following influencing factors can be used in a risk assessment:

Risk level	Factors influencing the risk level <sup>a</sup>		Risk level
	Speed of the vehicle	Road users	
High risk EN ISO 20471, Class 3	>60km/h	Passive	High visibility
High risk EN ISO 20471, Class 2	≤60km/h	Passive	
High risk EN ISO 20471, Class 1	≤30km/h	Passive	
Medium risk EN 17353, Type A, B, AB	≤60km/h	Active	Increased visibility
	≤15km/h	Passive	
Low risk	-	-	Visibility

### **Performance classes:**

- 
**Type A daylight:** Equipment using fluorescent material. Is worn if the risk of not being seen exists only in daylight.
- 
**Type B darkness:** Equipment using retroreflective material. Is worn if the risk of not being seen exists only in the dark. Type B is divided into three levels: B1 (free hanging), B2 (limbs), B3 (on torso or on torso and limbs).
- 
**Type AB daylight, twilight, darkness:** Equipment using fluorescent and retroreflective material, or material with combined properties. Is worn if the risk of not being seen exists in daylight, twilight or the dark. Type AB is divided into 2 levels: AB2 (limbs), AB3 (on torso or on torso and limbs)

### **The clothing does not have a protective effect if**

- the clothing items are defective or soiled (e.g. wear and tear, holes, closures).
- Clothing must not be shortened or turned up, influencing the amount of fluorescent or reflective material. It is not permitted to separate or remove clothing elements (e.g. pockets or reflective strips).

### **Important information on intended use**

The protective clothing must be chosen based on a risk assessment and according to the place and the day or night-vision conditions and categorised according to the types of the standard. The garment's fit, as well as the clothing size, wearing comfort and freedom of movement of the wearer, must also be taken into consideration. Fluorescent and retroreflective materials must not be worn covered up.

The protective function of the fluorescent material and the retroreflective material (for example, reflective strips) must be checked each time the clothing is washed and put on. The maximum number of washing and/or cleaning cycles specified is not the only factor influencing the clothing's service life. The service life and visual conspicuousness by day and night depend on use (e.g. dirt), care (e.g. cleaning product, repairs) and storage (e.g. storing away from light). Therefore, it must be possible to see clothing in high-visibility materials from all sides (360°). If the maximum number of cleaning cycles is not stated on the care label, the material was tested after at least 5 care cycles. Subsequent repair work must be carried out using original materials and only in consultation with the manufacturer or distributing company.



**EN 510**

### **The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 510:1993 and EN ISO 13688:2013/ (EN 340:2003).*

### **Specifications for protective clothing for use where there is a risk of entanglement in moving parts**

The protective clothing meets the requirements of the European standards EN 510:1993 (DIN EN 510:1993-03) – Specification for protective clothing for use where there is a risk of entanglement with moving parts – and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective clothing – General Requirements/ EN 340:2003 (DIN EN 340:2004-03) – Protective clothing – General Requirements.

Protective clothing to be worn if the risk of entanglement with moving parts cannot be fully eliminated by means of design safety measures.



The clothing designed to protect the wearer's upper and lower body, neck, arms and legs against the risk of becoming entangled and pulled in by moving machine parts.

**The clothing does not have a protective effect if**

- the closure elements used make it impossible to take the clothing off quickly in an emergency
- button holes, buttons, press studs, zips, clips or other types of closures are chemically or mechanically damaged



**EN 13758-2**

**The information contained in the general instructions must be observed.**

*Product development, tests and assessments were performed based on the PPE Regulation (EU) 2016/425, Annex II, in conjunction with EN 13758-2:2006 and EN ISO 13688:2013/(EN 340:2003).*

**Textiles – Clothing with solar UV protective properties**

The protective clothing meets the requirements of the European standards EN 13758-2:2003+A1:2006 (EN 13758-2:2003+A1:2006-06) – Textiles – Solar UV protective properties – Part 2: Classification and marking of apparel – and EN ISO 13688:2013 (DIN EN ISO 13688: 2013-12) – Protective Clothing – General Requirements/ EN 340:2003 (DIN EN 340:2004-03) – Protective Clothing – General Requirements.

European Standard **EN 13758-1** defines the process for determining the solar UV protective properties of textiles. **The labelling** required for the clothing is specified in **EN 13758-2**.

**Test method**

The UV protection factor (UPF value) specifies the degree of protection. The lowest UV protection factor value must be at least 40. The label always indicates UPF 40+ together with the sun pictogram.

**The clothing does not have a protective effect if**

the area of the body to be protected is not fully covered

(e.g. if the upper and lower body are to be protected but they are not covered properly)

**Important information on intended use**

Solar radiation causes skin damage. Areas are only protected against UVA and UVB rays if they are covered. The level of protection afforded by textiles and finished products changes with use and as a result of stretching or the effects of moisture.