

DID YOU KNOW

HOW ARE OUR HIGH-VISIBILITY GARMENTS TESTED IN ACCORDANCE WITH EN ISO 20471 AND RIS-3279-TOM?



To evaluate the effectiveness of retroreflective tape, a retroreflectometer is employed. Every roll of tape is put through testing to make sure it satisfies and beyond industry standards. The coefficient of two rotating angles is measured by the retroreflectometer. According to EN ISO 20471, the reading must be at least 400 (cd/lx.m²); however, at Portwest, we demand a value of at least 330 (cd/lx.m²).



A spectrophotometer is used to check the chromaticity - "colour intensity" - of fabric. We use this to ensure every roll of fabric meets the requirements of EN ISO 20471 and RIS-3279-TOM.



RIS imposes a higher concentration for high visibility orange fabric for railway workers. This increases the conspicuous nature of the fabric and ensures that the rail worker is more visible.

DID YOU KNOW

EN ISO 11611 PROTECTIVE CLOTHING FOR USE IN WELDING AND ALLIED PROCESSES.

RAINBOW APPAREL LTD



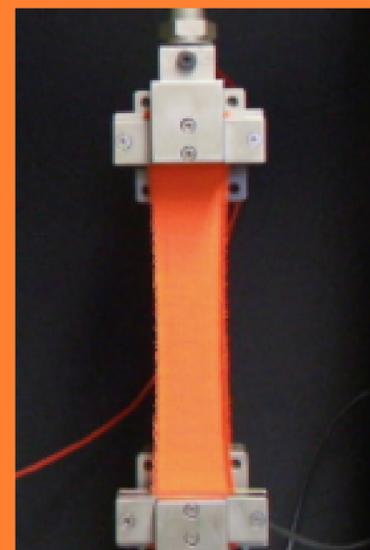
EXTERNAL POCKETS

In order to comply with EN ISO 11611 all external pockets must be flapped, except for side pockets below the waist which do not extend more than ten degrees forward of the seam.



RULE POCKET

A single rule pocket with an opening not greater than 75mm is permitted behind the side seam on one or both legs.



TENSILE STRENGTH

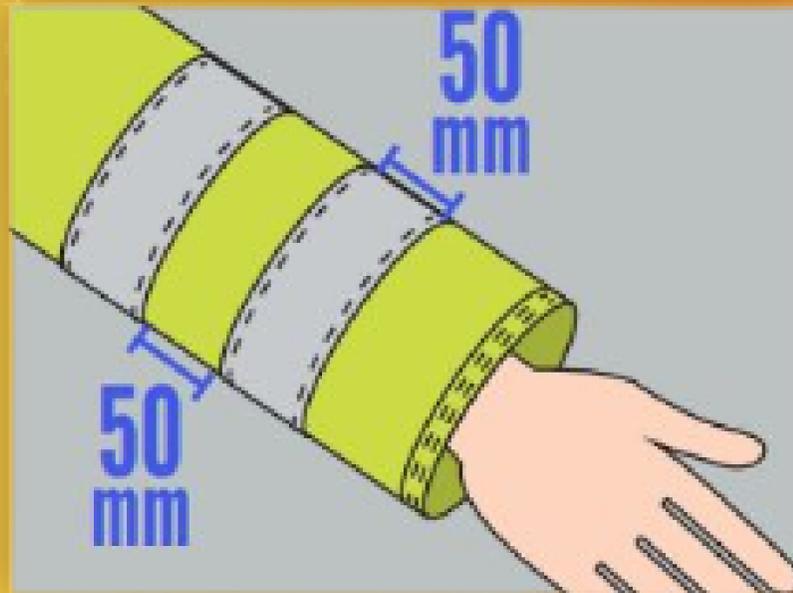
To meet EN ISO 11611 tensile strength must be at least 400N and tear strength must be at least 15N for class 1 and 20N for class 2.



Portwest's winning FR50 style has a tensile strength value of at least 500N and tear strength of at least 25N after 50 washes.

DID YOU KNOW

EN ISO 20471 RETRO-REFLECTIVE TAPE MUST MEET THE FOLLOWING PARAMETERS.



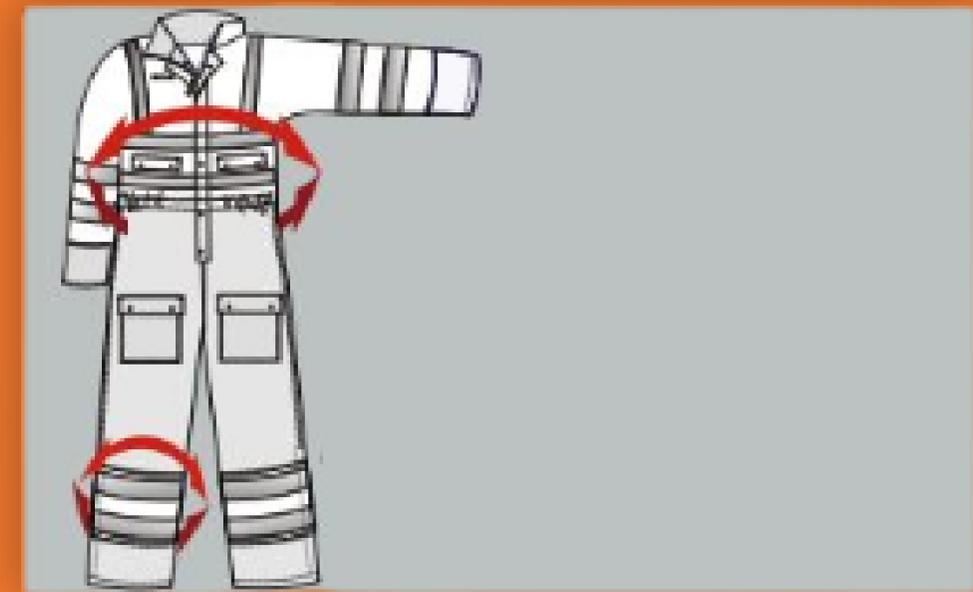
REFLECTIVE TAPE

Reflective tape must be at least 50mm wide. Bands of reflective tape must be positioned at least 50mm apart.



DISTANCE FROM HEM

Reflective tape must be positioned 50mm or more from the end of sleeve or leg.



ALL AROUND THE BODY

Reflective tape must encircle torso and/or limbs to be included in the calculation of the necessary square area of reflective tape. A gap (for fastening system or seam) in the band of reflective tape must be 50mm or less. The total amount of such gaps in every band must not exceed 100mm around the torso and 50mm around the sleeves and legs.

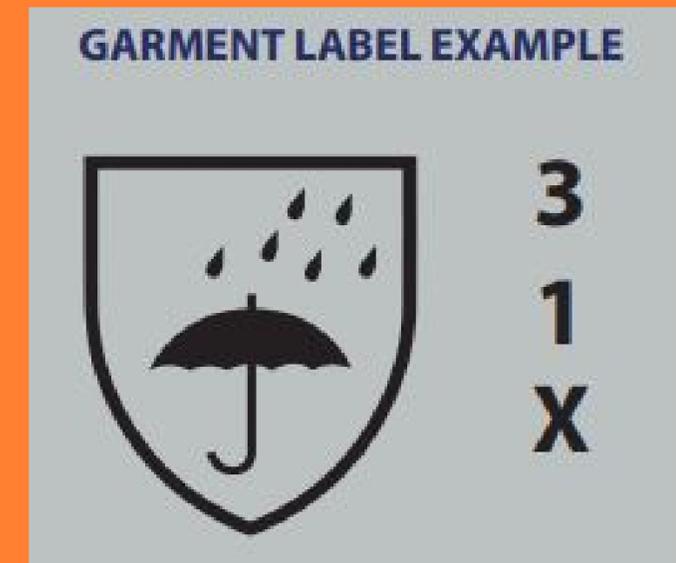
DID YOU KNOW

WHAT IS EN 343?



EN343

EN343 is the European standard that applies to garments worn in adverse weather conditions. This standard specifies requirements and test methods applicable to the materials and seams of protective clothing against the influence of precipitation (e.g. rain, snowflakes), fog and ground humidity



The above pictogram indicates that protection against rain is offered.

The standard provides for two performance parameters of which there are 4 levels with Class 4 offering the highest level of protection.

X Water Penetration Resistance (Waterproofness) 4 Levels

Y Water Vapour Resistance (Breathability) 4 Levels

R Readymade Garment; Rain Tower Test (optional)

R may be replaced by an X if the test has not been carried out or is not suitable.

DID YOU KNOW

WHAT IS EN 342?



EN342 is the European standard that applies to garments worn in cold environments. This standard specifies requirements and test methods for the performance of clothing ensembles (i.e two-piece suits/coveralls) for protection against the effects of cold environments equal to or below -5°C.

There are three main parameters:

A) Thermal insulation (this is tested using a full-size moving mannequin & measures the amount of energy required to maintain warmth)

B) Air Permeability (This is a measure of how windproof the garment is), AP, Class 1-3 (where 3 is best)

C) Water penetration (waterproofness) Class 1-2 (where 2 is best); optional test



EN 342

0.336 I_{cler} (m²K/W) (Thermal Insulation)
 2 (Air Permeability)
 X (Water Penetration Resistance)

Garment Insulation I_{cler} (m ² K/W)	Wearer Activity (Light)				Wearer Activity (Medium)			
	Air Velocity (m/s)				Air Velocity (m/s)			
	0.4		3		0.4		3	
	8hr	1hr	8hr	1hr	8h	1hr	8hr	1hr
0.336	-2	-18	6	-8	-18	-36	-7	-22

A person wearing S463 performing light activity can withstand -2°C for 8hrs and -18°C for 1hr. A person performing Medium activity can withstand -18°C for 8hrs and -36°C for 1hr.

Wear Time

The manikin test measures the amount of energy required to maintain warmth. This result is expressed in square metres Kelvin per Watt (m² K/W) this result can be used to estimate the maximum wear time based on the activity level of the wearer, the temperature of the environment and insulation value of the garment.

DID YOU KNOW

EN 812:2012 CERTIFIED INDUSTRIAL BUMP CAPS



IMPACT / SHOCK ABSORPTION

Bump caps are intended to protect the wearer from static objects (e.g. walking into low ceilings or hanging obstructions).



To achieve the impact test, a 5 kg fl at striker is dropped onto the bump cap from a height of 250 mm, with a maximum allowable transmitted force of 15 kN. Impacts are carried out on the front and rear of the bump cap, with the headform tilted at 30° and 60° to reflect the nature of any impacts likely in use.



PENETRATION

Bump caps are intended to provide protection against sharp or pointed objects (such as corners or protruding elements of static objects)



A penetration test is carried out at lower energy and involves a 500g striker being dropped from a height 500mm onto the bump cap fitted to a fixed headform.

DID YOU KNOW

EN ISO 20471 HAS 3 PERFORMANCE LEVELS.



THE 3 CLASSES

Class 3: Highest Level

Class 2: Intermediate Level

Class 1: Minimum Level

CLASS 3: HIGHEST LEVEL

Highest level of protection - required for any persons working on or near motorways, dual-carriage ways or airports. Must incorporate a minimum of 0.80m² of background material and 0.20m² of retroreflective materials. (4 metres of 5cm wide reflective tape)

CLASS 2: INTERMEDIATE LEVEL

Required for any persons working on or near A and B class roads, also for delivery drivers. Must incorporate a minimum of 0.50m² of background material and 0.13m² of retro-reflective material. (2.60 metres of 5cm wide reflective tape)

CLASS 1: MINIMUM LEVEL

Minimum level of protection required for any persons working on a private road or to be used in conjunction with a higher classed garment. Must incorporate a minimum of 0.14m² of background material and 0.10m² of retroreflective material. (2 metres of 5cm wide reflective tape)

DID YOU KNOW

WHAT IS EN ISO 11611?



PROTECTION AGAINST...

This international standard specifies minimum basic safety requirements and test methods for protective clothing for use in welding and allied processes (excluding hand protection). There are two classes with specific performance requirements.



CLASS 1 LEVEL PROTECTION

Class 1 is protection against less hazardous welding techniques and situations, causing lower levels of spatter and radiant heat.



CLASS 2 LEVEL PROTECTION

Class 2 is protection against more hazardous welding techniques and situations, causing higher levels of spatter and radiant heat.



TESTING.

The EN ISO 11611: standard has the following parameters:

- Tensile Strength
- Tear strength
- Busting strength
- Seam strength
- Dimensional change
- Requirements of leather
- Limited Flame Spread (A1 + A2)
- Molten Droplets
- Heat Transfer (radiation)
- Electrical resistance



EN ISO 11612

DID YOU KNOW

EN 13034? PROTECTIVE CLOTHING AGAINST LIQUID CHEMICALS PROCESSES.



PERFORMANCE REQUIREMENTS

For chemical protective clothing offering limited protective performance against liquid chemicals (Type 6 and Type PB [6] equipment). This standard specifies the minimum requirements for limited use and re-useable limited performance chemical protective clothing.



AREAS OF USE

Limited performance chemical protective clothing is intended for use in cases of a potential exposure to a light spray, liquid aerosols or low pressure, low volume splashes, against which a complete liquid permeation barrier (at a molecular level) is not required.



TYPE 6 REQUIREMENTS

Type 6 Chemical Protective suits must cover and protect at least the trunk and the limbs, Example One piece coveralls or two piece suits, with or without hood, boot-socks or boot covers.



TYPE PB [6] REQUIREMENTS

Type PB [6] Partial body protection covers and protects only specific parts of the body. Example coats, aprons, sleeves.



DID YOU KNOW

EN388 WHAT ARE THE CHANGES?



REVISION TO ABRASION TEST

The Abrasion Test is designed to give an indication of the durability of the gloves. The performance levels are still the same but the sandpaper used to perform the test has been changed from 100 grit to a finer 180 grit material.



REVISION TO CUT TEST

The method for testing the cut resistance of gloves has been typically carried out using a circular blade which moves back and forth across the surface of the gloves. This test is commonly referred to as the Coup Test. The revisions to the Coup Test are: Circular blade test stops at 60 cycles. New blade used for every cut. If cutting factor is greater than 3 (i.e. difference in performance of the reference material against the test material) the straight blade test becomes the reference test. The Coup Test does not have to be referenced if referencing the Straight Blade Test. In this case it will be marked with an X.



STRAIGHT BLADE TEST (ISO 13997)

The Straight Blade test can be used in lieu of the Coup Test. It should also be used if the Coup Test reaches 60 cycles or if the cutting factor is greater than 3. The test is conducted on a TDM 100 machine. Tests are conducted using a new blade every time, blunting is not a factor. Increasing levels of force are applied, 2 newtons up to 30 newtons. Letter score is applied A - F, F being the highest. The letter reference is applied in lieu of or along with the cut number reference.



EN 388