



Ultimate
Industrial

WORKWEAR & CLOTHING STANDARDS & REGULATIONS 2019

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EN ISO 20471

EN ISO 20471 is an international standard that imposes requirements on visible workwear for employees in high-risk areas. Using the right safety workwear is important and must be prioritised.

EN ISO 20471 is divided into three classes, in accordance with the risk zone you work in and how capable the product is of visually signalling the wearer's presence. It is the visibility requirement – and thus the requirement for the area consisting of reflectors and fluorescent materials – that determines which class you need to choose. The selection and use of high-visibility clothing should be based on a risk assessment of the conditions in which the wearer of the high-visibility clothing will be working.

Reflective and fluorescent materials shall be equally distributed on each garment's front and back with a maximum deviation of +/- 10%.

Minimum area per m² garment as follows:

Fabric	Class 3	Class 2	Class 1
Fluorescent Material	0.8	0.5	0.14
Reflective Material	0.2	0.13	0.1

The requirements for colour fastness under EN ISO 20471

Products must undergo tests and be approved for colour fastness for a minimum of five wash cycles. However, a product's life cycle may be limited by several factors, listed in the products user information sheet.

Protection Against Foul Weather

EN343:2003+A1:2007

Protective clothing certified according to EN 343 protects against precipitation as rain or snow, fog and ground humidity. The standard specifies test methods and demands on fabrics and seams on garments intended to protect against foul weather. The garments are tested for water penetration (X) and water vapour resistance (Y). The garment is classified according to water resistant properties, and the water vapour resistivity gives the recommended working time.



X X - Class water penetration, level 1, 2 or 3 (3 max)

Y Y - Class water vapour resistance, level 1, 2 or 3 (3 max)

Temperature °C of working environment	Class		
	1	2	3
	$1 R_{et}$ above 40min	$2 < R_{et} \geq 40$ min	$3 < R_{et} < 20$ min
25	60	105	205
20	75	250	.
15	100	.	.
10	240	.	.
5	.	.	.

Water Penetration Class Resistance (Wp) Pascal (Pa)	Class		
	1	2	3
Test on material	$\geq 8,000$ Pa before pre-treatment	$\geq 8,000$ Pa after pre-treatment	$\geq 13,000$ Pa after pre-treatment
Tests on seam, before pre-treatment	$\geq 8,000$ Pa	$\geq 8,000$ Pa	$\geq 13,000$ Pa



Railway Group Standard - Hi Visibility Clothing

WHAT IS GO/RT 3279 / RIS-3279-TOM

GO/RT 3279 is a high visibility standard that only applies to the rail industry in the UK, as opposed to the EU-wide nature of other EN standards. The aim is to ensure that rail workers on or near the trackside are sufficiently visible to trains approaching at speed or any other traffic.

Summary of the Standard

On the UK railway network, the wearing of high visibility clothing has become a mandatory requirement for all persons associated with track or lineside working. There is a large range of high visibility clothing available, however, there is a particular specification for clothing that is allowed to be worn on the UK rail network. The specification is set out in Railway Group Standard RIS-3279-TOM:ISSUE 1, a document that defines the 'minimum requirements for high visibility that is to be provided for wearing by people when on the lineside or on or near the line'. The document also sets out special requirements for the high visibility clothing of Rail Incident Officers, who may be on a track following accidents.

The RIS-3279-TOM:ISSUE 1 standard is based on the European standard EN ISO 20471:2013. It requires garments to meet at least class 2 (the mid-point of a 3-class scale) of EN ISO 20471 for the minimum area of high visibility materials used within a garment. Whereas the European standard permits several different colours of high visibility materials, the railway standard specifies an orange colour. In order to confine this to a specific orange colour, and to prevent the selection of a colour at the red end of the spectrum, the precise chromaticity co-ordinates for the colour are specified as: Fluorescent orange, X:0.588, Y:0.371, with a luminance factor of at least 0.4. The accepted tolerance in colour is as laid out in EN 20471. However, there is no tolerance for the luminance factor.

Again, the railway standard draws on EN ISO 20471:2013 and specifies materials for use that meet the highest level of photometric performance criteria that are specified within the standard.

RIS-3279-TOM:ISSUE 1 also defines the requirements for a high visibility minivest. These are required to conform to class 1 design requirements of EN ISO 20471:2013, except they need to exceed the requirements in EN ISO 20471 for both the minimum area of the orange background material and retro-reflective tape used in the garment. The GO/RT standard also states that the visible materials of the garment must not be compromised by the addition of company names or logos.

Wash & Care

Care Instructions:

All garments have washing instructions and it is important that these are carefully followed. Users should be aware that garments made of fluorescent material can become discoloured and lose their function if washing instructions are not followed. Regular changing and washing of clothing increases clothing lifetime and reduces accumulated soiling.

Cleaning and Maintenance of Hi Visibility Workwear EN ISO 20471

- Must not be washed together with other types of clothing.
- Should not be soaked prior to washing.
- Powerful alkaline detergents, such as stain removers, should not be used.
- Detergents containing bleaching agents and/or dissolvents will destroy the reflective material and the colour of the product.
- The temperature must not surpass the temperature indicated on the wash label.
- Teflon-treated / PU coated clothing may have reduced water repellency after repeated washes. For the maximum amount of recommended washes, see the attached product label for more details.
- The garments should be inspected following each wash.
- Do not tumble dry.

Cleaning and Maintenance of Rainwear with No Cleaning Label

- Rain gear should be wiped clean with a soft cloth or a sponge. Do not use a washing machine.
- Powerful alkaline detergents, such as stain removers, should not be used.
- Do not bleach.
- Do not tumble dry.

General Care and Maintenance

Prior to use, garments should be stored in their original packaging in cool, dry and clean conditions. In order to prolong the life of your clothing, they should be regularly cared for. If your clothing is exposed to moisture, it should be dried in a well ventilated room at normal room temperature, and not in sunlight or with direct heat.

- Moisture and wear and tear can deteriorate the condition of the workwear and clothing. They must be regularly inspected to ensure that safety norms are being fulfilled.



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