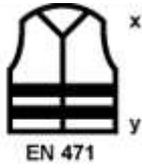


# EN 471 & ISO EN 20471 Workwear Safety Standards



EN 471 & ISO EN 20471 are European standards for high-visibility clothing.

**Class 1** defines the lowest visibility level e.g. High-visibility trousers with two 5 cm reflective bands around each leg. These become Class 3 when worn with a Class 3 jacket.

- Surface area of fluorescent material to be at least 0.14meter square.
- Surface area of reflective material to be at least 0.1 meter square.

**Class 2** defines an intermediary visibility level. Example: vests. Two 5 cm bands of reflective around body or on one 5 cm band around body and braces to both shoulders. (This class is required for motor vehicles in France and other continental EU member states).

- Surface area of fluorescent material to be at least 0.5meter square.
- Surface area of reflective material to be at least 0.13 meter square.

**Class 3** defines the highest level of visibility. Example jacket with long sleeves, jacket and trouser suit. Two 5 cm bands of reflective tape around the body, arms and braces over both shoulders.

Class 3 should be worn when working within 1.2 meters of a Highway with traffic moving in excess of 50 km/h. Best to check with the safety officer on site as there is sometimes a requirement for 'Traffic Management' clothing to be worn on roads where speeds exceed 50mph.

- Surface area of fluorescent material to be at least 0.8meter square.
- Surface area of reflective material to be at least 0.2 meter square.

For some jobs an HV waistcoat may be all that is needed, but workers who are particularly at risk from moving vehicles may need full body high visibility. The clothing should provide adequate protection both during the day and night, as well as in adverse weather.

The darker the conditions or worksite, the greater the amount of HV clothing required.

To be effective HV clothing should be of a colour that will allow the wearer to stand out against the ambient background found in the working

environment. Where necessary the clothing should incorporate retro-reflective material to make the wearer visible when seen in headlights in poor lighting conditions or during darkness. This may require reflective strips at or below waist level on waistcoats or jackets, or strips on trousers.

### **Responsibilities:**

An employer must provide any HV clothing needed for the job free of charge to any employees who may be exposed to significant risks to their safety. The employer must also maintain this clothing in a clean state and in good working order.

They must provide storage facilities for clothing when not in use and provide adequate information, instruction and training to enable employees to use HV clothing correctly. This should include an explanation of the risks, why the clothing is needed, how and when it should be worn. They must also supervise employees to ensure that they wear the clothing correctly and whenever it is needed.

Employees should wear the HV clothing provided as instructed by your employer. Look after clothing issued to you, check for and report any damage or defects to your employer. Use the storage facilities provided when the clothing is not in use. Remember: damaged, dirty or ill-fitting clothing will not offer adequate protection.

### **Notes:**

The European Union has published the new standard EN ISO 20471:2013. This harmonized standard has replaced the former standard EN 471:2004+A1:2007.

Starting in October 2013 all High Visibility products had to be CE marked and certified to ISO EN 20471.

Materials and product manufacturers will need time to update their documentation for those who wish to CE mark to the new norm. It is expected that this process will take some time. Products that are CE marked to EN 471 or ISO EN 20471 will co-exist and will only change as manufacturers update and create new products.

The new norm EN ISO 20471 essentially provides the same level of safety as EN 471, but there are some amendments:-

### **SCOPE**

The standard specifies the requirements for high visibility clothing “which is capable of visually signalling the user’s presence”. The new standard has broadened the usage base and a distinction between different types of risks. The defined risk will be the basis for which norm is applicable for the

user. ISO EN 20471 is applicable to high-risk situations.

## DESIGN

The main difference is in specific design requirements. These requirements now depending on which part of the body the garment is covering, such as torso - For example, vests and tabards; torso and arms.

In the new norm, all class 3 garments must cover the torso and have as a minimum either sleeves with retro reflective bands or full length trouser legs with retro reflective bands. This ends the possibility to CE mark sleeveless garments as class 3.

If a short sleeve is covering a torso band, retro reflective tape must be fitted on the sleeve.

It is now also possible to CE mark separate garments together (instead of a single garment) to fulfil a requirement for a certain performance class. This is achieved by a so called clothing ensemble: e.g. by certifying a jacket and trouser together.

## BACKGROUND MATERIAL, NON-FLUORESCENT MATERIAL

The 3 high visibility colours must now undergo colour testing also after washing. The testing must be performed after the maximum number of washing cycles according to the care recommendations indicated by the manufacturer, alternatively 5 cycles if such indication is missing.

Test methods for performance after washing now requires each cycle to be a wash and dry cycle.

Colourfastness requirements to washing/drying of non-fluorescent background material have been reduced. Adjustments have also been made to the dimensional change (shrinkage) requirements of both knitted and woven materials.

Mechanical requirements have also changed: tensile/bursting strength requirements are reduced as well as tear strength requirements for on laminates/coated materials.

Physiological performance requirements, i.e. water vapour and thermal resistance are now specified in more detail.

Tabards and waistcoats are exempted from physiological performance requirements.