



EN ISO 20471

This International Standard specifies requirements for high visibility clothing, which is capable of visually signalling the user's presence. The high visibility clothing is intended to provide conspicuity of the wearer in any light condition when viewed by the operators of vehicles or other mechanised equipment during daylight conditions and under illumination of headlights in the dark.

High Visibility clothing has a fluorescent surface, combined with reflective material that meets certification requirements in 3 different classes:



Class 3: Highest Level
Highest level of protection - required for any persons working on or near motorways or dual-carriage ways or airports. Must incorporate a minimum of 0.80m² of background material and 0.20m² of retro-reflective 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 retro-reflective material. (2 metres of 5cm wide reflective tape)



EN 471:2003 + A1:2007 High Visibility Clothing

This standard was replaced by the new international standard EN ISO 20471:2013

The increased priority placed on health and safety standards globally across multiple working environments has necessitated a huge focus by companies on the use of high visibility workwear among employees.

This extensive range of high visibility garments meets the stringent requirements in both design and construction, to satisfy the latest high visibility standard EN ISO 20471. This new international standard for high visibility clothing was published in April 2013 and has replaced the EN471 standard.

Testing Amendments under EN ISO 20471:2013

1. The new standard requires that high visibility garments or fabrics are tested after washing. The number of washes (if greater than five) must be stated on the garment care label. This will increase safety and ensure that the 'pre wash' level of the high visibility garment is preserved even after washing.
2. All reflective tapes are in the highest category Class 2. Class 1 Reflective tape is no longer acceptable.
3. Retro-reflective tape – Performance after washing test method requires each cycle to be a wash and dry cycle.
4. Three high visibility fluorescent colours, yellow, orange and red meet the stringent requirements of EN ISO 20471. The contrast colour may be of any colour as long as it passes the EN ISO 20471 colour fastness test. This means it neither bleeds or impairs the protection provided by the high visibility fabric after washing.
5. Tensile strength, Burst strength, Tear strength requirements have been reduced.
6. Colourfastness to perspiration staining requirement has increased to level 4.
7. Colourfastness to washing/dry cleaning staining requirement is reduced to 4 for non-fluorescent fabrics.
8. Water vapour permeability requirements for fabrics (excluding EN343 fabrics) have been amended.

EN342



EN 342 Protective Clothing - Ensembles and Garments for Protection Against Cold

EN 342 - PROTECTION AGAINST COLD

EN 342 is the harmonised European standard that specifies requirements and test methods for performance of clothing ensembles (ie. two piece suits or coveralls) and of single garments for protection against cold environment.

Garments are tested under the following performance parameters as shown on the pictogram below:

Thermal insulation

This is tested on a **moving** manikin. The unit of measurement is Icler and is stated in m². It measures the amount of energy per square metre required to maintain warmth - the higher the number, the better the rating.

X indicates the Thermal insulation test on a **stationary** manikin and is not a compulsory part of the standard. The unit of measurement is Icle and is stated in m².

Air Permeability

Air Permeability measures the ease with which the air can pass through the material. It is a measure of how wind proof the garment is and again the higher the number the better the result. The air permeability on example below achieves a Class 3.

Resistance to Water Penetration

The final result is Resistance to Water penetration, which achieves a Class 2 below. This is an optional test.

Results shown below are for S48S Hi-Vis Contrast Coverall.

EN343



EN 343 - Protective Clothing, Protection Against Rain

EN 343 is the harmonised European standard that applies to garments worn in adverse weather conditions. It specifies the characteristics of protective clothing against the influence of foul weather, wind and cool above -5°C. The standard provides for two performance parameters:

X = Waterproofness (3 levels)

Y = Breathable properties (3 levels)



GO/RT 3279 Railway Group Standard

Railway Group Standard sets out the minimum specification for high visibility warning clothing in the Rail Industry.

EN 510



EN 510 - Protective Clothing for use where there is a Risk Of Entanglement from Moving Parts

This standard specifies the properties of protective clothing that minimise the risk of its entanglement or drawing-in by moving parts when the wearer is working on or near hazardous moving machines or devices.

EN1150



EN1150 - Visibility Protective Clothing for non-professional use

This European standard specifies the optical performance requirements for high visibility clothing to be worn by adults and by juveniles, and designed for non-professional use.



OEKO-TEX

High Visibility fabrics tested to the Oeko Tex standard guaranteeing fabric does not contain any harmful substances detrimental to human health.

EN 13356 - Visibility Accessories for Non Professional Use

This standard specifies the optical performance requirements for accessories which are to be worn, attached to or carried by people and designed for non-professional use. Visibility accessories complying with this standard are intended to signal the users presence visually when illuminated by vehicle headlight on dark roads.

ISO 13688 - Protective Clothing - General Requirements

This International Standard specifies general requirements and recommendations for ergonomics, ageing, sizing and marking of protective clothing, and for information supplied by the manufacturer.

Every certified garment in this brochure is also certified to ISO 13688. This standard replaces the old EN340 standard.

EN 14058 - Protective Clothing- Garments For Protection Against Cool Environments

This standard specifies requirements and test methods for the performance of single garments for protection against cooling of the body in cool environments. Cool environments are as a result of a combination of humidity and wind at temperatures of -5°C and above.

At moderate low temperatures garments against local body cooling are not only used for outdoor activities but can be used for indoor activities. In these cases garments often do not need to be made of watertight or air impermeable materials. Therefore, these requirements are optional for this standard.