

Technical Sheet

VizLite™ 305 Yellow / Silver FR Reflective Material

Product Information

VizLite™ 305 Flame Retardant Florescent Yellow / Silver Reflective Material is intended for use on Flame retardant PPE clothing such as Fire Fighting clothing to enhance visibility in low light and night time conditions and to meet the requirement for heat resistance.

Design Features

VizLite™ 305 Flame Retardant Florescent Yellow / Silver Reflective Material is comprises of a poly/cotton backing with a Proban treatment constructed as follows:

Silver reflective element - a layer of microscopic glass beads bonded onto a polymer substrate applied to the centre of the florescent yellow flame retardant backing.

Florescent yellow element – does not contain glass beads and is not reflective.

When a beam of light from an oncoming vehicle meets the silver reflective material, the light reflects back to the light source and enhances the visibility of the wearer to the vehicle driver.

Product Performance and Certification

This product is certified by Centro Tessile Cotoniero e Abbigliamento Laboratory in Italy and Bureau Veritas CP in the United Kingdom to EN ISO 20471:2013 - High Visibility warning clothing , ANSI/ISEA 107:2010 - High Visibility safety apparel, EN 469:2005+A1:2006 – Protective clothing for firefighting and EN ISO 14116:2008 – Clothing to protect against heat and flame.

However the following should be noted: The central silver-grey element complies with clause 6 of EN ISO 20471.

This product is certified to be used in protective clothing against heat and flame and not for high visibility clothing for which it is required that the part of retro-reflective material is at least 50mm high.

Retro-reflective Performance

VizLite 305 Flame Retardant Fluorescent Yellow / Silver Reflective Material –

- The central reflective element meets and exceeds the levels of brightness required under EN ISO 20471:2013 and ANSI 107-2004 (Level 2) when new and after test exposure EN ISO 20471:2013 clause 6.2.3 and ANSI 107:2004 clause 8
- The Fluorescent Yellow element meets with the colour performance requirements for materials with combined performance of EN ISO 20471:2013 when new and after xenon test, washing (50 cycles at 60°C flat dry), dry cleaning (5 cycles with perchlorethylene)
- The Fluorescent Yellow element meets with the photometric performance requirements of new material with separate performance when new, after exposure to abrasion, flexing, folding and cold temperature variation, influence of rainfall, washing (50 cycles 60°C flat dry), dry cleaning (10 cycles with perchlorethylene)
- The central silver reflective element measures 1.9cm for 5cm wide material and 2.5cm for 7.5cm wide material
- Is washable to 60°C Domestic wash up to 50 wash cycles
- Offers 10 dry cleaning cycles

EN 469:2005+A1:2006 – Protective clothing for firefighting

- Retro-reflective performance requirements as received and after Resistance to heat (180°C) and after 5 cycles 60°C
- Retro-reflective performance requirements after oven treatment (180°C), after 50 cycles at 60°C washing and oven treatment (180°C)
- Limited flame spread (as received and after 5 cycles washing 60°C)

EN ISO 14116:2008 – Clothing to protect against heat and flame, Limited flame spread materials, material assemblies and clothing

- Limited flame spread – surface ignition before and after 5 cycles washing 60°C

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Ecological Performance

VizLite™305 have been certified by Shirley Technologies in the England to Oeko-Tex Standard 100, product class III have shown that the above mentioned goods meet the human-ecological requirements of the standard presently established for products without direct contact with skin.

The certified articles fulfil the requirements of annex XVII of REACH (incl. the use of azo-dyes, nickel, etc.) as well as the American requirement regarding total content of lead in children's articles (CPSIA)

Product Application

Retro-Reflective warning garments are mainly used in environments where the wearer is working alongside vehicles. These garments improve visibility of the wearer and thus reduce the risk of being struck by a vehicle e.g. highways, railway lines, airports, warehouses, dockyards.

VizLite™ 305 Fabric is recommended when these garments also require flame and heat resistance such as Firefighting clothing and flame resistant PPE.

VizLite™ 305 Fabric is not recommended for use in garments used in heavy wear environments and is not suitable for industrial laundry.

Product Usage

Cutting

- Suitable for cutting by hand (using very sharp cutting tools) or by guillotine
- Cuts should be made from the reflective surface.

Recommended Fabrics

- Polyester or Polyester mix products either woven or knitted with a weight between 150 and 200g/SQM.
- Not suitable for stretchy fabrics such as Lycra or those containing Lycra as results can be poor.
- All substrate materials should be chosen based on suitability for intended use and laundry properties

Sewing

- VizLite™ 305 Fabric can be applied direct to fabric panels before a garment is sewn together.
- Stitching should be at a distance of 3mm from the edge of reflective material to reduce fraying.
- Where separate pieces of reflective material meet on a garment, care should be taken to match the visible appearance.
- Any variations in appearance however will not affect the retro-reflective properties of the reflective material.

Stitching

- A double lock stitch with a maximum 5 stitches per cm is recommended.
- For substrates up to 250g/m² needle size NM80 -90 is recommended. For substrates greater than 250g/m² a larger needle size would be required.
- A Teflon™ coated needle and Pressure foot is recommended to enable a smooth fabric transition.
- Thread tension should be kept to a minimum.
- Tension on both upper and lower threads must be matched to ensure there is no puckering.
- Thread should be matched to the substrate i.e. Flame retardant. All threads should be shrink proof and be suitable for sewing at higher speeds.
- The guide on 2-Needle machines should be set at 2-3 mm above the width of the reflective fabric. This will decrease the chance of puckering by a difference in tension between the reflective fabric and the substrate.

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Storage and shipping

- Rolls should be stored in the packaging they are supplied in.
- Cut pieces should be stored flat
- Opened rolls should either be stored in their original packaging or suspended by the use of a rod through the middle of the roll.
- VizLite™305 fabric should be stored in an area that is cool, dry and with low humidity.
- Precautions should be taken to protect the material from coming into contact with perspiration, strong acids, or compounds containing high levels of sulphur or chlorine. Contamination by these substances may affect the aesthetic appearance of the VizLite™305 fabric.
- During Transportation and Shipping it is best to keep an ambient condition.

Handling

- VizLite™305 fabric should be handled carefully in hot and humid conditions.
- The area in which the materials are handled may need the need of cooling or dehumidifying equipment to keep the area cool and dry.
- Avoid the contamination of the product with dirt, grease or solvents as this could produce staining that will affect the retro-reflective qualities of the fabric.

Wash and Care

VizLite™305 fabric is designed to be washed at 60° C in a Domestic wash, up to a minimum 50 cycles before the retro-reflective qualities are affected. However the following washing instructions should be closely followed;

- Do not pre-soak
- Do not use a pre-wash program
- Recommended wash program is for coloured clothing wash
- Do not wash at a higher temperature than 60°C
- Recommended wash Temperature is 30-60°C
- Maximum Program time 50 minutes
- Maximum wash time at highest wash temperature 12 minutes

- Domestic washing powders for delicate and coloured fabrics are recommended

Stain removal

- VizLite™ 305 material should be tested for wash conditions before using the material. This can be achieved by mixing a solution of detergent and water and applying with a sponge or cloth to the material. For stain removal of grease or mineral oils, use a clean cloth dipped into white spirits. Wipe clean with water afterwards.
- Chemical splashes should be removed with a clean dry cloth.
- Neutralise splashes of strong acid or alkalis immediately with plenty of clean water
- Dispose any material that comes into contact with toxic or harmful substances in a safe and responsible manner.

Do not use the following types of products to clean/ treat stains on this garment;

- Heavy duty products or stain removal products with a high alkaline content.
- Micro-emulsions or high ph-products
- Bleaches
- Aromatic solvents

The use of the above will affect the lifespan of the retro-reflective material.

Ironing

- Iron on reverse of material if possible
- Iron using medium heat setting.
- Do not use steam

Specialist cleaning and dry cleaning

- VizLite™ 305 fabric is not suitable for Industrial laundry methods
- VizLite™305 material is suitable for dry cleaning up to 5 times

Drying

- Line drying is the preferred method of drying
- This product can be tumble dried at a maximum temperature of 60°C up to 50 times.

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Maintenance issues

VizLite™ 305 fabric's retro-reflective properties will be affected by any of the following treatments;

- Coating or Spraying the garment with oils, protective waxes, paints or inks.
- Application of products such as leather spray or waxes.
- Harsh physical application of abrasive wire brushes or sand paper.

High Visibility Warning clothes should be inspected regularly and maintained in good condition. Any signs of wear and tear may affect the performance of the garment in relation to EN ISO 20471:2013 or ANSI/ISA.

If the performance of the retro reflective material falls below $R = 100 \text{ cd/lx/m}^2$ the garment should be replaced.

Product Disposal

VizLite™ 305 fabric can be disposed of on the garment. The product can be incinerated in a commercial or industrial facility or sent to a landfill site.

General Safety Information

Visibility Limits of VizLite™ 305 fabrics

There are various uncontrollable environmental factors that will affect visibility; these include smoke, hail, snow, mist, dust and fog. Fog, smoke, mist, and dust can all affect the dispersal of light from headlights and retro reflective performance.

The VizLite™ 305 fabric is tested for performance during exposure to rainfall, and exceeds the requirements of EN ISO 20471:2013 and ANSI/ISA. Brightness levels will return after the material dries out.

The retro-reflective qualities can also be diminished by the wearer depending on issues such as the line of sight, other equipment and obstacles in the working environment, and not wearing the garment fastened. The wearer should be aware of these limitations and take the necessary action.

Important notice to Purchaser / Converter / Wearer

Because of the unlimited variety of potential applications for products, BEFORE product use the converter and/ or product manufacturer must determine that the products are suitable for the intended use and are compatible with other component materials. The Purchaser is solely responsible for determining the proper amount and placement of products. While reflective products enhance visibility, no reflective product can ensure visibility on safety under all possible conditions. Neither Viz Reflectives or any Viz Reflectives authorised converter shall be liable for any incidental, special or consequential damages relating to the use or inability to use the products regardless of legal theory used.