

Technical Sheet

VizLite™ 305HFR/CUT Yellow / Silver / Yellow Reflective Film

Product Information

VizLite 305HFR/CUT is a flame retardant fluorescent Yellow / Silver / Yellow Reflective Film that is suitable for use on flame retardant PPE clothing such as Fire Fighting clothing and PPE clothing for the Petro Chemical industry to enhance visibility in low light and night time conditions and to meet the requirement for heat resistance.

VizLite 305HFR/CUT is a segmented heat applied film that is breathable and flexible.

Design Features

VizLite 305HFR/CUT is constructed as follows:

Central silver strip - The film is constructed of a layer of microscopic retro reflective glass beads bonded onto a Polymer layer, to which a heat activated adhesive is applied.

Florescent yellow strips -

VizLite™ 305HFR/CUT is a Yellow / Silver / Yellow Reflective Transfer Film which has been segmented and comes with a PET protective film on the reflective side.

When a beam of light from an oncoming vehicle meets the 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 Satra Technology in the UK to the following standards,

EN ISO 20471:2013 /A1:2016 (High Visibility Warning Clothing)

However, the following should be noted:

This product is certified to be used in protective clothing against heat and flame and not for EN ISO 20471 high visibility clothing for which it is required that the part of retro-reflective material is at least 50mm high.

Retro-reflective Performance

VizLite 305HFR/CUT –

- The central reflective element meets and exceeds the levels of brightness required under EN ISO 20471:2013 when new and after 50 cycles at 60°C - max tumble dry 60°C
- The height of the central silver reflective element measures 1.9cm for 5cm wide material and 2.5cm for 7.5cm wide material
- 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 max tumble dry 60°C

EN 469:2020 – Protective clothing for firefighting

- Retro-reflective performance requirements as received and after 50 cycles at 60°C – Tumble dry max 60°C and oven treatment (180° C)
- Heat resistance at a temperature of 180°C as received and after 50 cycles at 60°C – Tumble dry max 60°C
- Limited flame spread as received and after 50 cycles washing 60°C – Tumble dry max 60°C

EN ISO 14116:2015 – Clothing to protect against heat and flame. Limited flame spread materials, material assemblies and clothing

- Limited Flame Spread – Procedure A – Surface ignition (index 3 before and after – 50 cycles washing 60°C – Tumble dry max 60°C

EN ISO 11611:2015

Protective clothing for use in welding and allied processes

- Limited flame spread – Procedure A – Surface ignition Level A1 before and after 50 cycles washing 60°C – Tumble dry max 60°C

EN ISO 11612:2015

Protective clothing - Clothing to protect against heat and flame

- Heat resistance at a temperature of 180°C (after 50 cycles at 60°C -Tumble dry max 60°C

Technical Sheet

VizLite™ 305HFR/CUT Yellow / Silver / Yellow Reflective Film

- Limited flame spread – Procedure A – Surface ignition (Level A1 before and after 50 cycles washing 60°C – Tumble dry max 60°C)

EN 15384:2020

Protective clothing for firefighters – Laboratory test methods and performance requirements for wildfire clothing

- Limited flame spread – Procedure A – Surface ignition (Level A1 before and after 50 cycles washing 60°C – Tumble dry max 60°C)
- Heat resistance at a temperature of 180°C as received and after 50 cycles at 60°C – F tumble dry max 60°C
- Heat resistance at a temperature of 260°C as received and after 50 cycles washing 60°C with tumble dry at max 60°C

Ecological Performance

VizLite 305HFR/CUT has been certified by Shirley Technologies in the England to STANDARD 100 by OEKO TEX, 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 305HFR/CUT Flame Retardant Florescent Yellow / Silver Reflective Film is recommended when these garments also require flame and heat resistance such as Firefighting clothing and flame-resistant PPE.

Product Usage

Cutting

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

Substrates

The following should be taken into account when applying VizLite™ 305HFR/CUT Transfer Film to the substrates listed below,

- On Nylon and other Polyimide substrates, heat application is not suitable and results are poor.
- To avoid damage to the surface of coated substrates the lamination temperature may need adjusting to a lower setting.
- The use of substrates which have had a silicon, fluorocarbon or flame-retardant finish may result in poor adhesion.
- All substrate materials should be chosen based on suitability for intended use and laundry properties

Lamination

The following recommendations for lamination by using a continual belt heat press and are for guidance only. Other methods can also be used such as heat fusing, High Frequency welding etc. Converters should determine which process best suits their application.

For continual heat press e.g., Reliant heat press,

- Nip roller pressure should be even
- Nip roller pressure ideally set at 70psi (approx. 5 bar)
- Machine speed should be set so that the panel is in the tunnel for approx. 12 seconds
- Temperature should be set at 150°C-160° C
- Temperature inside of the tunnel should be checked using a temperature strip.
- Place the VizLite™ 305HFR/CUT Transfer Film with adhesive side down on the substrate.
- Do not apply Transfer film over seams or stitching.
- Delicate fabrics should be protected by placing a

Technical Sheet

VizLite™ 305HFR/CUT Yellow / Silver / Yellow Reflective Film

siliconised sheet or cloth cover over the film and fabric during lamination.

- The PET Liner should be split when cold by gently lifting from one corner.

For application using a heat press such as a Insta machine.

- Temperature – Between 150°C - 165°C depending on substrate
- Pressure – 50-70 PSI
- Dwell Time – 10-12 seconds
- Cool Peel

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™ 305HFR/CUT film 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 305HFR/Cut Flame Retardant Florescent Yellow / Silver Reflective Film
- During Transportation and Shipping it is best to keep an ambient condition.

Handling

- VizLite 305HFR/CUT Reflective Film 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 305HFR/CUT film 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 305HFR/Cut Flame Retardant Florescent Yellow / Silver Reflective Film 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 alkali 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.

Technical Sheet

VizLite™ 305HFR/CUT Yellow / Silver / Yellow Reflective Film

Ironing

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

Specialist cleaning and dry cleaning

- VizLite 305HFR/CUT Flame Retardant Florescent Yellow / Silver Reflective Film is not suitable for Industrial laundry

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.

Maintenance issues

VizLite™ 305HFR/CUT film 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.

General Safety Information

Visibility Limits of VizLite™ 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™ 306 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.