



Technical Sheet

VizLite™ 201HFR Silver Reflective Transfer Film

Product Information

VizLite™ 201HFR Silver Reflective Transfer Film is intended for use in the FR PPE market for the inclusion in High Visibility Warning clothing such as EN ISO 20471:2013 and ANSI Jackets and Waistcoats to enhance visibility in low light and night time conditions.

VizLite™ 201HFR can also be concerted to produce FR reflective logos, badges, trims

Design Features

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

VizLite™ 201HFR Silver Reflective Transfer Film 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

VizLite™ 201 HFR Silver Reflective Transfer Film is certified by Centro Tessile Cottoniero e Abbigliamento Laboratory in Italy to the following standards.

EN ISO 20471:2013 (High Visibility Warning Clothing)

Retro-reflective Performance

VizLite™ 201 HFR Silver Reflective Transfer Film;

- Meets and exceeds the levels of brightness required under EN ISO 20471:2013
- Is non-orientation sensitive
- Offers excellent feel and smoothness
- Is washable to 60°C Domestic wash up to 50 wash cycles
- Can be Tumble Dried 50 times at Max 60°C temperature
- Can be dry cleaned up to 20 cycles

Flammability Performance

VizLite™ 201HFR Silver Reflective meets and exceeds the requirement of,

EN 469:2020

Protective clothing for firefighters, Performance requirements for protective clothing for firefighting

6.2.1.6 Heat resistance as received

6.2.1.1 Limited Flame Spread, after washing as above

EN ISO 14116:2015

Protective clothing -- Protection against heat and flame -- Limited flame spread materials, material assemblies and clothing

Limited Flame Spread Index 3, after washing as above

EN ISO 15384:2020

Protective clothing for firefighters. Performance requirements for wildland firefighting clothing

6.2.2 Limited flame spread, after washing, as above

6.4 Heat resistance, 260°C after 5 wash cycles at 60°C. Heat resistance, 180°C as received

9.2 Retro-reflective performance

EN ISO 11611:2015

Protective clothing for use in welding and allied processes

6.7 Limited flame spread, after washing, as above

6.10 Electrical Resistance, after washing, as above

EN ISO 11612:2015

Protective clothing - Clothing to protect against heat and flame -- Minimum performance requirements

6.2.1.6 Heat resistance to 180°C, as received

6.3 Limited flame spread, after washing, as previously stated.

BS EN 1149-5: Method 2:2018

As received and after 5 wash cycles at 60°C with tumble dry low



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Ecological Performance

VizLite™ 201HFR has been certified by Shirley Technologies in the England to STANDARD 100 by OEKO-TEX®, product class II have shown that the above mentioned goods meet the human-ecological requirements of the standard presently established for products with direct contact with skin.

The certified articles fulfil the requirements of Annexe 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™ 201HFR is recommended for use with FR materials such as Poly/Cottons treated with FR finish such as Proban® and inherent FR fabrics such as Aramid®.

VizLite™ 201HFR Reflective Transfer Film is a durable material tested to wash a minimum of 50 washes in a domestic environment and 20 dry cleans.

As it has Fire Retardant properties VizLite™ 201HFR is ideal for using on FR PPE used in industries such as Petro-chemical, Welding and Traffic Management risk

VizLite™ 201HFR is not recommended for use in garments used in heavy wear environments and is not suitable for industrial laundry.

Product Converting

In addition to the use on EN ISO 20471:2013 compliant garments, VizLite 201HFR is suitable for the production of reflective logos, Badges and trims using the following methods. It is available in 500mm and 1000mm wide rolls for this purpose.

Cutting

Cuts should be made from the non-reflective surface and fabric should not be stacked more than 5 cm in height. Fabric is suitable for cutting by,

- Hand (using very sharp cutting tools)
- Guillotine
- Die-cut
- Plotter-cutting
- Kiss cutting

Substrates

The following should be taken into account when applying VizLite™ 201HFR Reflective 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.

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 Temperature inside of tunnel should be checked used a temperature strip.
- Place the VizLite™ 201 HFR Reflective 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

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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.

Dwell Time: 10-12 seconds
Pressure: 50-70 PSI / 2-3Kg per cm2
Temperature: 150-165°C

For more details, please see the heat application settings sheet.

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™ 201 HFR 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™ 201 HA FR.
- During Transportation and Shipping it is best to keep an ambient condition.

Handling

- VizLite™ 201HFR 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™ 201HFR 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 domestic 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 40-60°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™ 201HFR 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.



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Ironing

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

Specialist cleaning and dry cleaning

- VizLite™ 201HFR is not suitable for Industrial laundry methods
- VizLite™ 201HFR is suitable for dry cleaning up to 20 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.

Maintenance issues

VizLite™ 201HFR 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.

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

General Safety Information

Visibility Limits of VizLite™ 201HFR

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™ 201 HFR fabric is tested for performance during exposure to rainfall, and exceeds the requirements of EN ISO 20471:2013. The 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.