

This document applies to ORALITE® industrial wash glass bead tapes (garment trims) for sewing application. These instructions do not apply to ORALITE® industrial wash glass bead tapes for heat application. Products covered in this document:

- ORALITE® GP 050
- ORALITE® GP 090
- ORALITE® GP 090G
- ORALITE® GP 095
- ORALITE® GP 100

1.0 General Information

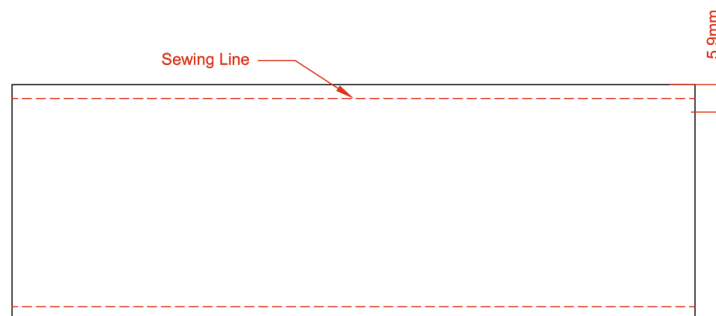
ORALITE® industrial wash glass bead tapes for sewing application are flexible, weather-resistant tapes designed for use on high visibility garments. They are to be sewn to suitable background fabrics and they exceed the photometric requirements of EN ISO 20471:2013. For more information on the retroreflectivity of ORALITE® industrial wash glass bead tapes for sewing application, please reference the relevant technical product bulletin. These are available from your ORAFOL representative or they can be downloaded at www.orafol.com.

We suggest the following measures are taken to achieve the optimum performance from the tapes.

1.1 Application - Sewing to Garment Background Fabric

ORALITE® industrial wash glass bead tapes for sewing application should be sewn onto high visibility garments.

1. **Sewing Machine Settings** – Recommended stitches per inch is 8 (eight). Reduce pressure on the machine foot. A Teflon coated pressure foot can also help with sewing.
2. **Background fabric** – Whilst ORAFOL has carried out compatibility checks to most of the readily available background fabrics, we cannot give an open guarantee that the chosen background fabric is fully compatible. Please check with the manufacturer of the fabric before use. The thread must be able to withstand the same wash and wear conditions as the material it is being applied to.
The reflective tape should always be supported by a complete piece of background fabric and not partially by separate pieces. Tape applied over multiple fabric folds/layers or immediately next to such folds can increase the mechanical action on the tape during washing and may reduce performance in this area. This should be avoided or minimized where practical.
3. **General** – Do not stretch the tape as it is being applied. At the cut ends of the tape we recommend that the tape is turned under itself and sewn through the doubled over edge. Where possible within the design of the garment, the cut ends should be inside the seams of the garment.
4. **Sewing border** –
ORALITE® GP 050/090/095/100
There is no defined sewing border on these tapes but we recommend sewing at 2 – 3 mm from the edge of the tape as shown:



Due the variety of manufacturing environments globally, stains on the surface of reflective material can appear on completed garments especially if assembled or stored in hot and humid environments. Such stains can appear on any exposed silver glass bead material. Staining may occur when contaminants come in contact with the reflective surface during the application process and the finished article is subsequently stored in hot and humid conditions. The likely sources of contaminants, among others, include:

1. Perspiration, salt water or other chlorine containing compounds.
2. Strong acids or bases (low pH solutions or high alkaline/caustic solutions)

Staining does not indicate that the product is defective and the products reflective performance is not affected.

To reduce the possibility of staining during the manufacturing process:

1. Use air conditioning to cool and dehumidify the manufacturing and storage areas.
2. Do not allow perspiration, sewing machine oils, or other contaminants to come in contact with the reflective surface.
3. All workers handling the exposed reflective material surface should wear gloves.
4. Check that the fabric's additives will not stain the reflective surface.
5. Cover the reflective surface to prevent handling during the manufacturing step. This may be a plastic film for example.

Storage & Shelf Life

The product must be used within one year from the shipment date. All rolls including partially used rolls should be stored in original packaging, tightly wound. Store in a clean and dry area, away from direct sunlight. Store at 20°C ± 2°C and 50% ±15% relative humidity.

Completed garments with tape attached should be stored in well-ventilated packaging and maintained in similar environmental conditions (20° C and 50% relative humidity).

Long storage periods can potentially diminish the protective properties of all PPE materials.

It is recommended that completed garments are not stored for more than 1 year.

2.0 Care Instructions – General Information

Symbols explained

Dry		Iron		Dry Cleaning		Bleach	
	Tumble dryer, normal cycle Temperature 80°C normal process		Ironing at a maximum soleplate temperature of 120°C, ironing with steam, can cause irreparable damage.		Professional dry cleaning with perchloroethylene, normal process except trichloroethylene		Only non-chlorine bleach when needed
Domestic Wash		Industrial Wash					
	Maximum washing temperature 60° C Normal Process		Maximum wash temperature 75°C, industrial wash, ISO 15797, washing procedure 2, tumble drying		Maximum wash temperature 75°C, industrial wash, ISO 15797, washing procedure 8, tumble and tunnel drying		

Table 1: Overview of Care Instructions

Wash						Dry	
Domestic	Industrial	Dry Cleaning	Norm	Cycles	Temperature	Tumbler	Finisher

GP050

✓	-	-	ISO 6330:2021 Method 6N, F	100	60 °C	✓	-
-	✓	-	ISO 15797:2017 Method 1.2	25	75 °C	✓	-
-	✓	-	ISO 15797:2017 Method 4.2	25	75 °C	✓	✓
-	-	✓	ISO 3175-2:2017	100	-	-	-



GP090

✓	-	-	ISO 6330:2021 Method 6N, F	100	60 °C	✓	-
-	✓	-	ISO 15797:2017 Method 1.2	100	75 °C	✓	-
-	✓	-	ISO 15797:2017 Method 4.2	75	75 °C	✓	✓
-	-	✓	ISO 3175-2:2017	100	-	-	-



GP090G

✓	-	-	ISO 6330:2021 Method 6N, F	100	60 °C	✓	-
-	✓	-	ISO 15797:2017 Method 1.2	75	75 °C	✓	-
-	✓	-	ISO 15797:2017 Method 4.2	50	75 °C	✓	✓
-	-	✓	ISO 3175-2:2017	100	-	-	-

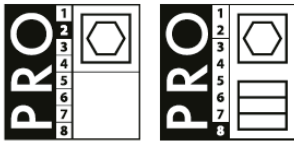


ORALITE® Glass Bead Garment Tapes for Sewing Application and Industrial Wash

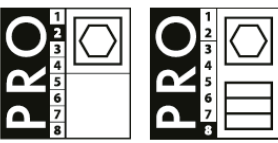
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Wash						Dry	
Domestic	Industrial	Dry Cleaning	Norm	Cycles	Temperature	Tumbler	Finisher

GP100

✓	-	-	ISO 6330:2021 Method 6N, F	100	60 °C	✓	-	
-	✓	-	ISO 15797:2017 Method 1.2	25	75 °C	✓	-	
-	✓	-	ISO 15797:2017 Method 4.2	25/50	75 °C	✓	✓	
-	-	✓	ISO 3175-2:2017	100	-	-	-	
								

GP095

✓	-	-	ISO 6330:2021 Method 6N, F	100	60 °C	✓	-	
-	✓	-	ISO 15797:2017 Method 1.2	50	75 °C	✓	-	
-	✓	-	ISO 15797:2017 Method 4.2	50	75 °C	✓	-	
-	✓	-	ISO 15797:2017 Method 4.2	75	75 °C	-	✓	
-	-	✓	ISO 3175-2:2017	100	-	-	-	

ORALITE® industrial wash glass bead tapes for sewing application wash as well at lower temperatures as they do at higher temperatures. Therefore select the lowest washing temperature that will ensure adequate cleaning of the fabric. This will allow environmentally friendly washing and will extend the life of the garment.

Variations in environmental conditions as well as chosen care process may affect the life of your garment. The number of wash cycles may differ as a result from the number certified in ISO 15797 wash process in each individual wash process. Regular inspection of the garment performance against the requirements of EN ISO 20471:2013 is therefore recommended. Information included in the care label should be verified to ensure that the reflective material maintains compliance with EN ISO 20471:2013.

Note!

ORALITE® industrial wash glass bead tapes for sewing application are certified to ISO15797 Method 1.2 & Method 4.2 as detailed above. Washing process, drying process and detergent selection changes can significantly change the wash durability of the reflective tape. It is important that these parameters are evaluated for each application, and it remains the responsibility of the user to test their specific conditions to assess durability.

Hand Washing

Hand washing can be done with a sponge, a soft fabric cloth or a soft brush with lukewarm water and a mild detergent. After washing, the tape must be rinsed with clean water. Stubborn stains such as grease or tar may be spot cleaned with petrol, alcohol, naphtha or turpentine. After spot cleaning the tape must be hand washed as above and rinsed with water.

Industrial Washing

Washing Machine	Standard front-loading industrial washing machine. Tunnel washing is not recommended.
Temperature	Maximum wash temperature certified is 75° C. The tape will handle higher temperatures but that will reduce the life of the tape/garment.
Detergent	Low- to medium- alkaline, high-surfactant detergents. The detergent should not contain free sodium hydroxide or potassium hydroxide.
Detergent pH	Aggressive detergents with high pH values (>11) and high dosage will reduce product performance over the lifetime of the application. Please check the detergent Material Safety Data Sheet (MSDS) for the pH value and choose detergents with pH values less than 10.5 in order to increase the product lifetime. Selecting wash detergents with a lower pH (nearer to neutral) and lower active alkalinity will increase the overall performance of the product. Please contact ORAFOL Technical Support for additional information.
Water-Hardness	Laundering in hard water can decrease the reflective performance and durability of the reflective tape.

Caution!

- Do not pre-soak
- Do not use high alkaline products (such as heavy duty products or stain removal products)
- Do not use solvenated detergents or micro-emulsions
- Do not use additional bleaches
- Rinse thoroughly in order to completely remove all detergent residues.

Tape longevity can be improved by:

- Using lower temperatures
- Limiting abrasion in the wash process
- Not pre-soaking with detergent
- Lower pH detergents (more towards neutral)
- Using acid letdown/rinse

Household Washing

Washing Machine	Standard household washing machine
Temperature	Maximum wash temperature certified is 75° C. The tape will handle higher temperatures but those will reduce the life of the tape/garment.
Detergent	Standard household detergent, which contains oxygen bleach to reduce staining with Hi-Vis garments.
Setting	"Coloured clothing without pre-wash"

Maximum washing time on highest temperature should not exceed 12 minutes.

Maximum total washing time should not exceed 50 minutes.

If ORALITE® industrial wash glass bead tapes for sewing application are used on fabrics that outbleed (run) easily; we recommend conducting the first two washes at 40° C. This can prevent colour staining.

Bleaching

Only use non-chlorine bleach when needed.



Drying

Tumble dry

Maximum temperature shall not exceed 90° C.

Dry to "slightly humid". Do not over dry.

For extended life, the garment should be turned inside out before drying.

Tunnel dry

Maximum inlet temperature shall not exceed 155° C.

The drying time should not exceed 6 minutes.

Limited abrasion tunnel dry is recommended.

Chemical cleaning / dry cleaning

Do not dry clean.

Ironing

Do not use steam.

Use a cool or warm temperature setting.

Avoid direct contact of the tape when ironing, use a press cloth.

IMPORTANT NOTICE

All ORALITE® products are subject to careful quality control throughout the manufacturing process and are warranted to be of merchantable quality and free from manufacturing defects. Published information concerning ORALITE® products is based upon research which the Company believes to be reliable although such information does not constitute a warranty. Because of the variety of uses of ORALITE® products and the continuing development of new applications, the purchaser should carefully consider the suitability and performance of the product for each intended use, and the purchaser shall assume all risks regarding such use. All specifications are subject to change without prior notice.

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