

## Product Description

The weatherproof, self-adhesive, retroreflective ORALITE® reflective films series 5600E RA FLEET MARKING GRADE boast high flexibility combined with excellent corrosion and solvent resistance. While the Rapid Air® construction allows easy application, the adhered product is designed for removable applications allowing decommissioning. The retroreflective system of the ORALITE® reflective films series 5600E RA consists of catadioptric glass beads which are embedded in a transparent layer of plastic material (design A, formerly Type I).

The ORALITE® reflective films series 5600E RA FLEET MARKING GRADE comply with ECE Regulation No. 104 for material class E. The reflective material displays an approval (watermark) applied every 100 mm. The approval mark shows the material class (E), the ECE regulation number (104) and the approval number (002246).

## Retroreflectivity

The ORALITE® reflective films series 5600E RA FLEET MARKING GRADE comply with ECE Regulation No. 104 for material class E. The reflective material displays an approval mark (watermark) every 100 mm. The approval mark shows the material class (E), the ECE regulation number (104) and the approval number (002246).

## Colours

ORALITE® 5600ERA is available in 11 different colours. ORALITE® 5600E RA-070 displays a black colour at daylight. When being illuminated in darkness, it appears silver to silver-grey. The colour specifications measured in accordance with CIE No. 15.2 are listed in Table 2.

## Adhesive

The adhesive consists of a solvent polyacrylate, pressure sensitive adhesive. The release paper (145 g/m<sup>2</sup>) has a PE coating applied to silicone-coated paper on either side. As the product and batch number are applied to the silicone-coated paper, all production parameters and raw materials can be completely traced.

## Application/Processing

ORALITE® reflective films series 5600E RA FLEET ENGINEER GRADE were especially developed for high quality car wrappings to produce lettering, markings and decorations which may be applied within contour markings in accordance with ECE 104. They are suitable for use on cutting plotters and provide good adaptability including to corrugations and rivets.

ORALITE® 5600E RA can be screen printed with ORALITE® 5018 screen printing ink or inkjet printed with most solvent based inks, UV- or Latex inks. Please refer to the chosen ink manufacturer's instructions to determine if an application laminate is required. If required, it is recommended that the material is laminated with ORALITE® 5051, ORAGUARD® 289F, ORAGUARD® 290F or ORAGUARD® 293F in order to provide increased UV protection.

When using non-ORAFOL inks or printers, the application must be tested and approved by the customer.

While the use of heat will help to remove the product, a solvent based adhesive remover may be required to completely remove any residual adhesive.

Please refer to the Practical Information published by ORAFOL for full instructions or contact your ORAFOL Reflective Solutions Division representative for advice relating to the above.

**Note:** All ORALITE® products are manufactured within an ISO 9001:2015 controlled manufacturing environment & batch traceability is possible on the basis of the roll number.

## Product Data

**Maximum Values for the coefficient of retroreflection** (according to ECE 104, material class E):

Table 1 – Specific coefficient of retroreflection in cd/(lx m <sup>2</sup> )				
Observation angle	0.33°			
Entrance angle	5°	30°	40°	60°
All colours	50	21.7	12.3	1.7

**Colour specification limits for new sheeting at daylight** (new sheeting, measured in accordance with CIE No. 15.2):

Table 2 – Chromaticity coordinates									
Colours	1		2		3		4		Luminance Factor $\beta$
	x	y	x	y	x	y	x	y	
white (010)	0.305	0.315	0.335	0.345	0.325	0.355	0.295	0.325	$\geq 0.35$
yellow (020)	0.494	0.506	0.470	0.480	0.513	0.437	0.545	0.455	$\geq 0.27$
red (030)	0.735	0.265	0.700	0.250	0.607	0.343	0.655	0.345	$\geq 0.05$
orange (035)	0.631	0.369	0.552	0.359	0.506	0.404	0.570	0.430	$\geq 0.12$
blue (050)	0.100	0.109	0.146	0.156	0.183	0.115	0.137	0.038	$\geq 0.01$
green (060)	0.007	0.703	0.216	0.448	0.147	0.400	0.018	0.454	$\geq 0.04$
black (070)	0.385	0.355	0.300	0.270	0.260	0.310	0.345	0.395	$0 \geq \beta \geq 0.03$
azure (084)	0.120	0.125	0.160	0.120	0.160	0.480	0.160	0.460	$\geq 0.03$
Gold (091)	0.460	0.440	0.480	0.440	0.480	0.420	0.460	0.420	$\geq 0.16$
lemon (213)	0.395	0.515	0.450	0.460	0.495	0.502	0.423	0.574	$\geq 0.16$
ruby (364)	0.710	0.290	0.610	0.300	0.569	0.341	0.655	0.345	$\geq 0.03$

## Physical and Chemical Properties

<b>Thickness*</b> (without protective paper)	140 micron (5.5 mils)
<b>Temperature resistance***</b>	adhered to aluminium, -50° C to +95° C (-58° F to 203° F)
<b>Adhesive power*</b> (FINAT-TM1 after 24h)	adhered to stainless steel: 15 N/25 mm (1 inch) adhered to acrylic coating: 12 N/25 mm (1 inch)
<b>Shelf life**</b>	2 years
<b>Application temperature</b>	> 15° C (60° F)
<b>Service life by specialist application***</b> under vertical outdoor exposure	7 years

\* Average value

\*\* in original packaging, at 20° C and 50% relative humidity

\*\*\* standard central European climate

**Note:** Values stated in SI units are to be regarded as standard. The values in parentheses are conversions and shall not be considered as the standard, as these values may be approximate.



## IMPORTANT NOTE

All ORAFOL products are subject to careful quality control throughout the entire manufacturing process, and it is ensured that they are of merchantable quality and free from manufacturing defects. The information published is based on our analyses and studies and does not constitute any warranted properties or any agreement as to quality. Due to the diverse possibilities of use of ORAFOL products and the constant development of new applications, the buyer should carefully consider the suitability and performance of the product for the respective purpose; it bears all risks associated with such use. No warranty is given for purposes other than those listed in the Technical Data Sheet or for applications that are not processed in accordance with ORAFOL's processing instructions.

The durability of the end product depends upon a variety of factors, including but not limited to substrate selection and preparation, compliance with the recommended application guidelines, geographical area, exposure conditions and maintenance of the ORAFOL material and of the end product. Product defects caused by the substrate or improper surface preparation do not lie within ORAFOL's sphere of responsibility.

When using ORAFOL products, the pertinent national regulations are to be observed. ORAFOL recommends that you obtain the current stipulations from your local authority and ensure that the product meets these requirements. Please contact ORAFOL for further information.

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