

Product Description

ORALITE® reflective film series 5650RA Fleet Engineer Grade with *RapidAir*® Technology is a tough weather and solvent resistance product which boasts high flexibility combined with excellent corrosion resistance. The "Rapid Air" technology enables easy and quick application reducing the incidence of bubbles & creases, especially of large-sized applications.

The material is plotter cuttable and is especially developed for high-quality commercial and fleet livery to produce lettering, markings and decorations. The material can be applied to moderately curved surfaces with rivets or corrugated substrates, due to its special cast PVC construction.

ORALITE® 5650RA is composed of catadioptric glass beads which are embedded in a transparent layer of plastic material (design A, formerly Type I).

Retroreflectivity

ORALITE® 5650RA meets the performance requirements of ECE 104 class D and is available as 5650D RA product with watermark. As 5650E RA product, it meets the requirements of ECE 104 class E. Typical values of retroreflection as shown in Table 1 are complied with when measured in accordance with the corresponding specifications using CIE standard illuminant A, and the provisions of CIE No.54.2.

Colour

ORALITE® 5650RA is available in 11 different colours (see table 1 for full list of available colours). ORALITE® 5650RA-070 displays a black colour at daylight. When being illuminated in darkness, it appears silver to silver-grey.

Adhesive

The adhesive consists of a solvent polyacrylate, permanent pressure sensitive adhesive. The product features a low initial tack and a positionable adhesive due to the *RapidAir*® Technology. The release paper (145 g/m²) 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® 5650RA Fleet Engineer Grade was especially developed for high-quality commercial and fleet livery. Surfaces to which the material will be applied must be thoroughly cleaned from dust, grease or any contamination which could affect the adhesion of the material. Freshly lacquered or painted surfaces should be completely cured. The compatibility of selected lacquers and paints should be tested by the user, prior to application of the material. The self adhesive reflective material can only be used for dry application. For other applications the user is fully responsible for evaluating the suitability of the product, and for any risks associated with that use.

ORALITE® 5650RA 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® 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 partially remove the product, a solvent based adhesive remover maybe 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.

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. ORALITE® is a trademark of ORAFOL Europe GmbH.

Product Data

Typical values for the coefficient of retroreflection (measured according to DIN 67520). ORALITE® 5650RA exceeds values in table 1.

Table 1: Specific coefficient of retroreflection (cd/lx/m ²)					
Observation angle		0.2°		0.33°	
Entrance angle		5°	30°	5°	30°
white	(010)	100	40	80	35
yellow	(020)	60	25	45	20
red	(030)	18	8	15	6
orange	(035)	27	10	23	8
blue	(050)	5	1.7	4	1
green	(060)	13	5	11	5
black	(070)	35	15	30	10
azure	(084)	11	4	8	3
gold	(091)	70	27	50	22
lemon	(213)	75	30	55	25
ruby	(364)	10	5	8	4

Maximum values for coefficient of retroreflection for ORALITE® 5650D RA and 5650E RA (acc. to ECE 104, class D and E)

Table 2: Specific coefficient of retroreflection (cd/lx/m ²)				
Observation angle	0,33°			
Entrance angle	5°	30°	40°	60°
5650D RA (all colours)	150	65	37	5
5650E RA (all colours)	50	21.7	12.3	1.7

Physical and Chemical Properties

Thickness*(without protective paper and adhesive)	120 micron (4.8 mils)
Temperature resistance***	adhered to aluminium, -50° C to +95° C (-58° F to 203° F)
Adhesive power* (FINAT-TM1 after 24h)	adhered to stainless steel:17.0 N/25 mm (1 inch) adhered to acrylic coating:17.5 N/25 mm (1 inch)
Tensile Strength (DIN 53455)	along: min 10 N/mm ² across: min 10 N/mm ²
Shelf life**	2 years
Application temperature	> 15° C (60° F)
Service life by specialist application*** 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 maybe approximate.

