ORALITE® 5650RA

Fleet Engineer Grade

ORALITE® 5650E RA Fleet Marking Grade is a permanently adhering reflective film for long-term outdoor advertising on painted surfaces. The film is extremely flexible and easily conformable over rivets. The RapidAir® technology prevents air bubbles and allows fast and easy installation. Detailed processing instructions can be found on our product website.

Reflective Properties

Reflective Technology: Glass bead, Reflective film structure: Design A (embedded glass beads), Reflection norm: ORALITE ® 5650 RA Fleet Engineer Grade - Tabelle 1 (DIN 67520), ORALITE ® 5650 RA Fleet Engineer Grade - Tabelle 2 (CIE Nr. 15.2)

Areas of Application

- Construction vehicles
- Construction sites
- Emergency vehicles & vehicles with special rights
- Safety & emergency services
- Traffic & transportation
- Agricultural machines
- Advertising
- Advertising & signage

Colours

ORALITE® 5650RA is available in the following colours: White (F010), Yellow (F020), Red (F030), Orange (F035), Blue (F050), Green (F060), Black (F070), Azure (F084), Gold (F091), Lemon (F213), Ruby (F364)

Total thickness

- 150 mm (Average value, without protective paper)

Front material

Premium PVC film

Liner

Silicone cardboard PE coated on both sides, 145 g/m²

Adhesive

Solvent-polyacrylate, permanent, Transparent, repositionable

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Recommended laminating films

ORAGUARD® 290, ORAGUARD® 290DU, ORAGUARD® 290F, ORAGUARD® 293, ORAGUARD® 293F

Recommended transfer materials

ORATAPE® LT72 Application Tape, ORATAPE® MT52 Application Tape, ORATAPE® MT72 Application Tape, ORATAPE® MT95 Application Tape

Technical properties

RESISTANCE

Durability	7 Year(s)	with professional processing, with vertical outdoor weathering, central European normal climate
Shelf Life	2 Year(s)	in original packaging, at 20 °C and 50 % relative humidity
Temperature resistance	Minimum temperature -40 °C Maximum temperature 80 °C	adhered on aluminium, central European normal climate

ADHESIVE PROPERTIES

Adhesive power	18 N/25 mm	after 24 h, adhered on stainless steel | Average value, FINAT TM 1
	14 N/25 mm	after 24 h, adhered on acrylic glass | Average value, FINAT TM 1

PROCESSING

Recommended printing procedure	Digital printing with solvent-based inks, UV printing, Latex printing, Screen printing	
RapidAir technology	Yes	
Application temperature	Minimum temperature 15 °C	

Table 1 - Specific coefficient of retroreflection R' in cd / (lx m²) [Typical values] (DIN 67520)

Observation Angle	0,2°		0,33°	
Entrance angle	5°	30°	5°	30°

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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)**	9	4	7	2,5
Gold	**(091)**	70	27	50	22
Lemon	**(213)**	75	30	55	25
Ruby	**(364)**	10	5	8	4

Table 2 - Chromaticity coordinates (Colour specification limits at daylight; New condition; CIE Nr. 15.2)

Colours		**1**		**2**		**3**		**4**		**Luminance factor β**
		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	□ 0,35
Yellow	**(020)**	0,494	0,506	0,470	0,480	0,513	0,437	0,545	0,455	□ 0,27
Red	**(030)**	0,735	0,265	0,700	0,250	0,607	0,343	0,655	0,345	□ 0,05
Orange	**(035)**	0,631	0,369	0,552	0,359	0,506	0,404	0,570	0,430	□ 0,12
Blue	**(050)**	0,100	0,109	0,146	0,156	0,183	0,115	0,137	0,038	□ 0,01
Green	**(060)**	0,007	0,703	0,216	0,448	0,147	0,400	0,018	0,454	□ 0,04
Black	**(070)**	0,385	0,355	0,300	0,270	0,260	0,310	0,345	0,395	0 □ ß □ 0,03
Azure	**(084)**	0,120	0,125	0,160	0,120	0,160	0,480	0,160	0,460	□ 0,03
Gold	**(091)**	0,460	0,440	0,480	0,440	0,480	0,420	0,460	0,420	□ 0,16
Lemon	**(213)**	0,395	0,515	0,450	0,460	0,495	0,502	0,423	0,574	□ 0,16
Ruby	**(364)**	0,710	0,290	0,610	0,300	0,569	0,341	0,655	0,345	□ 0,03

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PRODUCT NOTE

The substrate to be bonded must be free of dust, grease or other contamination, which can affect the adhesive strength of the material. Freshly varnished or painted surfaces must be fully cured. Before applying the material the user must check the compatibility of the selected paints and inks. The self-adhesive, reflecting material can only be applied when dry. For other applications, the user is responsible to the full extent for evaluating the suitability of the product and for all risks associated with this application. ORALITE® 5600RA can be printed with the ORALITE® 5018 screen printing ink or with most solvent-based inks, UV or latex inks in the screen printing process. Please take into account the instructions of the selected ink manufacturer to determine whether an application laminate is required. If necessary, it is recommended to laminate the material with ORALITE® 5051 289F, ORAGUARD® 290F or ORAGUARD® 293F to ensure improved UV protection. While the use of heat helps with removing the product partially, a solvent-based adhesive remover is required to fully remove possible adhesive or product residues. For detailed information please use the processing instructions published by ORAFOL or contact the responsible employee of the ORAFOL Reflective Solutions Division. All ORALITE® products are manufactured in a production environment certified and checked in accordance with ISO 9001:2008. The batch can be traced at any time by means of the roll number.

IMPORTANT NOTES

All ORAFOL products are subject during their entire manufacturing process to thorough quality control so that it is ensured that they are of merchantable quality and free from manufacturing defects. The published information is based on our analyses and examinations and does not constitute warranted characteristics or a quality agreement. In view of the wide range of applications of ORAFOL products and the continuous development of new applications, the buyer should carefully weigh up the suitability and performance of the product for the respective purpose and they bear all risks in connection with such use. No warranty is assumed for purposes other than those listed in the Technical Data Sheet or for applications which are not processed in accordance with the processing guidelines of ORAFOL. The durability of the end product depends on a multitude of factors including, but not limited to, the substrate selection and preparation, compliance with the recommended application guidelines, geographical area, exposition conditions and maintenance of the ORAFOL material and of the end product. Product faults which are caused by the substrate or improper surface preparation, do not lie within the responsibility of ORAFOL. The relevant national provisions must be observed when using ORAFOL products. ORAFOL recommends that you obtain the current specifications from your local authority and ensure that the product complies with them. Please contact ORAFOL for further information. ORALITE® is a trademark of ORAFOL Europe GmbH.

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