ORALITE® 5510
Engineer Grade

Description
ORALITE® 5510 Engineer Grade is a weatherproof, self-adhesive retroreflective film with an excellent corrosion and solvent resistance. The retroreflective system of the ORALITE® 5510 Engineer Grade consists of catadioptric glass beads which are embedded in a transparent layer of plastic material (class RA1, design A, formerly Type I). The smooth surface shows a high scratch resistance and impact strength, and a very good printability. The reflective data and colours at daylight comply with the international specifications for reflective materials of this class, such as EN 12899-1 Classes RA1, CR2 (Europe), DIN 67520 and DIN 6171 (Germany), BS 873: Part 6 (Great Britain), NFP 98-520 (France), SN 640878 (Switzerland), ASTM D 4956 (US), JIS Z 9117 (Japan).

Front Material
Alkyd resin.

Release Paper
PE-coated silicone paper, 145 g/m².
As the product and batch number are applied to the silicone-coated paper, all production parameters and raw materials can be completely traced back.

Adhesive
Solvent polyacrylate, permanent

Area of Use
ORALITE® 5510 Engineer Grade films were especially developed for the manufacture of traffic control and guidance signs, warning signs and information signs as well as for reflective lettering, numbers and symbols, which are intended for a long-term outdoor use. The material has an adhesive with an excellent adhesion on metallic surfaces as aluminium and zinc coated steel plate. The ORALITE® 5510 Engineer Grade has an identification watermark.
When using the ORALITE® 5510 Engineer Grade, the particular national specifications have to be complied with.

Printing Method
The use of ORALITE® - Screen printing inks series 5010 and 5018 is recommended.
A transparent coating is not necessary.

Product Data

Minimum reflection data (DIN 67520, Part 1 and Part 2, state as manufactured)

Table 1 – Specific coefficient of retroreflection R' in cd/lx/m²										
Observation angle		**0.2°**			**0.33°**			**2°**		
Entrance angle		**5°**	**30°**	**40°**	**5°**	**30°**	**40°**	**5°**	**30°**	**40°**
white	**(010)**	80	30	10	60	24	9	5	2.5	1.5
yellow	**(020)**	50	22	7	35	16	6	3	1.5	1
orange	**(035)**	25	10	2.2	20	8	2.2	1.2	0.5	-
red	**(030)**	14.5	6	2	10	4	1.8	1	0.5	0.5
green	**(060)**	8	3.5	1.5	7	3	1.2	0.5	0.3	0.2
blue	**(050)**	4	1.7	0.5	2	1	-	-	-	-
brown	**(080)**	1	0.3	-	0.6	0.2	-	-	-	-

Colours (DIN 5033 Part 3, DIN 5036 Part 1, DIN 61871, state as manufactured)

Table 2 – Colour coordinates										
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	0.505	0.470	0.480	0.513	0.437	0.545	0.454	≥ 0.27
orange	**(035)**	0.610	0.390	0.535	0.375	0.506	0.404	0.570	0.429	≥ 0.17
red	**(030)**	0.735	0.265	0.700	0.250	0.610	0.340	0.660	0.340	≥ 0.05
green	**(060)**	0.110	0.415	0.170	0.415	0.170	0.500	0.110	0.500	≥ 0.04
blue	**(050)**	0.130	0.090	0.160	0.090	0.160	0.140	0.130	0.140	≥ 0.01
brown	**(080)**	0.455	0.397	0.523	0.429	0.479	0.373	0.558	0.394	0.03 - 0.09

Physical and Chemical Properties

Thickness* (without protective paper and adhesive)	110 micron
Temperature resistance**	adhered to aluminium, -56° C to +82° C (-68° F to 180° F)
Salt-water resistance (DIN 50021)	adhered to aluminium, after 100h at 23° C (74° F), no variation
Resistance to solvents and chemicals	with expert application resistant to most oils, grease, fuels, aliphatic solvents, weak acids, salts and alkalis Adhered to aluminium, 8h in wash alcalics (0,5% household cleaning agents) at room temperature and 65° C, no variation
Resistance to cleaning agents	adhered to aluminium, 8h in suds (0,5% household cleaning agents) at room temperature and 65° C, no variation
Adhesive power* (FINAT-TM1 after 24h, stainless steel)	15 N/25 mm (25 mm = 0.98 in) (film tear)
Shelf life***	2 years
Service life by specialist application under vertical outdoor exposure (standard central European climate)	7 years (not printed)

* average ** standard central European climate *** in original packaging, at 20°C and 50% relative humidity

Warranty

No warranty is given for purposes other than those listed in the Technical Datasheet or which are not processed according to ORAFOL's processing and handling instructions.

The durability of the signs will depend on a variety of factors, including but not limited to substrate selection and preparation, compliance with recommended application guidelines, geographic area, exposure conditions and maintenance of the product and finished sign. Sign failures caused by the substrate or improper surface preparation are not the responsibility of ORAFOL.
Please refer to the Warranty document published by ORAFOL for detailed information

Note: The batch traceability according to ISO 9001 is possible on the basis of the roll number.

IMPORTANT NOTICE

When using ORALITE® sheeting the relevant national specifications have to be complied with. ORAFOL recommends you obtain the current requirements from your local authority and ensure product conformance with such requirements. Please contact ORAFOL for further information.

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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