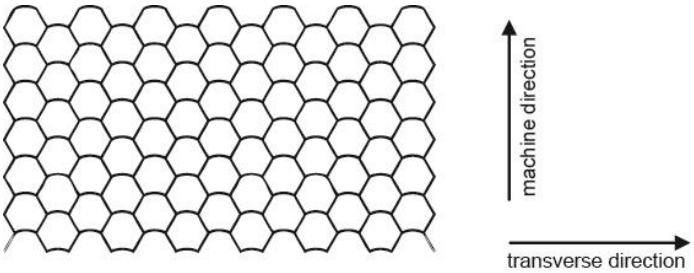
ORALITE® 5960
High Intensity Prismatic Construction Grade

Description
ORALITE® 5960 High Intensity Prismatic Construction Grade are flexible, highly reflective, weatherproof, self-adhesive films with excellent corrosion and solvent resistance. The product was specifically developed for the manufacture of traffic control, guidance, warning and information signs, which are intended for temporary outdoor use.
ORALITE® 5960 sheeting is composed of a UV stabilized acrylic front film. Its retroreflective system consists of sealed cells of air backed microprisms, using total internal reflection. The distinct shape of the sealing pattern identifies the machine direction and the manufacturer of the sheeting shown in Figure 1.

Retroreflectivity
ORALITE® 5960 exceeds the minimum performance requirements of DIN 67520:2008-11 (RA2; design C) and ASTM D4956-11a (Type IV sheeting). The required minimum retroreflection values, shown in tables 1 and 2, are complied with when measured in accordance with the corresponding specifications using CIE standard illuminant A, and the provisions of CIE No.54.2.

Color
ORALITE® 5960 sheeting is available in white (010), yellow (020), orange (035), red (030), green (060), blue (050) and brown (080). The sheeting conforms to the daytime colour requirements in tables 3 and 4 when measured in accordance with the corresponding specifications, the provisions of CIE No. 15.2, & shall comply with the specifications of DIN 6171: 2003-08 & ASTM D4956-11a.

Figure 1 - Sealing pattern and application directions



Adhesive
The adhesive consists of a solvent polyacrylate, permanent pressure sensitive adhesive specially formulated for the application to metallic surfaces such as aluminium and zinc coated steel plate. The adhesive is protected by a release liner made of polypropylene film, silicone coated on one side, 3-mil thickness.

Application/Processing
ORALITE® 5960 High Intensity Prismatic Construction Grade was especially developed for traffic control applications. 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. For other applications the user is fully responsible for evaluating the suitability of the product, and for any risks associated with that use.

ORALITE® 5960 in white colour can be screen or digitally printed The printed sheeting will continue to meet the retroreflective values of the respective colour provided that ORAFOL's application guidelines are followed. The screen printing ink recommended is ORALITE® 5018. A transparent coating is not necessary. The material can also be printed on the ORALITE® UV Digital Sign Printer with the specially developed UV digital inks ORALITE® 5019.

Please refer to the Practical Information #4.3 published by ORAFOL for full instructions or contact your ORAFOL Reflective Solutions Division representative for advice relating to the above.

GRAFITYP
UK Limited

Tel: 01827 300500
Web: www.grafityp.co.uk
E-mail: sales@grafityp.co.uk

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 preparations are not the responsibility of ORAFOL. Please refer to the Warranty document published by ORAFOL for detailed information

Note:

All ORALITE® products are manufactured within an ISO 9001:2008 controlled manufacturing environment and batch traceability is possible on the basis of the roll number.

Product Data

Retroreflectivity for new sheeting (cd/lx/m^2) as per DIN 67520:2008-11 and ASTM D4956-11a

Table 1- Specific coefficient of retroflection (DIN 67520:2008-11 RA2; design C)

Observation Angle	0.2°			0.33°			2°		
Entrance Angle	5°	30°	40°	5°	30°	40°	5°	30°	40°
White	250	150	110	180	100	95	5	2.5	1.5
Yellow	170	100	70	122	70	64	3	1.5	1
Orange	100	60	29	65	40	20	1.5	1.0	#
Red	45	25	15	25	14	13	1.0	0.4	0.3
Green	45	25	12	21	12	11	0.5	0.3	0.2
Blue	20	11	8	14	8	7	0.2	#	#
Brown	12	8.5	5	8	5	3	0.2	#	#

Table 2 – Specific coefficient of retroreflection (ASTM D4956-11a Type IV Sheeting)

Observation Angle	0.1°		0.2°		0.5°	
Entrance Angle	-4°	30°	-4°	30°	-4°	30°
White	500	240	360	170	150	72
Yellow	380	175	270	135	110	54
Orange	200	94	145	68	60	28
Red	90	42	65	30	27	13
Green	70	32	50	25	21	10
Blue	42	20	30	14	13	6
Brown	25	12	18	8.5	7.5	3.5

Daytime color specification limits for new sheeting

Table 3- Chromaticity coordinates (DIN 6171-1: 2011-11)									
Colors	1		2		3		4		Luminance Factor β
	x	y	x	y	x	y	x	y	
White	0.305	0.315	0.335	0.345	0.325	0.355	0.295	0.325	> 0.27
Yellow	0.494	0.505	0.470	0.480	0.513	0.437	0.545	0.454	> 0.16
Orange	0.610	0.390	0.535	0.375	0.506	0.404	0.570	0.429	≥ 0.14
Red	0.735	0.265	0.700	0.250	0.610	0.340	0.660	0.340	≥ 0.03
Green	0.110	0.415	0.170	0.415	0.170	0.500	0.110	0.500	≥ 0.03
Blue	0.130	0.090	0.160	0.090	0.160	0.140	0.130	0.140	≥ 0.01
Brown	0.455	0.397	0.523	0.429	0.479	0.373	0.558	0.394	0.03 - 0.09

Table 4- Chromaticity coordinates (ASTM D4956)									
Colors	1		2		3		4		Luminance Factor β
	x	y	x	y	x	y	x	y	
White 010	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	≥ 27
Yellow 020	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	15 ≤ Y ≤45
Orange 035	0.558	0.352	0.636	0.364	0.570	0.429	0.506	0.404	10 ≤ Y ≤ 30
Red 030	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5 ≤ Y ≤ 15
Green 060	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	3 ≤ Y ≤ 12
Blue 050	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1 ≤ Y ≤ 10
Brown 080	0.430	0.340	0.610	0.390	0.550	0.450	0.430	0.390	1 ≤ Y ≤ 9

Tel: 01827 300500
Web: www.grafityp.co.uk
E-mail: sales@grafityp.co.uk

Physical and Chemical Properties

Thickness*(without protective paper and adhesive)	9-mil
Temperature resistance**	Adhered to aluminum, -68°F to +180°F
Resistance to cleaning agents	Adhered to aluminum, 8h in solution (0.5% household cleaning agents) at room temperature and 149°F, no variation
Adhesive power* (FINAT-TM 1 after 24h, stainless steel)	3.42 lb/in (film tear)
Shelf life**	1 year
Application temperature	>50°F
Service life by specialist application Under vertical outdoor exposure (standard central European climate)	5 years (not printed)

* average ** in original packaging, at 68° F and 50% relative humidity

Note:

All ORALITE® products are manufactured within an ISO 9001:2008 controlled manufacturing environment and batch traceability is possible on the basis of the roll number.

IMPORTANT NOTICE
When using ORALITE® sheeting, please comply with relevant national specifications. ORAFOL recommends obtaining 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.

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 allowed to dry for at least three weeks and to completely cure respectively. 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. The low tensile strength of the material can make the removability of the reflective film more difficult. Please review applicable application information published by ORAFOL.

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 preparations are not the responsibility of ORAFOL. Please refer to the full warranty document available at www.orafolamericas.com for detailed information.

WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

ORALITE® is a trademark of ORAFOL Europe GmbH.