

Product Description

ORALITE® retroreflective films series 5921M Prismatic Fleet Marking Grade are highly flexible, weather-proof, self-adhesive films with excellent corrosion and solvent resistance. The ORALITE® 5921M series was specifically developed for the use as safety marking on vehicles and is intended for mid-term vertical outdoor use. It is removable by heat from lacquered surfaces. The material is designed for vehicle markings according to ECE 104, and it is available in kits as well as in rolls. In addition, the material may be used for the manufacturing of warning plates according to ECE 70.

Its retroreflective system consists of microprisms provided with a mirror surface and is achieving excellent retroreflective values due to its distinct design. The product is single layer, meaning that no edge sealing is required. The retroreflective film features a distinct pattern as shown in illustration 1, identifying the manufacturer and the machine direction. For application directions, please follow the prevailing national requirements. The product is compliant to EU VO 2015/208.

Retroreflectivity

ORALITE® 5921M exceeds the minimum performance requirements according to ECE 104 Class F, ECE 70 Class 5, DIN 30710, DIN 67520 and DIN 11030. The required minimum retroreflective values 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® 5921M Prismatic Fleet Marking Grade is available on rolls in white (010) and red in chevron pattern. The product conforms to the daytime colour requirements in Table 2 when measured in accordance with the corresponding specifications of CIE no. 15.2 and complies with the requirements of Regulations ECE 104, ECE 70 and DIN 6171.

Illustration 1



Adhesive and Liner

The adhesive is a solvent polyacrylate adhesive, and the material is provided with a PP based liner (0,075 mm) which is siliconised on one side.

Product Data

Table 1: Minimum Reflective Values according to ECE 70

Observation Angle α	Entrance Angle				
	β_1	0°	0°	0°	0°
20°	β_2	5°	30°	40°	60°
Specific coefficient of retroreflection R^i in cd / lx pro m ²	White (010)	450	200	90	16
	Red (030)	120	30	10	2

Table 2: Minimum Reflective Values according to ECE 104

Observation Angle α	Entrance Angle					
	β_1	0°	0°	0°	0°	0°
20°	β_2	5°	20°	30°	40°	60°
Specific coefficient of retroreflection R^i in cd / lx pro m ²	White (010)	450	--	200	95	16
	Red (030)	120	60	30	10	--

Table 3: Minimum Reflective Values according to DIN 11030 and DIN 30710 (DIN 67520 Part 1 and Part 2, state as manufactured)

Observation angle	Specific coefficient of retroreflection R' in cd / lx pro m ²								
	0,2°			0,33°			2°		
	5°	30°	40°	5°	30°	40°	5°	30°	40°
White (010)	250	150	110	180	100	95	5	2.5	1.5
Red (030)	45	25	15	25	14	13	1	0.4	0.3

Table 4: Daylight colours according to ECE 104 und ECE 70

	Colour coordinates								Luminance factor β
	1		2		3		4		
	x	y	x	y	x	y	x	y	
White (010)	0.300	0.270	0.385	0.355	0.345	0.395	0.260	0.310	≥ 0.25
Red (030)	0.690	0.310	0.595	0.315	0.560	0.350	0.650	0.350	≥ 0.03

Table 5: Daylight colours according to DIN 6171, new condition

	Colour coordinates								Luminance factor β
	1		2		3		4		
	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	≥ 0.27
Red (030)	0.735	0.265	0.700	0.250	0.610	0.340	0.660	0.340	≥ 0.03

Physical and chemical properties

Thickness ⁽¹⁾ (without protective paper)	0.34 mm
Temperature resistance ⁽³⁾	Adhered to aluminium, -40° C to +82° C
Seawater resistance (DIN 50021)	Adhered to aluminium: after 100 h/23° C no variation
Resistance to solvents and chemicals	With expert application resistant to most oils, grease, fuels, aliphatic solvents, weak acids, salts and alkalis
Resistance to cleaning agents	Adhered to aluminium, 8h in alkaline solution (0.5% household agents) at room temperature and 65° C: no variation
Adhesive power ⁽¹⁾ (FINAT-TM 1 after 24h, stainless)	>15 N/25 mm (≈ 1 inch)
Shelf life ⁽²⁾	1 year
Application temperature	> +10° C
Service life ⁽³⁾ under vertical outdoor exposure	5 years (unprinted)

⁽¹⁾ average ⁽²⁾ in original packaging, at 20° C and 50% relative humidity ⁽³⁾ standard central European climate



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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