

Description

ORALITE® M82 is a Type V microprismatic retroreflective sheeting. The sheeting is a tough, weather-resistant product designed for rugged outdoor use in general industrial, delineation and marine applications. It has been approved by the U.S. Coast Guard to meet the requirements of U.S. Coast Guard Specification G-SEC-393A, High Intensity Retroreflective Film for Use on Maritime Aids to Navigation.

Product Construction

The sheeting is composed of cube corner (microprism) retroreflective elements integrally bonded to a flexible, smooth-surfaced, tough and weather-resistant UV stabilized polymeric film. The resulting film is not more than 0.008 inch thick. The prism surfaces are coated with a vacuum deposition of aluminum to provide a mirror surface to the prism facets. The sheeting is available with pressure sensitive adhesive backing. The adhesive is protected by a release liner that shall be removed by peeling, without soaking in water or other solvents. The adhesive produces a bond such that a one inch wide strip shall support a 1-3/4 pound weight for five minutes without the strip peeling a distance of more than two inches when applied to a smooth aluminum surface.

Reflectivity

ORALITE® M82 retroreflective sheeting shall comply with the Type V requirements in ASTM D4956 and meet or exceed the minimum coefficient of retroreflection shown in Table 1. The sheeting shall be measured in accordance with ASTM E810. Rotation angles of 0° and 90° are measured and averaged.

Color

ORALITE® M82 reflective sheeting is available in white, yellow, orange, red, green and blue. The colors conform to the requirements in Table 2 when tested in accordance with ASTM practices E308 and E1164 and standards E1347 and E1349. The measured values are the average of eight readings. The test sample is rotated 45° about its own axis after each reading.

Impact Resistance

Following application to a smooth surface aluminum rectangle, 0.020 inch by 3 inch by 6 inch, the specimen is conditioned for 24 hours at 72°F and 50% relative humidity. The sheeting shall show no cracking when the face of the panel is subjected to an impact of a two pound weight with a 5/8 inch rounded tip dropped from a 100 inch pound setting on a Gardner variable impact tester, IG-1120.

Shrinkage

A 9 inch by 9 inch specimen of the sheeting with liner is conditioned a minimum of one hour at 72°F and 50% relative humidity. The liner is then removed and the specimen is placed on a flat surface with the adhesive side up. Ten minutes after the liner is removed and again after 24 hours, the specimen is measured to determine the amount of dimensional change. The specimen will not shrink in any dimension more than 1/32 inch in 10 minutes and 1/8 inch in 24 hours.

Flexibility

The sheeting is conditioned for 24 hours at 72°F and 50% relative humidity. The release liner is removed and the sheeting is sufficiently flexible to show no cracking when bent in one second's time around a 1/8 inch diameter mandrel with the adhesive contacting the mandrel.

Solvent Resistance

ORALITE® M82 reflective sheeting does not dissolve, pucker or blister when exposed to turpentine, mineral spirits, or isopropyl alcohol.

Specular Gloss

The sheeting shall have a specular gloss of not less than 40 when tested in accordance with ASTM method D523 at an angle of 85°.

Application Instructions

Material should be applied to a smooth, clean, dry surface at temperatures ranging from 50°F to 100°F.



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Table 1
Coefficient of Retroreflection[†](R_A)

Observation Angle	Entrance Angle	White	Yellow	Orange	Red	Green	Blue
2°	-4°	700	470	280	120	120	56
2°	30°	400	270	160	72	72	32
5°	-4°	160	110	64	28	28	13
5°	30°	75	51	30	13	13	6

[†] Candelas/Lux/Square Meter

* ORALITE® M82 fully meets or exceeds the requirements of ASTM D4956 Type V sheeting.

Table 2
Color Specification Limits

Color	Chromaticity Coordinates*								Luminance Factor (Y%)	
	1		2		3		4		Min.	Max.
	x	y	x	y	x	y	x	y		
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	15.0	---
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	12.0	30.0
Green	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	2.5	11.0
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	2.5	11.0
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	1.0	10.0
Orange	0.558	0.352	0.636	0.364	0.570	0.429	0.506	0.404	7.0	25.0

* The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with Standard Illuminant D65.

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.

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