

Product Evaluation

RE: Review of High Intensity Prismatic (HIP) Reflective Sheeting (Series 3930)

PRODUCT

The HIP (Series 3930) non-metalized micro-prismatic lens reflective sheeting was developed to provide greater reflectivity and durability for traffic signs. The HIP reflective sheeting is manufactured by 3M Canada located in London, Ontario.

VENDOR CLAIMS AND INFORMATION

CLAIMS

The HIP Series 3930 reflective sheeting with its pressure sensitive adhesive is designed for use on durable traffic control signs, work zone signs and delineators. The tougher topcoat provides improved scuff, scratch and gouge resistance and increased durability. Product web link:

http://multimedia.3m.com/mws/mediawebserver?mwsId=SSSSSu7zK1fslxtUM8_ZlxmUev7qe17zHvTSevTSeSSSSSS--

DESCRIPTION

HIP Series 3930 High Intensity Grade Prismatic Reflective Sheeting is a non-metalized micro-prismatic lens reflective sheeting material designed for production of reflective durable traffic control signs, work zone devices and delineators that are exposed vertically in service.

POTENTIAL USAGE

The HIP Series 3930 reflective sheeting material is used for permanent traffic signs, temporary traffic control devices requiring high visibility, legibility and durability. When used on permanent traffic signs, HIP is warranted to retain 80% of the minimum initial reflectivity requirements for 7 years and 70% minimum initial reflectivity requirement for 8 to 10 years.

STANDARDS

ASTM D4956 Standard Specification for Retroreflective Sheeting for Traffic Control

ALBERTA TRANSPORTATION COMMENTS

EXPERIENCE

Alberta Infrastructure and Transportation has no experience with this product. Alberta Infrastructure and Transportation uses reflective sheeting material conforming to Standard Specifications for Highway Construction, Specification 5.18 Supply of Permanent Highway Signs, Posts and Bases.

APPLICABLE STANDARDS

The Alberta Infrastructure and Transportation specification for Reflective Sign Sheeting Material is as follows:

Standard Specification for Highway Construction, Specification 5.18 Supply of Permanent Highway Signs, Posts and Bases

PRODUCT COMPARISON TO STANDARD
Typical Coefficient of Retroreflection (R_A) cd/fc/ft² (cd.1x⁻¹.m⁻²) of HIP Series 3930 sheeting:

Observation Angle	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Brown	
HIP (3930)	0.2°	-4°	360	270	145	50	65	30	
HI (3870)	0.2°	-4°	250	170		45	20	12	
ASTM Type III	0.2°	-4°	250	170	100	45	20	12	
ASTM Type IV	0.2°	-4°	250	170	100	35	20	7.0	
HIP (3930)	0.2°	+30°	170	135	68	25	30	14	
HI (3870)	0.2°	+30°	175	135		30	11	8.5	
ASTM Type III	0.2°	+30°	150	100	60	25	11	8.5	
ASTM Type IV	0.2°	+30°	80	54	34	9.0	5.0	2.0	
HIP (3930)	0.5°	-4°	150	110	60	21	13		
HI (3870)	0.5°	-4°	95	62		15	7.5	5.0	
ASTM Type III	0.5°	-4°	95	62	30	15	7.5	5.0	
ASTM Type IV	0.5°	-4°	135	100	64	17	10	4.0	
HIP (3930)	0.5°	+30°	72	54	28	10	6.0		
HI (3870)	0.5°	+30°	70	60		12	5.0	3.5	
ASTM Type III	0.5°	+30°	65	45	25	10.0	5.0	3.5	
ASTM Type IV	0.5°	+30°	55	37	22	6.5	3.5	1.4	

The HIP Series 3930 Retroreflective sheeting exceeds the performance requirements of the ASTM D4956, Type III and Type IV Sheeting (High Intensity) Standard Specification for Retroreflective Sheeting for Traffic Control.

The Departments current standard for regulatory sign sheeting material is High Intensity meeting the requirements of ASTM D4956, Type III.

RECOMMENDATIONS:

HIP Series 3930 reflective sheeting should be listed as a Proven Product under Alberta Infrastructure and Transportation Products List, Signs and Support System – Reflective Sheeting, Regulatory/Warning/Information Signs – Proprietary, based on the information provided.

TRIAL PROJECTS

Joe Filice

cc New Product Evaluation Standing Committee – Roger Skirrow
Richard Chow