

Product Evaluation

RE: Review of 3M Diamond Grade DG³ 4081 Series Fluorescent Yellow Reflective Sheeting

PRODUCT

The 3M Diamond Grade DG³ Fluorescent Yellow Reflective Sheeting incorporates “Full Cube” technology for optimal performance. The 3M Diamond Grade DG³ Fluorescent Yellow Reflective Sheeting is manufactured by 3M Canada located in London, Ontario.

VENDOR CLAIMS AND INFORMATION

CLAIMS

The 3M DG³ Fluorescent Yellow reflective sheeting provides higher visibility during day light than the ordinary non-fluorescent colored sheeting's. The 3M DG³ reflective sheeting design means that the entire cube surface is reflective. Product web link:

http://solutions.3m.com/wps/portal/3M/en_US/GovernmentSolutions/Home/ProductInformation/OnlineCatalog/?PC_7_RJH9U5230GO250IANS2O1A3I71000000_nid=7X8XGJ9957qsJJQ2BMCSCVqIPB8H2JDT65bl

DESCRIPTION

The 3M DG³ reflective sheeting material consists of full cube prismatic lens elements with a distinctive diamond seal pattern visible from the face of a smooth surface. Its optical elements are 100% efficient, returning almost 60% of available light, nearly double that of traditional prismatic sheeting.

POTENTIAL USAGE

The 3M DG³ reflective sheeting performs at all sight distances including short and medium sight distances and where signs are positioned in disadvantaged locations.

STANDARDS

The 3M DG³ reflective sheeting material has been proposed to ASTM as Type XI sheeting and is designed as a replacement for all types of reflective sign sheeting in use today.

ALBERTA TRANSPORTATION COMMENTS

EXPERIENCE

Alberta Infrastructure and Transportation has no experience with this product. Alberta Infrastructure and Transportation uses fluorescent Yellow reflective sheeting material for warning signs.

APPLICABLE STANDARDS

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

Standard Specification for Highway Construction, Specification 5.18 Supply of Permanent Highway Signs, posts and bases.

RECOMMENDATIONS:

3M DG³ 4081 series reflective sheeting material should be listed as a Proven Product under Alberta Infrastructure and Transportation Products List, Signs and Support System – Reflective Sheeting, Warning Signs – Proprietary, based on the information provided.

PRODUCT COMPARISONS to ASTM STANDARDS
 Minimum Typical Coefficient of Retroreflection (R_A) cd/ft² (cd.1x⁻¹.m⁻²) of 4081series sheeting:

Observation Angle		Entrance Angle	Fluorescent Yellow-Green
3M (4081)	0.2°	-4°	340
3M (3981)	0.2°	-4°	240
ASTM (Type IX)	0.2°	-4°	230
proposed (Type XI)	0.2°	-4°	340
3M (4081)	0.2°	+30°	130
3M (3981)	0.2°	+30°	150
ASTM (Type IX)	0.2°	+30°	130
proposed (Type XI)	0.2°	+30°	130
3M (4081)	0.5°	-4°	240
3M (3981)	0.5°	-4°	165
ASTM (Type IX)	0.5°	-4°	145
proposed (Type XI)	0.5°	-4°	240
3M (4081)	0.5°	+30°	90
3M (3981)	0.5°	+30°	81
ASTM (Type IX)	0.5°	+30°	81
proposed (Type XI)	0.5°	+30°	90

3M 4081 series Fluorescent Yellow sheeting material meet the minimum coefficient of retro-reflection as specified for the Proposed Type XI sheeting for observation angles of 0.2° and 0.5°.

TRIAL PROJECTS

- Hwy. 39 – west of Wiley West Campground , 3 chevron signs.
- Hwy. 2/37 – SB ramp off Hwy. 2 on island
- Hwy. 2 – NB east side just N. of Cardiff road
- Hwy. 28 – NB east side, north of hwy. 37 at Sturgeon river
- Hwy. 28 – SB west side, north of hwy. 37 at Sturgeon river
- Hwy. 37 (EBL) – East of Onaway (by Devils lake) – Bus Stop Ahead sign with flags – installed 2007
- Hwy. 37 (EBL) – at Calahoo – Important Intersection Ahead – installed 2007
- Hwy. 2 (SBL) – on off ramp to highway 37 – Double Island – installed 2007
- Hwy. 44 (SBL) just south of highway 37 & 44 junction – Bridge Ices

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