

**RE: Review of 3M Diamond Grade DG<sup>3</sup> 4083 Series Fluorescent Yellow - Green Reflective Sheeting**

**PRODUCT**

The 3M Diamond Grade DG<sup>3</sup> Fluorescent Yellow – Green Reflective Sheeting incorporates “Full Cube” technology for optimal performance. The 3M Diamond Grade DG<sup>3</sup> Fluorescent Yellow – Green Reflective Sheeting is manufactured by 3M Canada located in London, Ontario.

**VENDOR CLAIMS AND INFORMATION**

**CLAIMS**

The 3M DG<sup>3</sup> Fluorescent Yellow – Green reflective sheeting provides higher visibility during day light than the ordinary non-fluorescent colored sheeting's. The 3M DG<sup>3</sup> reflective sheeting design means that the entire cube surface is reflective.

**DESCRIPTION**

The 3M DG<sup>3</sup> 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 DG<sup>3</sup> reflective sheeting performs at all sight distances including short and medium sight distances and where signs are positioned in disadvantaged locations.

**STANDARDS**

The 3M DG<sup>3</sup> 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 Transportation has no experience with this product. Alberta Infrastructure and Transportation uses fluorescent Yellow – Green reflective sheeting material for school zones and crosswalk ahead signs.

**APPLICABLE STANDARDS**

The Alberta Transportation specification for fluorescent yellow - green 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 DG<sup>3</sup> 4083 series reflective sheeting material should be listed as a Proven Product under Alberta Transportation Products List, Signs and Support System – Reflective Sheeting, School Zones and Crosswalk Ahead – Proprietary, based on the information provided.

**PRODUCT COMPARISONS to ASTM STANDARDS**Minimum Typical Coefficient of Retroreflection ( $R_A$ ) cd/ft<sup>2</sup> (cd.1x<sup>-1</sup>.m<sup>-2</sup>) of 4083 series sheeting:

Observation Angle		Entrance Angle	Fluorescent Yellow-Green
3M (4083)	0.2°	-4°	460
3M (3983)	0.2°	-4°	325
ASTM (Type IX)	0.2°	-4°	300
proposed (Type XI)	0.2°	-4°	455
3M (4083)	0.2°	+30°	170
3M (3983)	0.2°	+30°	200
ASTM (Type IX)	0.2°	+30°	170
proposed (Type XI)	0.2°	+30°	170
3M (4083)	0.5°	-4°	320
3M (3983)	0.5°	-4°	236
ASTM (Type IX)	0.5°	-4°	190
proposed (Type XI)	0.5°	-4°	320
3M (4083)	0.5°	+30°	120
3M (3983)	0.5°	+30°	110
ASTM (Type IX)	0.5°	+30°	110
proposed (Type XI)	0.5°	+30°	120

3M 4083 series Fluorescent Yellow - Green 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. – 37 EB & WB, east of highway 28 – Installed in summer of 2006  
Hwy. 37 – South ditch for S.B traffic on Sunnyside road

Joe Filice

cc New Product Evaluation Standing Committee – Roger Skirrow  
Richard Chow