

Assessment of Granoplast Cover Up Roadmarking Material in Hamilton for Damar Industries Ltd

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1 Introduction

At the client's request their trial areas of Granoplast Cover Up roadmarking material were assessed. Several road markings in Hamilton city had been blacked out with the material over the last six months, giving a variety of ages and wear types to assess.

A night time drive over of all the blacked out markings was carried out on Sunday 18th of May to determine if any of the underlying white markings were showing through the black out.

Four locations were assessed on Monday 19th May 2008. They were; a square of blackout covering the word "WAY" at the intersection of Clarkin and Bankwood; a limit line at the intersection of Clarkin and River roads; and the centre and edge lines along River road near house number 850.

2 Testing Carried Out

Testing was carried out in accordance with the requirement of Transit New Zealand Specification TNZ M/20: 2003 Specification for Long Life Materials, Section 8 "On-Road Performance", with degree of wear, retroreflectivity, skid resistance and colour being assessed.

Skid resistance was measured with a British Pendulum tester in accordance with Roadnote 27. The skid measurements were made in the left hand wheel path.

Retroreflectivity was measured using a Zhentner retroreflectometer. The Zehntner has a 30 metre geometry and is able to measure a dry and wet road for retroreflectivity and QD - daylight visibility. Measurements were made with this instrument in both the wet and dry condition. For the wet measurements the marking was flooded with water and then measured 60 seconds after the application of water.

Wear was assessed looking at the performance of marking using the LCPC scale.

Colour was assessed using the Grey scale for assessing staining ISO 105 A03 1978. A comparison was made between the road colour and the colour of the black out.

Note that the traffic volumes reported are a daily total for the road, not wheel over count as per a transverse trial.

3 Requirement and Results

Note that there is no requirement for black out material at present.

A summary for each test location is shown in Table 5 at the end of this report.

4 Comments

The blacked out word GIVE on Clarkin/Bankwood was easy to read at night and in the day. This may have been application rather than wear related as clear white high points where the marking is wearing are not evident. See Figure 5.

While the black out lines are an obvious marking on the road they do not appear intrusive in the sense that the true lane markings are by far the dominant visual feature. There is a moderate colour and texture difference between the road surface and the black out roadmarking.

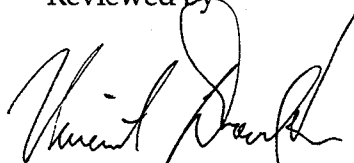
The black out lines are less obvious at night. There were some thin white edges showing that had not been covered. Additionally some thin strips on the edges of the line where the grit was missing showed up as a thin black glossy strip. These were minor discrepancies that did not detract from the main route information. There was an area on River Road, see Figure 3, where the underlying white marking was showing through. The cause is unknown but it may be due to early damage or high wear.

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ON-ROAD PERFORMANCE TESTS

Test Site: Clarkin/Bankwood **Date laid:** Nov 2007
Marking type: Cover over "WAY" **Traffic Volume:** 6500
Material Under Test: Granoplast Cover Up **Substrate:** Grade 5 Chipseal
Grit Type: Granoplast Aggregate **Colour:** Grey
Target Film Thickness Not stated **Mean Film Thickness:** unknown

Table 1. Results to Transit NZ M/20

TNZ M/20 Clause	Parameter	Test Method	TNZ M/20 Requirements at 3 million	Results at 19.5.08
3.2	Skid Resistance	TNZ M/20 Appendix B	Not less than 50 BPN and no greater than 65 BPN	51
-	Skid Resistance - road	-	-	55
3.4	Degree of Wear	TNZ M/20 Appendix B	Not less than 8	8
3.5	Retention of Colour	TNZ M/20 Appendix B	Discolouration not less than 4	4

Location	Retroreflectivity dry	Retroreflectivity wet	QD - daytime dry	QD - daytime wet
"WAY"	5	1	53	94
Adjacent road	6	1	41	87

Test Site:	Clarkin/River Road	Date laid:	1 month ago
Marking type:	Limit line	Traffic Volume:	4400
Material Under Test:	Granoplast Cover Up	Substrate:	Grade 5/2 mix Chipseal
Grit Type:	Granoplast Aggregate	Colour:	Grey
Target Film Thickness	Not stated	Mean Film Thickness:	unknown

Table 2. Results to Transit NZ M/20

TNZ M/20 Clause	Parameter	Test Method	TNZ M/20 Requirements at 3 million	Results at 19.5.08
3.2	Skid Resistance	TNZ M/20 Appendix B	Not less than 50 BPN and no greater than 65 BPN	67
-	Skid Resistance - road	-	-	54
3.4	Degree of Wear	TNZ M/20 Appendix B	Not less than 8	9
3.5	Retention of Colour	TNZ M/20 Appendix B	Discolouration not less than 4	4

Location	Retroreflectivity dry	Retroreflectivity wet	QD - daytime dry	QD - daytime wet
Limit line	6	0	27	83
Adjacent road	5	1	43	86

Test Site: River Road Near # 850
Marking type: Centre line
Material Under Test: Granoplast Cover Up
Grit Type: Granoplast Aggregate
Target Film Thickness: Not stated

Date laid: January 2008
Traffic Volume: 12,500
Substrate: Grade 3/5 mix chipseal
Colour: Grey
Mean Film Thickness: unknown

Table 3. Results to Transit NZ M/20

TNZ M/20 Clause	Parameter	Test Method	TNZ M/20 Requirements at 3 million	Results at 19.5.08
3.2	Skid Resistance	TNZ M/20 Appendix B	Not less than 50 BPN and no greater than 65 BPN	52
-	Skid Resistance - road	-	-	60
3.4	Degree of Wear	TNZ M/20 Appendix B	Not less than 8	4
3.5	Retention of Colour	TNZ M/20 Appendix B	Discolouration not less than 4	4

Location	Retroreflectivity dry	Retroreflectivity wet	QD - daytime dry	QD - daytime wet
Centre line	9	2	56	80
Adjacent road	7	2	33	50

Comments: Part of the centre line is worn. It may be due to traffic crossing this part of the line to turn to Wymer St before the material was dry. This section was noticed during the night drive over and was deliberately targeted for the testing. It was the only 'significant' wear portion along the River Road centreline from the intersections of Clarkin to Comries.

Test Site: River Road Near # 850
Marking type: Edge line
Material Under Test: Granoplast Cover Up
Grit Type: Granoplast Aggregate
Target Film Thickness: Not stated

Date laid: January 2008
Traffic Volume: 12,500
Substrate: Grade 3/5 mix chipseal
Colour: Grey
Mean Film Thickness: unknown

Table 4. Results to Transit NZ M/20

TNZ M/20 Clause	Parameter	Test Method	TNZ M/20 Requirements at 3 million	Results at 19.5.08
3.2	Skid Resistance	TNZ M/20 Appendix B	Not less than 50 BPN and no greater than 65 BPN	69
-	Skid Resistance - road	-	-	62
3.4	Degree of Wear	TNZ M/20 Appendix B	Not less than 8	9
3.5	Retention of Colour	TNZ M/20 Appendix B	Discolouration not less than 4	4/5

Location	Retroreflectivity dry	Retroreflectivity wet	QD - daytime dry	QD - daytime wet
Edge line	5	0	29	88
Adjacent road	6	1	34	46

Table 5 Summary of mean results for each location

Location	Wear	RL Dry	RL Wet	QD Dry	QD Wet	SKID	Colour
	LCPC	Ave	Ave	Ave	Ave	BPN	
Clarkin/Bankwood - "WAY"	8	5	1	53	94	51	4
Adjacent road surface	-	6	1	41	87	55	-
Clarkin/River - Limit	9	6	0	27	83	67	4
Adjacent road surface	-	5	1	43	86	54	
River Road #850 - Centre line	4	9	2	56	80	52	4
Adjacent road surface	-	7	2	33	50	60	
River Road #850 - Edge line	9	5	0	29	88	69	4/5
Adjacent road surface	-	6	1	34	46	62	