

**Test Report No. S09MEC00384/ED**  
**dated 26 Mar 2009**



PSB Singapore

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SUBJECT:

Testing of polyurethane coating

TESTED FOR:

Maris Polymers Asia LLP  
Block 191, Punggol Central  
#08-299  
Singapore 820191

Attn: Mr Lance Khoo

SAMPLE DESCRIPTION:

The following items were received as shown:

Sample	Size	Quantity	Date received
'Mariseal 270' cured sheet	1 kg/tin	2 tins	29 Dec 2008
	1 kg	1 tin	11 Mar 2009
	1 m x 650 mm	1 pc	11 Mar 2009

The test samples were prepared by TUV SUD PSB Pte Ltd.

Substrate	Area of application	Quantity
a. 286 mm x 219 mm release paper	275 mm x 210 mm	3 pcs
b. 400 mm x 300 mm x 20 mm concrete slab	400 mm x 300 mm	1 pc

TEST METHODS:

Material Identification/Verification

1. Material Identification/Verification By Fourier Transform Infra-Red Spectrometric Analysis (FTIR)



Laboratory:  
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No.1 Science Park Drive  
Singapore 118221

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**TUV**<sup>®</sup>

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Solids Content

2. Adopted ASTM D1644 : 2006 Standard Test Methods For Non-Volatile Content Of Varnishes

Method : A  
Test condition : 105°C for 3 hours  
No. of determinations : 3

Water Tightness

3. Adopted DIN EN 1928 : 2000 Flexible Sheets For Waterproofing - Bitumen, Plastic And Rubber Sheets For Roof Waterproofing - Determination Of Water Tightness  
Cross-reference : ASTM C1185 : 2003 Standard Test Methods For Sampling And Testing Non-Asbestos Fibre-Cement Flat Sheet, Roofing And Siding Shingles, And Clapboards  
Section 11 : Water Tightness

Substrate : 400 mm x 300 mm x 20 mm concrete slab  
Test condition : 50 mm height of water at 23°C for 24 hours

Tensile Properties

4. Adopted ASTM D412 : 1998a Standard Test Method For Vulcanized Rubbers And Thermoplastic Elastomers-Tension

Test specimen : Dumbbell shape, die C  
Gauge length : 25 mm  
Grip length : 64 mm  
Crosshead speed : 500 mm/min  
No. of determinations : 5

Water Vapour Transmission

5. ASTM E96 : 2000 Standard Test Methods For Water Vapour Transmission Of Materials

Method : Desiccant  
Test conditions : 38°C and 90% relative humidity  
No. of determinations : 3

CONDITIONING:

Unless otherwise specified, all test specimens were conditioned at 23 ± 2°C, 70 ± 15% relative humidity and tested at 23 ± 2°C, 65 ± 5% relative humidity. The tensile properties test was conducted at 23 ± 2°C and 50 ± 5% relative humidity.

TEST RESULTS:

Test	Unit	'Mariseal 270'
1. Material Identification/Verification By FTIR	-	Polyurethane-based material (refer to Figure 1)
2. Solids Content, minimum	%	91.2

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TEST RESULTS:

Test	Unit	'Mariseal 270'
3. Water Tightness	-	No absorption of water was observed on the underside of substrate
4.		
a. Maximum Tensile Strength, minimum	N/mm <sup>2</sup>	4.2
b. Elongation At Break, minimum	%	794.7
5. Water Vapour Transmission, average	g/m <sup>2</sup> .day	17.4

REMARKS:

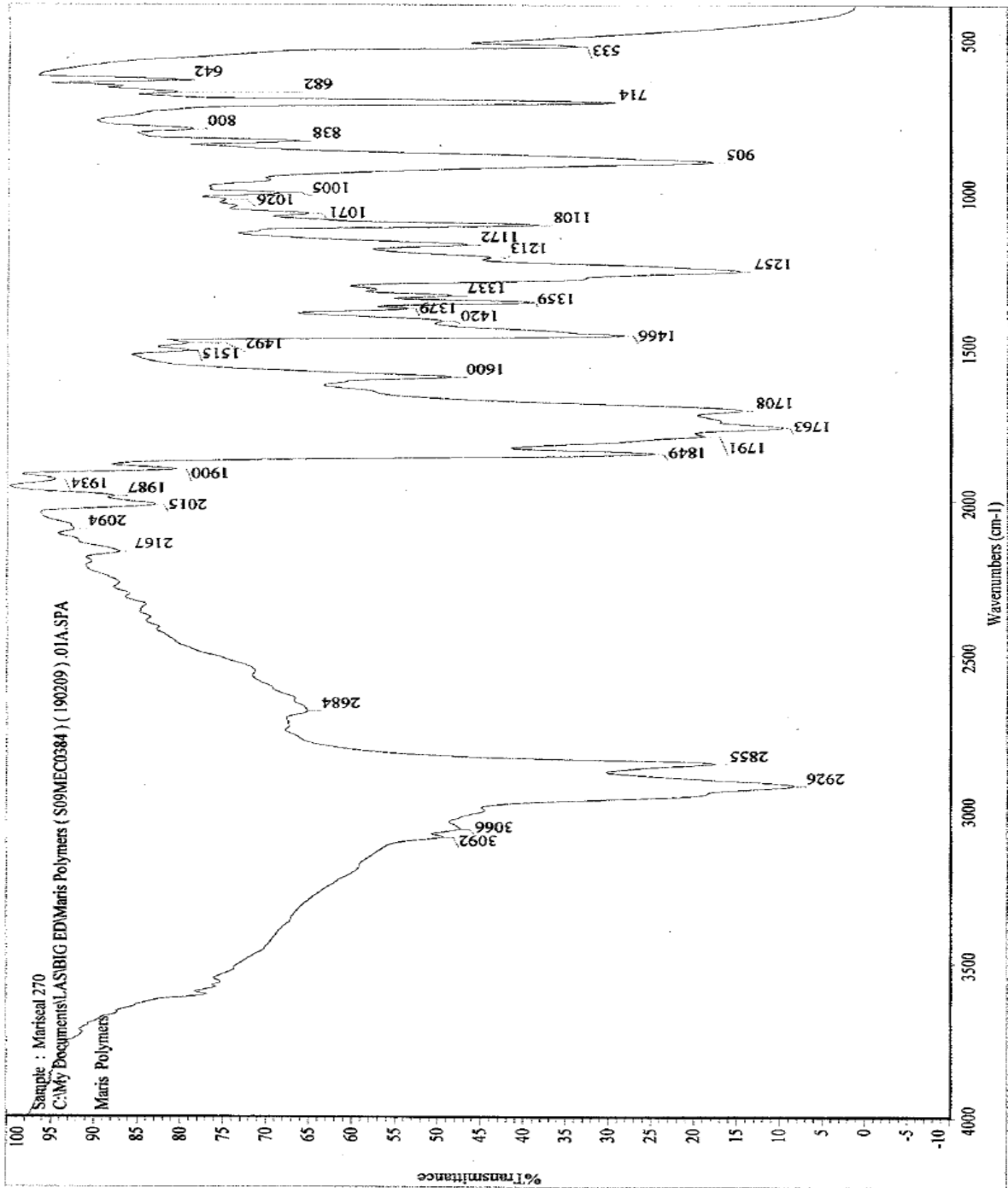
1. Test age : 14 days cured in air minimum prior to test unless otherwise specified.
2. The solids content and tensile properties tests were conducted on test samples received on 11 Mar 2009.
3. As requested by the client, the minimum values were reported for solids content and tensile properties tests.
4. The remainder test samples were collected back by the client as requested.

Eddie Suwand  
Associate Engineer

Raymond Tan  
Senior Engineer  
Building & Acoustics  
Mechanical Centre



Figure 1 : IR Spectrum of 'Mariseal 270'



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January 2008