

**Test Report No. 7191010274-MEC11/-KSY**  
**dated 13 JULY 2011**



PSB Singapore

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**SUBJECT:**

Chemical Spot Test of High-Pressure Laminates

**TESTED FOR:**

Greenlam Asia Pacific Pte Ltd  
18 Sungei Kadut Street 2  
Singapore 729236

Attn: Ms Lin Hui Ping

**SAMPLES DESCRIPTION:**

Six pieces of 305 mm x 305 mm x 13 mm high pressure laminate test specimens (as shown in Figure 1) were submitted by Greenply Industries Ltd on 16 June 2011 for testing.



Figure 1a: Top View



Figure 1b: Bottom View



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**TEST METHOD: (AS SPECIFIED AND AGREED BY THE CLIENT)**

SEFA – 1999 Laboratory Furniture Casework, Shelving and Tables Recommended Practices  
Clause 8.1 - Chemical Spot Test

Nominal specimen dimensions : as received  
Reagents : Acids, Solvents, Bases, General Reagents, Stains and Indicators  
Test condition : 23 ± 2 °C for 16 h  
Observation : By visual method

**TEST RESULTS:**

Reagents	Observation	Level
<b>A. Acids</b>		
1. 20% Nitric Acid	No detectable change	0
2. 30% Nitric Acid	No detectable change	0
3. 65% Nitric Acid	No detectable change	0
4. 99% Glacial Acetic Acid	No detectable change	0
5. 33% Sulphuric Acid	No detectable change	0
6. 77% Sulphuric Acid	No detectable change	0
7. 96% Sulphuric	No detectable change	0
8. 37% Hydrochloric Acid	No detectable change	0
9. 85% phosphoric Acid	No detectable change	0
10. 90% Formic Acid	No detectable change	0
11. 48% Hydrofluoric Acid	No detectable change	0
12. Aqua Regia, 77% Sulphuric Acid & 65% Nitric Acid equal parts	No detectable change	0
13. 60% Chromic Trioxide (Chromic Acid Cleaning Solution)	No detectable change	0
14. 60% Perchloric Acid	Severe staining	2
<b>B. Solvents</b>		
1. Carbon Tetrachloride	No detectable change	0
2. Acetone	No detectable change	0
3. 37% Formaldehyde	No detectable change	0
4. Methanol	No detectable change	0
5. Ethyl Acetate	No detectable change	0
6. Toluene	No detectable change	0
7. N-hexane	No detectable change	0
8. Ethyl Alcohol	No detectable change	0
9. Chloroform	No detectable change	0
10. 80% Phenol Solution	No detectable change	0
11. Xylene	No detectable change	0
12. Amyl Acetate	No detectable change	0
13. Dimethylformamide	No detectable change	0
14. Methylene Chloride	No detectable change	0
15. Methyl Ethyl Ketone	No detectable change	0
16. Tetrahydrofuran	No detectable change	0

**TEST RESULTS (CONT'D):**

Reagents	Observation	Level
<b>C. Bases</b>		
1. 10% Sodium Hydroxide	No detectable change	0
2. 20% Sodium Hydroxide	No detectable change	0
3. 40% Sodium Hydroxide	No detectable change	0
4. Sodium Hydroxide Flakes	No detectable change	0
5. 25% Ammonium Hydroxide	No detectable change	0
<b>D. General Reagents</b>		
1. 5% Sodium Hypochloride	No detectable change	0
2. 3% Hydrogen Peroxide	No detectable change	0
3. 30% Trisodium Phosphate	No detectable change	0
4. Zinc Chloride (saturated solution)	No detectable change	0
5. Gasoline	No detectable change	0
6. Kerosene	No detectable change	0
7. Mineral Oil	No detectable change	0
8. Vegetable Oil (Olive)	No detectable change	0
9. Water	No detectable change	0
10. 0.1% Potassium Permanganate	Slight change in color / gloss	1
11. 5% Silver Nitrite	Slight change in color / gloss	1
12. 5% Copper Sulphate	No detectable change	0
13. Ethylene Glycol	No detectable change	0
14. Karl Fischer Reagent	No detectable change	0
15. 5% Urea	No detectable change	0
16. 5% Ferric Sulphate	No detectable change	0
<b>E. Stains and Indicators</b>		
1. 0.1% Phenolphthalein	No detectable change	0
2. 0.1% Methyl Red	No detectable change	0
3. 1% Gentian Violet	Slight change in color / gloss	1
4. 0.1% Methylene Blue	No detectable change	0
5. 0.1% Crystal Violet	No detectable change	0
6. 0.1% Malachite Green	Severe staining	2
7. 0.1% Thymol Blue	No detectable change	0


**NOTES:**

Level 0 - No detectable change.

Level 1 - Slight change in color or gloss.

Level 2 - Slight surface etching or severe staining.

Level 3 - Pitting, Cratering, swelling, or erosion of coating, obvious and significant deterioration.

  
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Associate Engineer

  
Li Xiang  
Engineer  
Polymer Products  
Mechanical Centre

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March 2010