SUBJECT
Fungus Resistance Test

CLIENT
Greenlam Asia Pacific Pte Ltd
11 Sungei Kadut Crescent
Singapore 728683
Attn: Ms. Lin Hui Ping

SAMPLE SUBMISSION DATE / TEST DATE
25 Apr 2013 / 13 May 2013

DESCRIPTION OF SAMPLE
1 sample consisting of 6 pieces of “Greenlam Safeguard Plus Compact Laminates/ High Pressure Laminates” (Dimension: 50 mm x 50 mm x 12 mm thickness) was received.
METHOD OF TEST

ASTM Designation : G21-09

‘Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi’.

1. The test fungi used were:

   Aspergillus niger (ATCC 9642)
   Penicillium pinophilum (ATCC 11797)
   Chaetomium globosum (ATCC 6205)
   Gliocladium virens (ATCC 9645)
   Aureobasidium pullulans (ATCC 15233)

2. Three test specimens were prepared for the tests.

3. Viability controls were prepared using three pieces of sterilized filter paper (25mm by 25mm) on solidified nutrient-salts agar in separate petri dishes inoculated with the test fungi.

4. Incubation condition : 30°C for 28 days at 90% relative humidity.

5. Based on the standard, the test may be terminated in less than 28 days for samples exhibiting a growth rating of 2 or more.

6. The extent of fungal growth on the incubated test specimens were rated in accordance to the test method as follows:

<table>
<thead>
<tr>
<th>Observed growth on specimens</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Traces of growth (less than 10%)</td>
<td>1</td>
</tr>
<tr>
<td>Light growth (10 - 30%)</td>
<td>2</td>
</tr>
<tr>
<td>Moderate growth (30 - 60%)</td>
<td>3</td>
</tr>
<tr>
<td>Heavy growth (60% to complete coverage)</td>
<td>4</td>
</tr>
</tbody>
</table>
## RESULTS

<table>
<thead>
<tr>
<th>Inoculated test-specimens</th>
<th>Rating of fungal growth on test-specimens at the end of 28 days incubation period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenlam Safeguard Plus Compact Laminates/ High Pressure Laminates</td>
<td></td>
</tr>
<tr>
<td># 1</td>
<td>0 (None)</td>
</tr>
<tr>
<td># 2</td>
<td>0 (None)</td>
</tr>
<tr>
<td># 3</td>
<td>0 (None)</td>
</tr>
<tr>
<td>Viability controls</td>
<td></td>
</tr>
<tr>
<td># 1</td>
<td>4</td>
</tr>
<tr>
<td># 2</td>
<td>4</td>
</tr>
<tr>
<td># 3</td>
<td>4</td>
</tr>
</tbody>
</table>

Remarks:
The results of analysis showed that the sample: “Greenlam Safeguard Plus Compact Laminates/ High Pressure Laminates” tested was resistant to the test fungi used.

The above test results related to the samples as received.

MS AW HWEE YING
TECHNICAL EXECUTIVE

MRS KAM-LEONG YIN PHENG
PRODUCT MANAGER
MICROBIOLOGY
CHEMICAL & MATERIALS
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July 2011