# FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
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**MateriaLab**

Report No.    :    162397EN161000

## Test Report on Analysis of Sealant

**Information Supplied by Client**

| | | |
|---|---|---|
| Client | : | Garish Crown Building Materials Ltd. |
| Client's address | : | Workshop B25 on UG/F, Wah Lok Industrial Centre Phase 1, 37-41 Shan Mei Street, Fotan, Shatin, N.T. |
| Project | : | VOC Test |
| Sample description | : | One sample of EVERBUILD Fire Mate |
| Sample identification | : | BS476 PART20/EN1366-4(2006) |
| Test required | : | VOC content for sealant other than portable sealant or caulking compounds |

**Laboratory Information**

| | | |
|---|---|---|
| Lab sample I.D. | : | EN161000/1 |
| Date of receipt of sample | : | 16/05/2016 |
| Date test completed | : | 28/05/2016 |
| Test method used | : | USEPA Method 24 & SCAQMD Method 303-91 |

Calculated based on results of

a) Volatile content – USEPA Method 24 Section 11.3.1 & ASTM D2369-98
b) Water content – USEPA Method 24 Section 11.3.2 & ASTM D4017-96a
c) Coating density – USEPA Method 24 Section 11.3.3 & ASTM D1475-96
d) Exempt compounds – SCAQMD Method 303-91

| | | |
|---|---|---|
| Dilution ratio | : | - |

*Note : This report refers only to the sample(s) tested.*

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**Results :**

| | Result |
|---|---|
| Volatile content ($W_v$), %wt | 23.49 |
| Water content ($W_w$), %wt | 16.89 |
| Exempt compounds ($W_{ex}$), %wt | <0.01 |
| Coating density ($D_c$) @ 25°C, g/ml | 1.656 |
| VOC content, g/L of sealant, less water and less exempt compounds | 152 |

Note:

Equation for calculation of VOC:

$$VOC = ( W_a - W_b - W_c ) / ( V_d - V_e - V_f )$$

$$= [ ( W_a / W ) - ( W_b / W ) - ( W_c / W ) ] * W / V_d / ( 1 - V_e / V_d - V_f / V_d )$$

$$= [ (W_v - W_w - W_{ex}) ] * [ D_c * 1000 / ( 100 - W_w * D_c / D_w - W_{ex} * D_c / D_{ex} ) ]$$

$$= (W_v - W_w - W_{ex}) * D_c * 1000 / ( 100 - W_w * D_c / D_w - W_{ex} * D_c / D_{ex} )$$

where

$W_a$ is weight of volatile compounds in grams (per unit of sample)

$W_b$ is weight of water in grams (per unit of sample)

$W_c$ is weight of exempt compounds in grams (per unit of sample)

$W$ is weight of material in grams (per unit of sample)

$V_d$ is volume of material in litres (per unit of sample)

$V_e$ is volume of water in litres (per unit of sample)

$V_f$ is volume of exempt compounds in litres (per unit of sample)

$D_w$ is density of water in g/ml @ 25°C (i.e. 0.997072 g/ml)

$D_{ex}$ is density of exempt compounds in g/ml @ 25°C

Supervised by :    K.F. Wong

Certified by :

Approved Signatory: HO Kin Man, John
Manager – Chemistry Department

Date :    23/6/2016

**\*\* End of Report \*\***

*Note : This report refers only to the sample(s) tested.*

GEN01/0914