

TEST REPORT: 7191151947-CHM16-CSY-CR2

Date: 20 DEC 2016

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Client's Ref:

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SUBJECT

Evaluation of "PQ Sellecoat Non Toxic Inorganic Coating" comply with Singapore Green Building Product (SGBC) for the Product Group: Paints and Coatings

CLIENT

PQ Engineering Pte Ltd
18 Enterprise Road
Singapore 629824

Attn : Mr. Peh Ke Pin

DESCRIPTION OF SAMPLE

One sample consisting of two components labelled as follows were received on 29 Nov 2016.

Product name	Quantity
PQ Sellecoat Non Toxic Inorganic Coating Powder (Light Gray)	1 x 2.5 kg
PQ Sellecoat Non Toxic Inorganic Coating Emulsion	1 x 1 kg

DATE OF TEST

01 Dec 2016 – 20 Dec 2016



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METHOD OF TEST

The sample was tested in the “as-received” condition. According to client’s instruction manual, Sellecoat Powder (Light Gray) and Sellecoat Emulsion were mixed (Powder : Liquid = 2.5 : 1) , and tested for the following tests

1. Heavy metals analysis of Mercury (Hg), Lead (Pb) and Cadmium (Cd)

The sample was digested by inorganic acid, followed by analysis using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)

2. Analysis of Hexavalent Chromium (Cr⁶⁺)

The sample was analysed by UV-Vis spectrometer using 1,5-Diphenylcarbohydrazide as derivatizing agent.

3. Analysis of Hydrocarbon solvents, Halogenated solvents and Aromatic solvents

The sample was analysed by Headspace-Gas Chromatography with Mass Selective Detector (HS-GC-MSD)

4. Analysis of Ethylene glycols, Phthalates, Epichlorohydrin, N-methyl pyrrolidone and Halogenated benzenes

The sample was analyzed by Gas Chromatography with Flame Ionization Detector (GC-FID) and/or Gas Chromatograph with Mass Selective Detector (GC-MSD), after appropriate pretreatment of the sample

5. Analysis of Alkyl Phenol Ethoxylates

The sample was analysed according to BS3762: 1990 Analysis of formulated Detergent

6. Analysis of Formaldehyde

The sample was analysed by UV-Vis Spectrophotometer using Acetylacetone as reagent

7. Analysis of VOC

The sample was analysed according to BS EN ISO 11890-2:2013, Paints and varnishes – *Determination of volatile organic compound (VOC) content – Part 2 : Gas-chromatographic method*

SUMMARY OF TEST RESULTS

The summary of test results for “PQ Sellecoat Non Toxic Inorganic Coating”

Item No.	Test	Result	Method Detection Limit	SGBC Criteria	Inferred Remark
1	Heavy Metals: Mercury, Lead, Cadmium, Chromium (VI)	Not Detected	0.001%	N.D. (Pigment) < 0.01% or <0.1% *	Pass
2	Hydrocarbon solvent	Not Detected	0.01%	< 20% by weight	Pass
3	Aromatic solvents	Not Detected	0.01%	Not Detected	Pass
4	Halogenated solvents	Not Detected	0.01%	Not Detected	Pass
5	Ethylene glycols	Not Detected	0.01%	Not Detected or <0.1% **	Pass
6	Phthalates	Not Detected	0.01%	Not Detected	Pass
7	Epichlorohydrin	Not Detected	0.01%	Not Detected	Pass
8	N-methyl pyrrolidone	Not Detected	0.01%	Not Detected	Pass
9	Halogenated Benzenes	Not Detected	0.01%	Not Detected	Pass
10	Alkyl Phenol Ethoxylates	Not Detected	0.01%	Not Detected	Pass
11	Formaldehyde Content	Not Detected	0.01%	Not Detected	Pass
12	VOC Content **	<2 g/L	2 g/L	< 50 g/L ***	Pass

* Exempted are impurities of the elements in raw materials or components in trace levels < 0.01% for Pb, Hg, Cd; and Cr (VI) < 0.1%

** Exempted from this requirement are trace amount < 0.1 % for ethylene glycol, that may be present in raw materials or component

*** For Water Based Coatings (interior: Matt < 25 g/L; Low Sheen < 30 g/L; Semi Gloss to Gloss < 75 g/L)

For Water Based Coatings (exterior: Matt < 50 g/L; Low Sheen < 50 g/L; Semi Gloss to Gloss < 75 g/L)

For Solvent Based Coatings (Solvent Paints and stains < 200 g/L; Solvent Varnishes < 250 g/L)

RESULTS (Cont'd)**Table 1 : The Heavy metals results for "PQ Sellecoat Non Toxic Inorganic Coating"**

Test	Result	Method Detection Limit
Mercury	Not Detected	0.001%
Lead	Not Detected	0.001%
Cadmium	Not Detected	0.001%
Hexavalent Chromium	Not Detected	0.001%

Table 2 : The Solvents analytical results for "PQ Sellecoat Non Toxic Inorganic Coating".

Test	Result	Method Detection Limit
Aromatic solvents	Not Detected	0.01%
Halogenated solvents	Not Detected	0.01%
Ethylene glycols	Not Detected	0.01%

** Exempted from this requirement are trace amount < 0.1 % for ethylene glycol, that may be present in raw materials or component

Table 3 : The Hazardous substances analytical results for "PQ Sellecoat Non Toxic Inorganic Coating".

Test	Result	Method Detection Limit
Phthalates	Not Detected	0.01%
Epichlorohydrin	Not Detected	0.01%
N-methyl pyrrolidone	Not Detected	0.01%
Halogenated Benzenes	Not Detected	0.01%
Alkyl Phenol Ethoxylates	Not Detected	0.01%

Table 4 : The Formaldehyde results for "PQ Sellecoat Non Toxic Inorganic Coating".

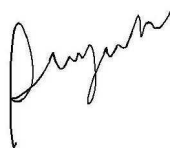
Test	Result	Method Detection Limit
Formaldehyde Content	Not Detected	0.01%

Table 5 : The Volatile Organic Compound (VOC) content for "PQ Sellecoat Non Toxic Inorganic Coating".

Test	Result	Method Detection Limit
VOC Content ^a	< 2 g/L ^b	2 g/L

a) Volatile organic compound (VOC) means any organic compound having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3kPa.

b) The result was calculated based on the specific gravity = 1.28 provided by the client



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July 2011

