

TEST REPORT: 7191130433-CHM16-CSY

Date: 12 FEB 2016

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SUBJECT

Determination of Volatile Organic Compound (VOC) and Prohibited Substances for Paint Sample as per Green Seal™ GS-11 standard

CLIENT

Asian Paints Nepal Pvt Ltd
P.O.Box 37
Hetauda Industrial District
Hetauda
Nepal

Attn : Om Nath Sinha

DESCRIPTION OF SAMPLE

One sample labeled as follows was received on 04 Jan 2016.

Product Name	Shade	Quantity
Royale Aspira	AR2	1 Ltr

DATE OF TEST

07 Jan 2016 – 04 Feb 2016



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METHOD OF TEST

Sample was tested for the following tests.

Test	Method
1) Carcinogens, Mutagens, and Reproductive Toxins	By Gas Chromatograph –Mass Spectrometry (GC-MS) Screening method.
2) Volatile organic compound content	By BS EN ISO 11890-2:2013, Paints and varnishes – <i>Determination of volatile organic compound (VOC) content – Part 2 : Gas-chromatographic method.</i>
3) Formaldehyde	The sample was analysed by UV-Vis Spectrophotometer using Acetylacetone as reagent.
4) Volatile Aromatic Hydrocarbons	By Headspace Gas Chromatograph - Mass Spectrometry (HS-GC-MS).
5) Mercury, Lead, Cadmium and Antimony	The sample was digested in inorganic acid, followed by analysis using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES).
6) Hexavalent Chromium	The sample was analysed by UV-Vis spectrometer using 1,5-Diphenylcarbohydrazide as derivatizing agent.
7) Hazardous air pollutants and Ozone-depleting compounds	By Headspace Gas Chromatograph - Mass Spectrometry (HS-GC-MS).
8) Phthalates (DEHP, BBP, DBP, DnOP, DEP, DMP)	By Gas Chromatograph –Mass Spectrometry (GC-MS).
9) 1,2-dichlorobenzene	By Gas Chromatography with Flame Ionization Detector (GC-FID)
10) Triphenyl tins and tributyl tins	By Gas Chromatograph –Mass Spectrometry (GC-MS).
11) Triclosan	By Gas Chromatograph –Mass Spectrometry (GC-MS).
12) Alkyl Phenol Ethoxylates	BS3762 : 1990 Analysis of formulated Detergent

SUMMARY OF TEST RESULTS

The summary of test results for “Royale Aspira”.

Item No.	Test	Result	Method Detection Limit	GS 11 Criteria	Inferred Remark
1	Carcinogens, Mutagens, and Reproductive Toxins	Not Detected	1000 ppm	Not Detected	Pass
2	Hazardous air pollutants and Ozone-depleting compounds	Not Detected	1000 ppm	Not Detected	Pass
3	VOC Content	65.7 g/L	2 g/L	< 100 g/L*	Pass
4	Free Formaldehyde Content	46 ppm	10 ppm	No Formaldehyde donors, free < 100 ppm	Pass
5	Volatile Aromatic Hydrocarbons	Not Detected	100 ppm	≤ 0.5% (w/w)	Pass
6	Heavy Metals: Mercury, Lead, Cadmium, Chromium, Antimony	Not Detected	1 ppm	Not Detected	Pass
7	Hexavalent Chromium	Not Detected	100 ppm	Not Detected	Pass
8	Phthalates	Not Detected	10 ppm	Not Detected	Pass
9	1,2-dichlorobenzene	Not Detected	10 ppm	Not Detected	Pass
10	Triphenyl tins and tributyl tins	Not Detected	10 ppm	Not Detected	Pass
11	Triclosan	Not Detected	100 ppm	Not Detected	Pass
12	Alkyl Phenol Ethoxylates	Not Detected	100 ppm	Not Detected	Pass

* VOC content limits set by CARB (i.e. Flat coatings < 50 g/L; Non-Flat coatings < 100 g/L; Floor coatings < 100 g/L etc.)

RESULTS (Cont'd)

Table 1: The Screening test results for "Royale Aspira".

Test	Result	Method Detection Limit
Carcinogens, Mutagens, and Reproductive Toxins	Not Detected	1000 ppm

Table 2: The Volatile Organic Compound (VOC) content for "Royale Aspira".

Test	Result	Method Detection Limit
VOC Content ^a	65.7 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 = 1.345 provided by the client

Table 3: The Formaldehyde results for "Royale Aspira".

Test	Result	Method Detection Limit
Free Formaldehyde Content ^c	46 ppm	10 ppm


c) GS-11 Criteria prohibited Formaldehyde donor as ingredient, product free formaldehyde content for green product limit < 100 ppm.

Table 5: The Elemental results for "Royale Aspira"

Test	Result	Method Detection Limit
Mercury	Not Detected	1 ppm
Lead	Not Detected	1 ppm
Cadmium	Not Detected	1 ppm
Antimony	Not Detected	1 ppm
Hexavalent Chromium	Not Detected	100 ppm

Table 6: The analytical results of prohibited substances for "Royale Aspira".

Test	Result	Method Detection Limit
Hazardous air pollutants	Not Detected	1000 ppm
Ozone-depleting compounds	Not Detected	1000 ppm
Volatile Aromatic Hydrocarbons	Not Detected	100 ppm
Phthalates (DEHP, BBP, DBP, DnOP, DEP, DMP)	Not Detected	10 ppm
1,2-dichlorobenzene	Not Detected	10 ppm
Triphenyl tins and tributyl tins	Not Detected	10 ppm
Triclosan	Not Detected	100 ppm
Alkyl Phenol Ethoxylates	Not Detected	100 ppm



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TECHNICAL EXECUTIVE



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July 2011

