

Report of Analysis
2007-000882-DRPK

Submitted By: Performers Coating
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Contact: Aneta Bogdanova
Item No.: See PO#:
Client Ref. No.:
Date Received: 02/02/2007
Testing Period: 02/15/2007
Country of Origin:

Sample Description	Product	Sample ID
ID: Vueguard 901 WC	Liquid-NonSpecified	2007-000882-DRPK-001
ID: Vueguard 901 AG Gloss 54	Liquid-NonSpecified	2007-000882-DRPK-002
ID: Vueguard 901 AG 5 HP	Liquid-NonSpecified	2007-000882-DRPK-003
ID: Vueguard 901 AG 5 N2	Liquid-NonSpecified	2007-000882-DRPK-004
ID: Vueguard 801	Liquid-NonSpecified	2007-000882-DRPK-005

Results: SEE ATTACHED SHEETS

Approved By:



Mario A. Ibarra
Analytical Group Leader

Date: 2/16/07

This report has been reviewed for accuracy, completeness, and comparison against specifications when available. The reported results are only representative of the samples submitted for testing. This report shall not be reproduced except in full without written approval of the laboratory.

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Sample ID: 2007-000882-DRPK-001

Product: Liquid-NonSpecified

Product Description: ID: Vueguard 901 WC

Method: ISM_RoHS_Metals_XRF

Method Description: General approach to metal RoHS testings by XRF prescreening

Parameter	RoHS Limit #	Result	Unit
Bromine	<= 1000	< 20	ppm (Wt)
Cadmium	<= 100	< 20	ppm (Wt)
Chromium	<= 1000	< 20	ppm (Wt)
Lead	<= 1000	< 20	ppm (Wt)
Mercury	<= 1000	< 20	ppm (Wt)

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Sample ID: 2007-000882-DRPK-002

Product: Liquid-NonSpecified

Product Description: ID: Vueguard 901 AG Gloss 54

Method: ISM_RoHS_Metals_XRF

Method Description: General approach to metal RoHS testings by XRF prescreening

Parameter	RoHS Limit #	Result	Unit
Bromine	<= 1000	< 20	ppm (Wt)
Cadmium	<= 100	< 20	ppm (Wt)
Chromium	<= 1000	< 20	ppm (Wt)
Lead	<= 1000	< 20	ppm (Wt)
Mercury	<= 1000	< 20	ppm (Wt)

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Sample ID: 2007-000882-DRPK-003

Product: Liquid-NonSpecified

Product Description: ID: Vueguard 901 AG 5 HP

Method: ISM_RoHS_Metals_XRF

Method Description: General approach to metal RoHS testings by XRF prescreening

Parameter	RoHS Limit #	Result	Unit
Bromine	<= 1000	< 20	ppm (Wt)
Cadmium	<= 100	< 20	ppm (Wt)
Chromium	<= 1000	< 20	ppm (Wt)
Lead	<= 1000	< 20	ppm (Wt)
Mercury	<= 1000	< 20	ppm (Wt)

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Sample ID: 2007-000882-DRPK-004

Product: Liquid-NonSpecified

Product Description: ID: Vueguard 901 AG 5 N2

Method: ISM_RoHS_Metals_XRF

Method Description: General approach to metal RoHS testings by XRF prescreening

Parameter	RoHS Limit #	Result	Unit
Bromine	<= 1000	< 20	ppm (Wt)
Cadmium	<= 100	< 20	ppm (Wt)
Chromium	<= 1000	< 20	ppm (Wt)
Lead	<= 1000	< 20	ppm (Wt)
Mercury	<= 1000	< 20	ppm (Wt)

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Sample ID: 2007-000882-DRPK-005

Product: Liquid-NonSpecified

Product Description: ID: Vueguard 801

Method: ISM_RoHS_Metals_XRF

Method Description: General approach to metal RoHS testings by XRF prescreening

Parameter	RoHS Limit #	Result	Unit
Bromine	<= 1000	< 20	ppm (Wt)
Cadmium	<= 100	< 20	ppm (Wt)
Chromium	<= 1000	< 20	ppm (Wt)
Lead	<= 1000	< 20	ppm (Wt)
Mercury	<= 1000	< 20	ppm (Wt)

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Qualifiers:

ppm	Parts per million
ND	Non Detected
NA	Not Applicable

Reference:

Samples have been tested for hazardous substances according to the EU Directive 2002/95/EC on the Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and subsequent amended directives.

Test Methods:

Test	Reporting Limit	Test Method
Cadmium (Cd) content (ISM_RoHS_Metals2)	10 ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES
Lead (Pb) content (ISM_RoHS_Metals2)	10 ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES
Mercury (Hg) content (ISM_RoHS_Metals2)	100 ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES
Chromium (Cr) content (ISM_RoHS_Metals2)	10 ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES
PBBs (ISM_RoHS_GCMS)	50 ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD
PBDEs (ISM_RoHS_GCMS)	50 ppm	With reference to USEPA 3540C, by solvent extraction and determined by GC-MSD
Bromine (Br), Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) content (ISM_RoHS_Metals_XRF)	20 ppm (Estimated)	RoHS Pre-screening The technique used for the pre-screening analysis is a wavelength dispersive X-Ray fluorescence spectrometer. The analysis is semi-quantitative and all failures must be analyzed on different instrumentation, for example ICP-OES.
Chromium VI (Cr6+) content (EPA 3060A_RoHS)	10 ppm	With Reference to USEPA 3060A & 7196A, by alkaline digestion and determined by UV-Vis. The test method is only qualitative. Note: Chromium VI was verified as elemental chromium and can be speciated as Chromium VI upon request.

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Tests Conducted:

Detailed test information:

1. Test for Cd/Pb/Hg/Cr contents

Sample preparation

0.2 g samples are placed in microwave digestion vessel and add digestion reagent. Digest samples by microwave apparatus. If insoluble precipitates are produced, dissolve samples totally by taking appropriate digestion reagent. Transfer the digestive solution into a 25ml volumetric flask. Make up with deionized water.

Analysis

Analyze Cd, Pb and Hg contents by Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES) or similar equipment.

Element	Wavelength (nm)	Gas for plasma
Cd	228,214	Argon
Pb	220,217	Argon
Hg	253,194	Argon
Cr		Argon

2. Test for Chromium (VI) content (upon request)

Sample preparation

2.5 g samples are placed in Erlenmeyer flask. Add digestion solution and heating at hot plate. Adjust the pH of the solution to 7.5+0.5 and transfer the solution to volumetric flask. Make up with deionized water. Add diphenylcarbazide solution into extract. Adjust the pH of the solution to 2.0+0.5 and make up with deionized water.

Analysis

Analyze the mixture by using UV-Vis spectrophotometer with wavelength set at 540 nm.

3. Test for PBB/PBDE contents

Sample preparation

2 g samples are extracted by Soxhlet extraction with dichloromethane/methanol solvents for 16 hours. Reduce the extract to about 5 ml. Transfer the extract into a 25ml volumetric flask and make up with methanol.

Analysis

Analyze by Gas Chromatography-Mass Selective Detector (GC-MSD).

4. Quality Control

Calibration curve

Each test needs to have new calibration on the day it was run. At least 3 points calibration is used for routine analysis. The correlation coefficient of the calibration curve (r2) should be greater than 0.995%.

Method blank

Method blank is analyzed per batch of samples. The method blank value should be less than 10% of the reporting limit.

Duplicate Analysis

Duplicate analysis should be performed at least per batch of samples. The acceptance limit of duplicate analysis is normally set at 10%.

Spike Analysis

Spike analysis is performed for each batch of samples. The recovery of the spike standard should be within 80-120%.

Initial: MBC

2/16/07