

Test Report

No. CTSSA/27122-1/12
CTS Ref. CTSSA/12/4387/Luvata

Date : 04/01/2013

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LUVATA MALAYSIA SDN. BHD.
PLO 573, JALAN KELULI 10, KAWASAN PERINDUSTRIAN PASIR GUDANG,
81700 PASIR GUDANG, JOHOR.

The following merchandise was (were) submitted and identified by the client as:

Sample Description : OF
Sample Receiving Date : 13/12/2012
Testing Period : 13/12/2012 to 19/12/2012
Date Completed : 19/12/2012
Reporting Date : 04/01/2013

Test Requested : Selected test(s) as requested by client
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Analysts : Ng Jing Wei, Cho Kar Yen & Tay Siam Pine

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B.Sc.(HONS) AMIC
SENIOR LAB MANAGER

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Test results:

Test Part Description :

Sample Description : OF

RoHS Directive 2011/65/EU Annex II

Test Item(s):	Unit	Test Method	Results	MDL
Cadmium (Cd)	mg/kg	With reference to IEC 62321:2008, and performed by ICP-OES	N.D.	2
Lead (Pb)	mg/kg	With reference to IEC 62321:2008, and performed by ICP-OES	N.D.	2
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008, and performed by ICP-OES	N.D.	2
Hexavalent Chromium (CrVI) by Spot test / boiling water extraction (optional) #	---	With reference to IEC 62321:2008	Negative	-
Sum of PBBs	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	-
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5

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Sum of PBDEs	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	-
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, and performed by GC-MS	N.D.	5

Note : (a) mg/kg = ppm ; (0.1wt% = 1000ppm)

(b) N.D. = Not Detected

(c) MDL = Method Detection Limit

(d) # = **Spot-Test:**

a. Negative means the absence of Cr(VI) on the tested areas

b. Positive means the presence of Cr(VI) on the tested areas

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is negative or cannot be confirmed)

Boiling water extraction:

a. Negative means the absence of Cr(VI) on the tested areas

b. Positive means the presence of Cr(VI) on the tested areas;

The detected concentration in 50 mL boiling water extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

(e) - = Not regulated

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Test Part Description :

Sample Description : OF



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1. DETERMINATION OF CADMIUM CONTENT BY

IEC 62321 2008

Sample Receiving and Registration

↓
Cut sample in small pieces

↓
Weight sample (0.2-0.5g) into digestion vessel

↓
Acid digestion (Microwave)

↓
"Totally Dissolved"

↓
Filtration

↓
Analyses by ICP

2. DETERMINATION OF LEAD CONTENT BY

IEC 62321 2008

Sample Receiving and Registration

↓
Cut sample in small pieces

↓
Weight sample (0.2-0.5g) into digestion vessel

↓
Acid digestion (Microwave)

↓
"Totally Dissolved"

↓
Filtration

↓
Analyses by ICP

3. DETERMINATION OF MERCURY CONTENT BY

IEC 62321 2008

Sample Receiving and Registration

↓
Cut sample in small pieces

↓
Weight sample (0.2-0.5g) into digestion vessel

↓
Acid digestion (Microwave)

↓
"Totally Dissolved"

↓
Filtration

↓
Analyses by ICP

4. DETERMINATION OF HEXAVALENT CHROMIUM

BY IEC 62321 2008

Sample Receiving and Registration

↓
Sample Preparation

↓
Spot-test (Qualitative)

↓
Boiling-water-extraction

↓
Analyses by UV- Spectrophotometer

↓
Test Report

5. DETERMINATION OF PBB/PBDE WITH GC-MS

BY IEC 62321 2008

Cut sample in small pieces

↓
Weight sample (0.5-4.0g) into extraction thimble

↓
Soxhlet Extraction with Toluene

↓
Filter through 0.45 um membrane filter

↓
Analyses by GC-MS (with appropriate dilution)

**** End of Report ****

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