

Test Report

Report No. ECL01J084288

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Applicant SEMIWILL SEMICONDUCTOR(SHANGHAI)CO.LTD

Address NO.3387 SHENDU RODA PUJIANG MINHANG SHANGHAI CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

Sample Name metal oxide varistor
 Part No. 05D;07D;10D;14D;20D;25D;32D;40D;53D;34S;0402;0603;0805;1206;
 1210;1812;2220;3220;
 Sample Received Date Dec. 27, 2017
 Testing Period Dec. 27, 2017 to Jan. 2, 2018

Test Requested As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Phthalates(DBP, BBP, DEHP, DIBP) in the submitted sample(s).

Test Method Please refer to the following page(s).**Test Result(s)** Please refer to the following page(s).

Tested by

Liu Jie

Reviewed by

Gou Cuili

Approved by

Su Hongwei

Date

Jan. 2, 2018

Su Hongwei

Senior Laboratory Manager

Centre Testing International Pinbiao(Shanghai) Co., Ltd.

No.1996,Xinjinjiao Road, Pudong New District,Shanghai,China



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Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-1:2015	UV-Vis
	IEC 62321-7-2:2017 and/ or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates(DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS

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Test Result(s)

Tested Item(s)	Result		MDL
	001	002	
Lead(Pb)	N.D.	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	N.D.	2 mg/kg
Mercury(Hg)	N.D.	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	—	8 mg/kg
	—	N.D.▼	0.10µg/cm ² (LOQ)

Tested Item(s)	Result		MDL
	001	002	
Polybrominated Biphenyls(PBBs)			
Monobromobiphenyl	N.D.	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	N.D.	5 mg/kg

Tested Item(s)	Result		MDL
	001	002	
Polybrominated Diphenyl Ethers(PBDEs)			
Monobromodiphenyl ether	N.D.	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	N.D.	5 mg/kg

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Tested Item(s)	Result		MDL
	001	002	
Phthalates			
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	N.D.	50 mg/kg
Benzylbutyl phthalate(BBP) CAS#:85-68-7	N.D.	N.D.	50 mg/kg
Di-2-ethylhexyl phthalate(DEHP) CAS#:117-81-7	N.D.	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	N.D.	50 mg/kg

Tested Sample/Part Description

- 001 Blue body (Tested as a whole)
- 002 Silvery metal pin

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

- The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.
- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL or LOQ)
- mg/kg = ppm = parts per million
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 $\mu\text{g}/\text{cm}^2$
- ▼ The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 $\mu\text{g}/\text{cm}^2$.

The coating is considered a non-Cr(VI) based coating.

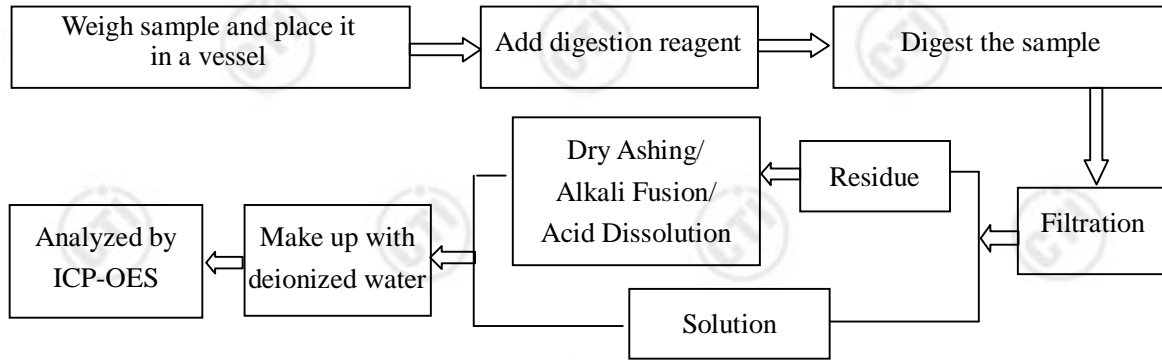
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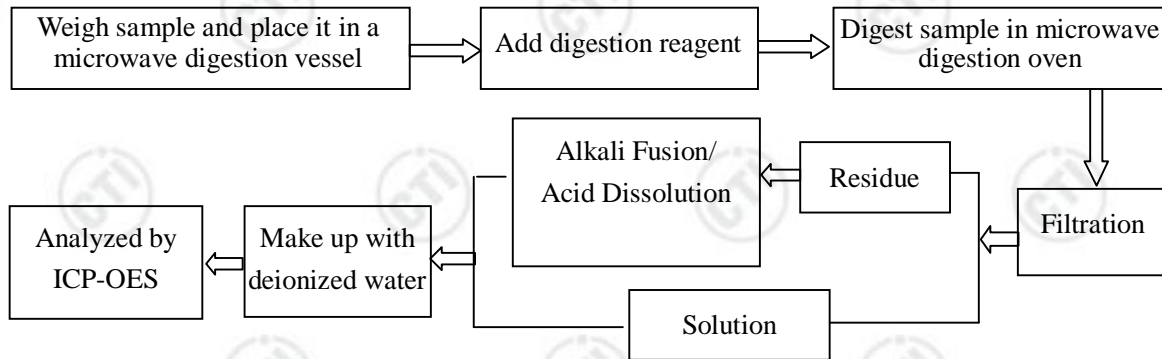
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Test Process

1. Lead(Pb), Cadmium(Cd), Chromium(Cr)

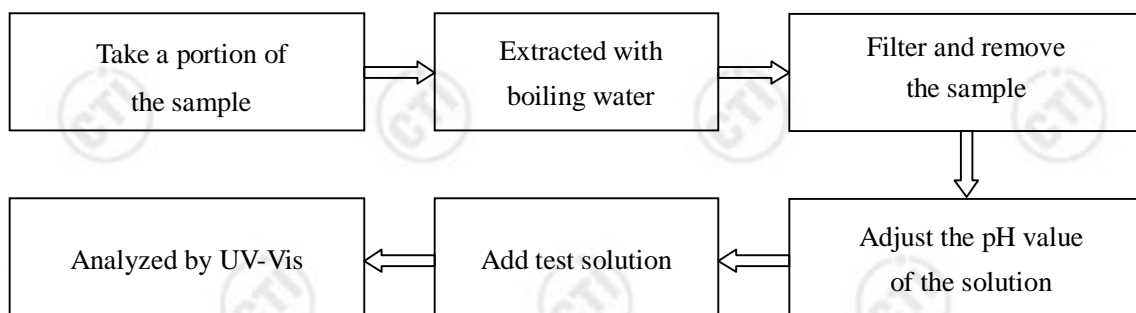


2. Mercury(Hg)

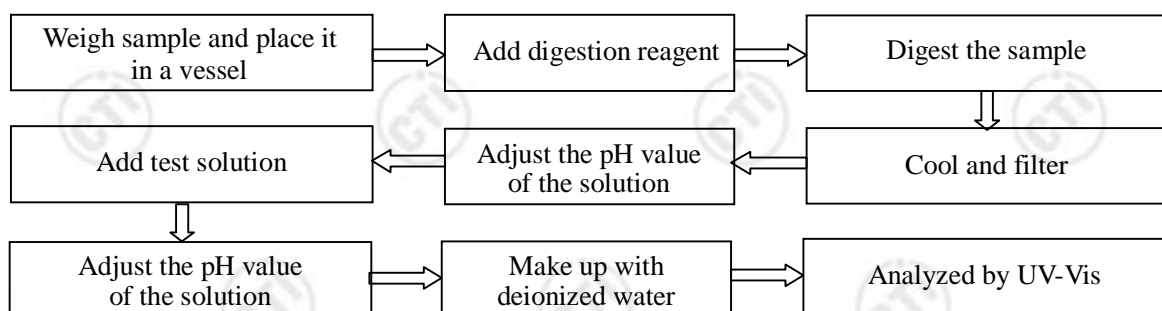


3. Hexavalent Chromium (Cr(VI))

(1) IEC 62321-7-1:2015



(2) IEC 62321-7-2:2017

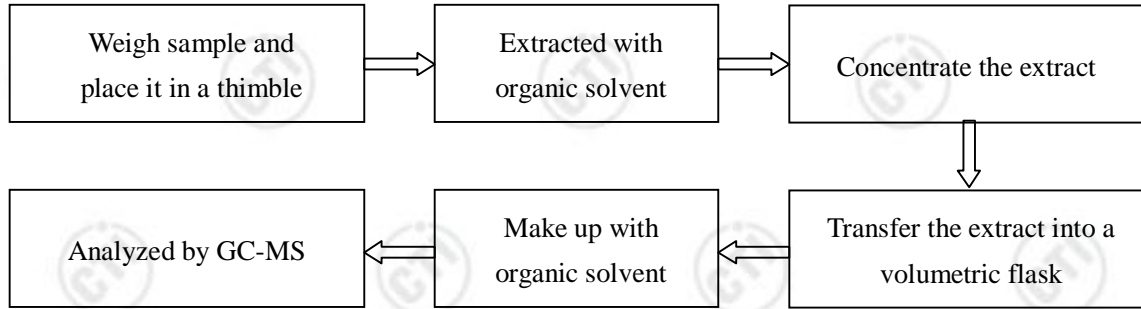


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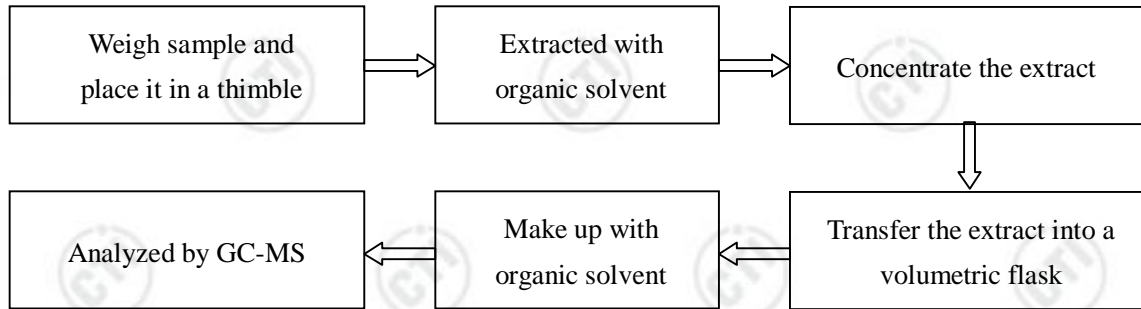
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4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs)



5. Phthalates



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Photo(s) of the sample(s)



*** End of Report ***

Statement:

1. This report is considered invalidated without approval signature, special seal and the seal on the perforation;
2. The sample(s) and sample Information was/were provided by the client who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.