Test Report

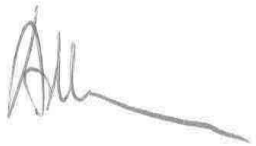
EIC SEMICONDUCTOR CO.,LTD

65,68 SOI CHALONGKUNG 31,I-EA-T FREE ZONE
LAT KRABAND INDUSTRIAL ESTATE,LUMPLATIEW LAT KRABANG
BANGKOK 10520
THAILAND

The following sample(s) was/were submitted and identified on behalf of the clients as : BRIDGE RECTIFIER AND MINI BRIDGE RECTIFIER

SGS Job No. :	3673826 - HK
Manufacturer :	EIC SEMICONDUCTOR CO., LTD
Country of Origin :	THAILAND
Country of Destination :	THAILAND
Date of Sample Received :	13 Mar 2017
Testing Period :	13 Mar 2017 - 24 Mar 2017
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).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS Hong Kong Limited.



Lam Ka Yung, Allen
Chemist

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	HKG17-001846.009	Black Plastic w/ White Printing w/ Silvery Metal w/ Chip
2	HKG17-001846.010	Metal w/ Silvery Plating (Base: Golden Metal)

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
(2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
(3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
(4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
(5) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.
(6) With reference to IEC 62321-8 (111/321/CD), determination of phthalates by GC-MS.

Test Item(s)	Limit	Unit	MDL	*009*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

Test Item(s)	Limit	Unit	MDL	*009*
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl Phthalate (DBP)	1,000	mg/kg	50	ND
Benzylbutyl Phthalate (BBP)	1,000	mg/kg	50	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalate (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
(2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
(3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
(4) With reference to IEC 62321-7-1:2015 , determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.

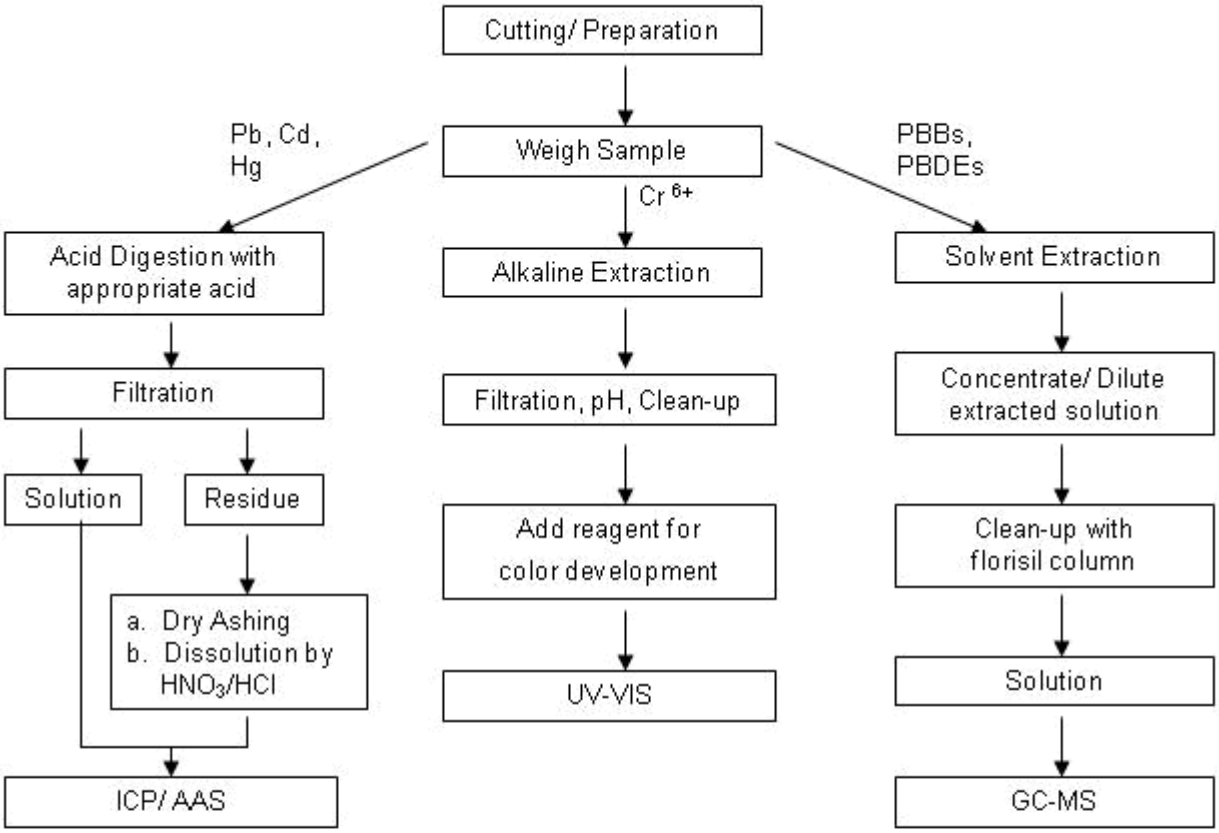
Test Item(s)	Limit	Unit	MDL	*010*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	5	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▾	-	µg/cm²	0.1	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
(2) ▾ =
a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm2. The sample coating is considered to contain CrVI
b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm2). The coating is considered a non-CrVI based coating
c. The result between 0.10 µg/cm2 and 0.13 µg/cm2 is considered to be inconclusive - unavoidable coating variations may influence the determination
Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

Flowchart:



Note : 1) Boiling water test method was also performed for the analysis of Cr (VI) in metal sample.

2) The polymeric samples were dissolved totally by pre-conditioning method according to above flow chat for Cd, Pb and Hg contents analysis.

Operator : Chiu Kan Yuen/ Tang Koon Pang (Acid digestion)

Chiu Kan Yuen (Dry Ashing)

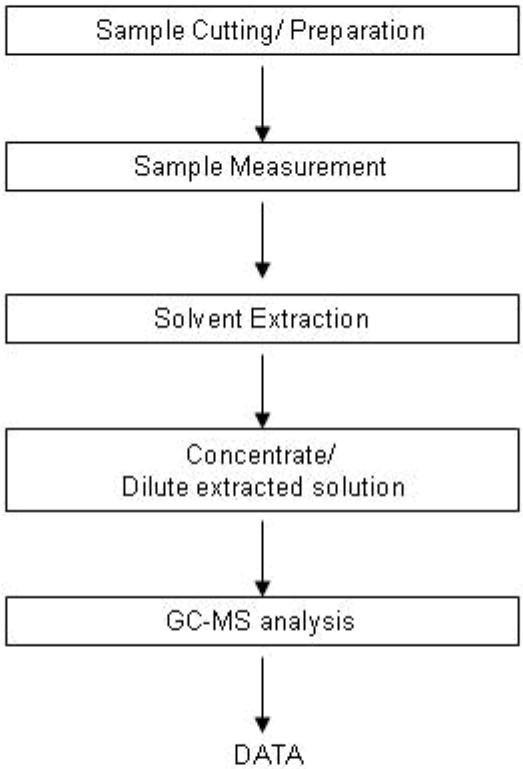
Nick Liu (Hexavalent Chromium)

Kent Wan (PBBs and PBDEs)

Section Chief : Chan Chun Kit, Dickson

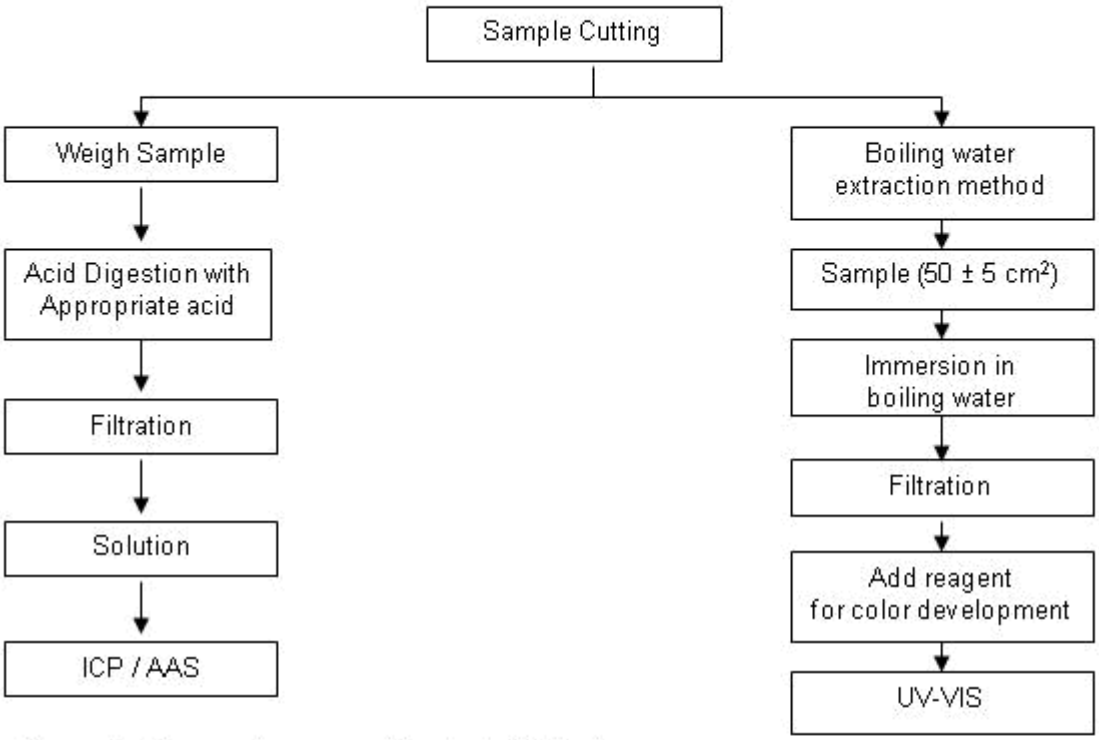
Flowchart for Phthalates measurement

Method: IEC62321



Tested by : Calvin Yuen
Checked by : Brian Yip

Flowchart of IEC 62321 for metal analysis



The metallic samples were dissolved totally by pre-conditioning method according to above flow chart for Cd, Pb and Hg contents analysis.

Operator: Nick Liu (Hexavalent Chromium)

Tang Koon Pang / Chiu Kan Yuen (Acid digestion)

Section Chief: Chan Chun Kit, Dickson

Sample photo:

HKG17-001846.009

HKG17-001846.010

Product

SGS authenticate the photo on original report only

*** End of Report ***