Certificate of non-use of The Controlled Substances

Company name Littelfuse, Inc

Product Covered Thyristor TO-92 Package EV series (Wire-Bonded)

Issue Date April 14, 2012

It is hereby certified by Littelfuse, Inc., that there is neither RoHS (EU Directive 2011/65/EU)-restricted substance, nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes.

It is also certified by Littelfuse, Inc., that the products listed in this report do not contain Halogens and their compounds judged per widely accepted industrial guidelines.

In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by 

< Koichiro Yoshimoto, Senior Product Engineer, Littelfuse, Inc.>

(1) Parts, sub-materials and unit parts

This document covers Thyristor TO-92 Package EV series, supplied by Littelfuse, Inc. Please see table 1 on page 2 for the list of products covered.

＜Materials used＞

Please see table 2 on page 3 and table 3 on page 4 of this document.

(2) The ICP data on all measurable substances

Please see annex 1 through 6 attached to this document.

Remarks：

1. Pb (lead) contained in passivation glass on die bonding solder (item 3) and silicon wafer (item 6) to be categorized as exempt in RoHS Annex III 7(a) and 7(c)-I.

Please refer to Annex 7 of this report for the extract of the applicable exemptions of RoHS (EU Directive 2011/65/EU)

Table 1: Littelfuse Part Number covered by this report

Standard (Catalog) Part Number		SPECIAL DEVICE P/N
L0103DE	MCR100-6	Any Special P/N which has base standard P/N listed in this table.
L0103ME	MCR100-8	
L0103NE	S402ES	
L0107DE	S4X8ES	S887S6X8ESRP
L0107ME	S4X8ES1	S890S4X8ES1
L1017NE	S4X8ES2	S891S6X8ES1
L0109DE	S602ES	
L0109ME	S6X8ES	
L0109NE	S6X8ES1	
LX803DE	S6X8ES2	
LX803ME	S8X8ES	
LX807DE	S8X8ES1	
LX807ME	S8X8ES2	
	Any Standard Part Number listed here may be followed by suffix for packing options, such as RP or AP.	

Table 2: Homogeneous Material Used

#	Description	Name of Material	Type	Analysis data
1	Lead finish	Hot solder dip	metal	annex 1.
2	Molding compound	Epoxy resin	plastic	annex 2.
3	Die bonding solder	Solder	metal	annex 3. Pb in this solder is exempted by RoHS Annex III 7(a). Please refer to Annex 7 for the RoHS exemption.
4	Die bonding wire	Gold	metal	annex 4
5	Lead frame	copper alloy	metal	annex 5.
6	Silicon wafer	silicon	metal	annex 6 Pb is from in passivation glass on wafer and is exempted by RoHS Annex III 7(c)-I. Please refer to Annex 7 for the RoHS exemption.
		aluminum	metal	
		glass	glass	

Table 3: RoHS-regulated substance in raw materials

Components	Analysis Result						
	Cd Cadmium	Cr Chromium	Hg Mercury	Pb Lead	PBB	PBDE	Total Halogens
As Component Total (Typical Values)	**< 2ppm**	**< 2ppm**	**< 2ppm**	**<5 ppm*[1]**	**< 5 ppm**	**< 5 ppm**	**<100ppm**
Outside lead finish (Hot-Tin dipping) See Annex 1 for the detail.	< 2ppm	< 2ppm	< 2ppm	65ppm*[2]	< 5ppm	< 5ppm	---
Epoxy Resin compound (Mixture of resin, filler and fire retardant) See Annex 2 for the detail.	< 0.5ppm	< 1ppm	< 2ppm	< 5ppm	< 5ppm	< 5ppm	126 ppm
Die Bonding Solder See Annex 3 for the detail.	< 2ppm	< 2ppm	< 2ppm	88wt%*[3]	< 5ppm	< 5ppm	---
Die-bonding Wire (Au wire) See Annex 4 for the detail.	< 0.5ppm	< 1ppm	< 2ppm	< 5ppm	< 5ppm	< 5ppm	---
Lead frame (Copper Alloy, KFC) See Annex 5 for the detail.	< 2ppm	< 2ppm	< 2ppm	< 2ppm	---	---	---
Silicon Die (Silicon + Metal electrode + passivation glass) See Annex 6 for the detail.	< 2ppm	< 2ppm	< 2ppm	2.3% *[4]	< 5ppm	< 5ppm	< 50ppm

***1 Less than 5ppm Pb content overall, excluding Pb from passivation glass on the silicon die.**

***2 Pb (lead) contained in outside finish is not exempted from restriction by RoHS, but considered as process contamination. Littelfuse does not add Pb (lead) intentionally.**

***3 Pb (lead) contained in die-bonding solder is exempted from restriction by RoHS Annex III 7(a).**

***4 Pb (lead) contained in Silicon wafer is from passivation glass and is exempted from restriction by RoHS Annex III 7(c)-I.**

Please refer to Annex 7 of this report for the applicable exemptions of RoHS (EU Directive EU Directive 2011/65/EU)

Littelfuse®

Annex 1: Analysis Result of Outside Lead Finish Material (Page 1-2 of 5)

Intertek

TEST REPORT

Number: BKKH11070444

Applicant:	KOKI PRODUCTS CO., LTD. 9/1 MOO 4 SOI TEEDINTHAI, TEPARAK RD., T.BANGPLEEYAI, A. BANGPLEE, SAMUTPRAKARN 10540 THAILAND ATTN: K.THUNYATHORN	Date:	Oct 20, 2011

Sample description:

One (1) bag of submitted sample said to be Solder Alloy, Tin

Item name: Lead free solder: Bar, Extrude bar, Flux core solder wire, Solid wire, Ball, Half ball, Anode, Billet
Tin: Bar, Extrude bar, Flux core solder wire, Solid wire, Ball, Half ball, Anode, Billet

Alloy :		
	Sn	Tin
	Sn-Ag	(SA03, SA1, SA3, SA35, SA37, SA4, SA5)
	Sn-Ag-Bi-Cu	(SABC25-1-05, SABC2-1-05, SABC2-75-05, SABC2-2-05, SABC2-3-075)
	Sn-Ag-Cu	(SAC0307, SAC1005, SAC1007, SAC1040, SAC1240, SAC2005, SAC2060, SAC3002, SAC3005, SAC3005P, SAC3007, SAC3505, SAC3507, SAC35075, SAC3510, SAC3807, SAC3810, SAC3905, SAC4005, SAC4009, SAC0540, SAC0505)
	Sn-Ag-Cu-Sb	(SACSb335-07-03)
	Sn-Ag-Zn	(SAZ3504)
	Sn-Bi	(SB58)
	Sn-Bi-Ag	(SBA5710, SBA1025)
	Sn-Cu	(SC07, SC075, SC1, SC3, SC4)
	Sn-Cu-N	(SCN3002, SCN3005)
	Sn-Cu-Sb	(SCSb0703)
	Sn-Sb	(SSb5, SSb007)
	Sn-Zn-Bi	(SZB8030, SZB7530)
	Sn-Zn	(SZ9)
	Sn-In	(SI52)
	Sn-In-Ag-Bi	(SIAB40-35-05, SIAB80-35-05)

For the attention of KBC (Thailand) Co., Ltd.
Product: Extrude bar SAC3005, Tin Extrude bar
Issue date 9-Nov-11

Authorized by :
For Intertek Testing Services (Thailand)

Phanit Hitapong
Division Manager
Toys & Hardlines Division

Page 1 of 5

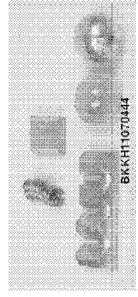
Intertek Testing Services (Thailand) Limited
5/1 Soi Chokoam suk, Chankasem, Chatuchak, Bangkok 10900 Thailand
Tel.: (662) 930-6554, (662) 939-0881 Fax (662) 939-0191
E-mail Address: th.thailand@intertek.com

Intertek

TEST REPORT

Number: BKKH11070444

Core Flux: (For Pb Free Flux Core Wire)	KK#13, KK# 17, KK#25, KK#28B, KK#28BC, KK#33, KK#33A, KK#57-R, KK#70, KK#81, KK#101RMA, KK#102, KK#103, KK#103B-HF, KK#105YS, KK#108, KK#109, KK#115A, KK#213CF, KK# 218CF, KK#81, KK#62, KK#303BZ and KK#309
Date sample received:	October14, 2011
Testing period:	October14, 2011 to October 20, 2011



Test conducted:

As requested by the applicant, for details please refer to attached page(s)
Type of test: RoHS wet chemical Analysis

For the attention of KBC (Thailand) Co., Ltd.
Product: Extrude bar SAC3005, Tin Extrude bar
Issue date 9-Nov-11

Page 2 of 5

Intertek Testing Services (Thailand) Limited
5/1 Soi Chokoam suk, Chankasem, Chatuchak, Bangkok 10900 Thailand
Tel.: (662) 930-6554, (662) 939-0881 Fax (662) 939-0191
E-mail Address: th.thailand@intertek.com

Annex 1: Analysis Result of Outside Lead Finish Material (Page 3-4 of 5)

Intertek

TEST REPORT

Number: BKKH11070444

Test conducted :

(A) Test result summary:

Testing item	Result Submitted samples
Cadmium (Cd) Content(mg/kg)	ND
Lead (Pb) Content(mg/kg)	65
Mercury (Hg) Content(mg/kg)	ND
Chromium VI (Cr^{6+}) Content (by spot test on metal)	Negative
Chromium VI (Cr^{6+}) Content (by boiling water Extraction on metal) (mg/kg with 50cm²)#	Negative (<0.02 mg/kg)
Polybrominated Biphenyls (PBBs) (mg/kg)	
Monobromobiphenyl (MonoBB)	ND
Dibromobiphenyl (DiBB)	ND
Tribromobiphenyl (TriBB)	ND
Tetrabromobiphenyl (TetraBB)	ND
Pentabromobiphenyl (PentaBB)	ND
Hexabromobiphenyl (HexaBB)	ND
Heptabromobiphenyl (HeptaBB)	ND
Octabromobiphenyl (OctaBB)	ND
Nonabromobiphenyl (NonaBB)	ND
Decabromobiphenyl (DecaBB)	ND
Polybrominated Diphenyl Ethers (PBDEs)(mg/kg)	
Monobromodiphenyl Ether (MonoBDE)	ND
Dibromodiphenyl Ether (DiBDE)	ND
Tribromodiphenyl Ether (TriBDE)	ND
Tetrabromodiphenyl Ether (TetraBDE)	ND
Pentabromodiphenyl Ether (PentaBDE)	ND
Hexabromodiphenyl Ether (HexaBDE)	ND
Heptabromodiphenyl Ether (HeptaBDE)	ND
Octabromodiphenyl Ether (OctaBDE)	ND
Nonabromodiphenyl Ether (NonaBDE)	ND
Decabromodiphenyl Ether (DecaBDE)	ND

Name of operation : Kritsana T.

For the attention of KEC (Thailand) Co., Ltd.
Product: Extrude bar SAC3005, Tin Extrude bar
Issue date 9-Nov-11

mg/kg = Milligram per kilogram based on weight of sample
mg/kg with 50cm² = Milligram per kilogram per square centimeter
< = Less than
ND = Not Detected

Positive = A positive test result indicates the presence of Cr (VI), equal to or greater than threshold of 1 mg/kg for spot test procedures or 0.02 mg/kg for boiling-water-extraction procedures with a sample surface area of 50cm² used. However, it shall not be interpreted as the Cr (VI) concentration in the coating layer of the sample and should not be used as a method detection limit for this qualitative test.

Negative = A negative test result indicates no above positive appearance has been found. When the spot-test shows a negative result, the boiling-water-extraction procedure shall be used to verify the result. When the boiling-water-extraction procedure cannot indicate the positive result, the result is negative

Page 3 of 5

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E-mail Address: tfh.thailand@intertek.com

Intertek

TEST REPORT

Number: BKKH11070444

Test conducted :

= According to IEC 62321, a positive result indicates the presence of Cr(VI) coating. It is the Cr(VI) concentration detected in the boiling-water-extraction solution and should not be interpreted as the Cr(VI) concentration in the coating layer of the sample.

Tested component: Metal part

(B) RoHS Requirement:

Restricted substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr^{6+})	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

The above limits were quoted from 2002/95/EC and Amendment 2005/618/EC for homogeneous material.

(C) Test method:

Testing item	Testing method	Limit of Detection
Cadmium (Cd) Content	With reference to IEC 62321 Edition 1.0 : 2008 Clause 9 , by acid digestion and determined by ICP-OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321 Edition 1.0 : 2008 Clause 9, by acid digestion and determined by ICP-OES and AAS	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321 Edition 1.0 : 2008 Clause 7, by acid digestion and determined by ICP-OES	2 mg/kg
Chromium VI (Cr^{6+}) Content (for metal)	With reference to IEC 62321 Edition 1.0 : 2008 Annex B, by spot test	Positive/ Negative (threshold of 1 mg/kg)
Chromium VI (Cr^{6+}) Content (for metal)	With reference to IEC 62321 Edition 1.0 : 2008 Annex B, by boiling water extraction and determined by UV-VIS spectrophotometer	Positive/ Negative (threshold of 0.02mg/kg with 50cm² area)
Polybrominated Biphenyls (PBBs) & Polybrominated Diphenyl Ethers (PBDEs)	With reference to IEC 62321 – Edition 1.0: 2008 Annex A, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg

Remark: Limit of detection = Detection limit of analyte in sample

For the attention of KEC (Thailand) Co., Ltd.
Product: Extrude bar SAC3005, Tin Extrude bar
Issue date 9-Nov-11

Page 4 of 5

Intertek Testing Services (Thailand) Limited
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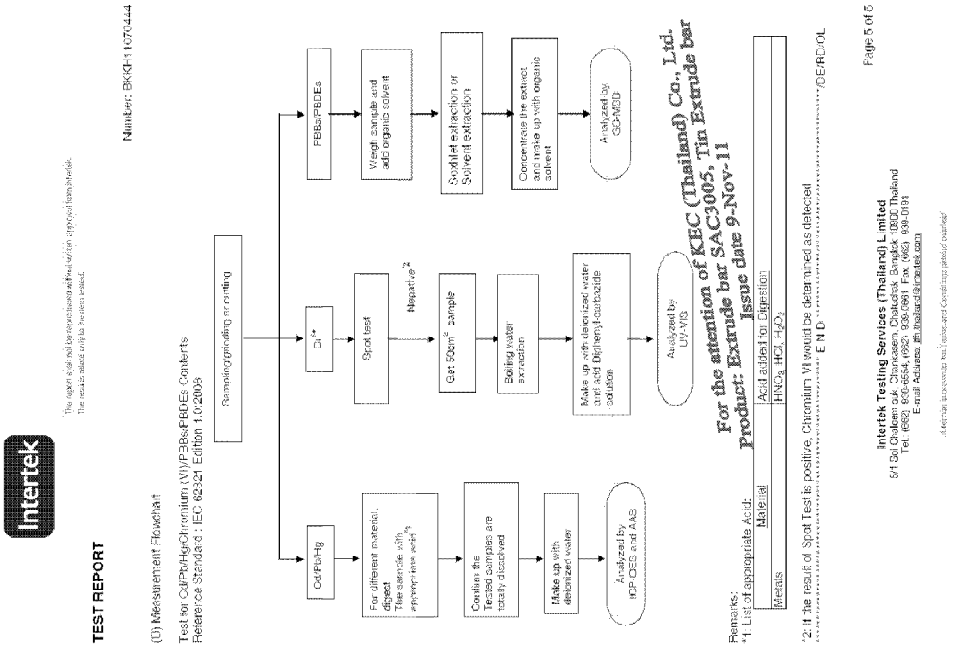
E-mail Address: tfh.thailand@intertek.com

Annex 1: Analysis Result of Outside Lead Finish Material (Page 5 of 5)



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Annex 2: Analysis Result of Molding Compound (Page 1-4 of 7)

SGS

Test Report No. F690101/LF-CTSAYAA12-05501 Issued Date: 2012. 02. 16 Page 1 of 6

To: **KCC CORPORATION(JEONJU PLANT#2)**
#846 Yongam-ri
Bongdong-eub
Wanju-gun
JEONBUK
Korea

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

SGS File No. : AYAA12-05501
Product Name : KTMC-1050G+
Item No./Part No. : N/A
Received Date : 2012. 02. 09
Test Period : 2012. 02. 10 to 2012. 02. 16
Test Results : For further details, please refer to following page(s)
Test Performed : SGS Korea tested the sample(s) selected by applicant with following results.

SGS Korea Co. Ltd.

Timothy Jeon
Jinhee Kim
Cindy Park
Jerry Jung/ Testing Person

Jeff Jang / Chemical Lab Mgr

SGS

Test Report No. F690101/LF-CTSAYAA12-05501 Issued Date: 2012. 02. 16 Page 2 of 6

Sample No. : AYAA12-05501.001
Sample Description : KTMC-1050G+
Item No./Part No. : N/A
Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321:2008, ICP	0.5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008, ICP	2	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321:2008, ICP	5	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	With reference to IEC 62321:2008, UV-VIS	1	N.D.
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

SGS

Test Report No. F690101/LF-CTSAYAA12-05501 Issued Date: 2012. 02. 16 Page 3 of 6

Sample No. : AYAA12-05501.001
Sample Description : KTMC-1050G+
Item No./Part No. : N/A
Materials : N/A

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

Halogen Contents

Test Items	Unit	Test Method	MDL	Results
Bromine(Br)	mg/kg	BS EN 14582:2007 , IC	30	N.D.
Chlorine(Cl)	mg/kg	BS EN 14582:2007 , IC	30	126
Fluorine(F)	mg/kg	BS EN 14582:2007 , IC	30	N.D.
Iodine(I)	mg/kg	BS EN 14582:2007 , IC	50	N.D.

Flame Retardants

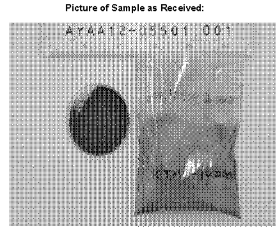
Test Items	Unit	Test Method	MDL	Results
Hexabromocyclododecane	mg/kg	USEPA 3540C , LC/MS	5	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

SGS

Test Report No. F690101/LF-CTSAYAA12-05501 Issued Date: 2012. 02. 16 Page 4 of 6

Picture of Sample as Received:

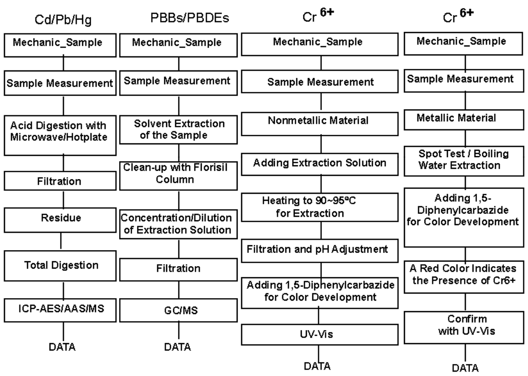


NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

Annex 2: Analysis Result of Molding Compound (Page 5-6 of 6)

Test Report No. F690101/LF-CTSAYAA12-05501 Issued Date: 2012. 02. 16 Page 5 of 6

Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr^{6+} /PBBs&PBDEs Testing



Cd/Pb/Hg
PBBs/PBDEs
Cr 6+
Cr 6+
Mechanic_Sample
Mechanic_Sample
Mechanic_Sample
Mechanic_Sample
Sample Measurement
Sample Measurement
Sample Measurement
Sample Measurement
Acid Digestion with Microwave/Hotplate
Filtration
Residue
Total Digestion
ICP-AES/AAS/MS
DATA
Solvent Extraction of the Sample
Clean-up with Florisil Column
Concentration/Dilution of Extraction Solution
Filtration
GC/MS
DATA
Nonmetallic Material
Adding Extraction Solution
Heating to 90~95ºC for Extraction
Filtration and pH Adjustment
Adding 1,5-Diphenylcarbazide for Color Development
UV-Vis
DATA
Metallic Material
Spot Test / Boiling Water Extraction
Adding 1,5-Diphenylcarbazide for Color Development
A Red Color Indicates the Presence of Cr6+
Confirm with UV-Vis
DATA

The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.
Section Chief : Gilsae Yi

NOTE:
(1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

SGS Korea Co.,Ltd. 322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080
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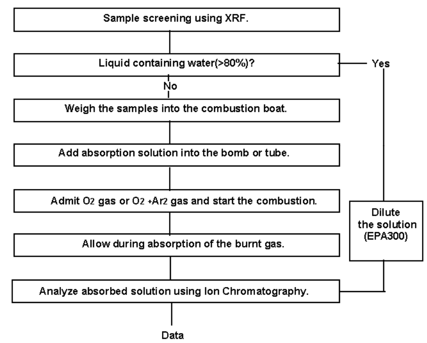
F052 Version4 Member of the SGS Group (Société Générale de Surveillance)

Test Report No. F690101/LF-CTSAYAA12-05501 Issued Date: 2012. 02. 16 Page 6 of 6

Flow Chart for Halogen Test



Sample screening using XRF.
Liquid containing water(>80%)?
Yes
No
Weigh the samples into the combustion boat.
Add absorption solution into the bomb or tube.
Admit O2 gas or O2 +Ar2 gas and start the combustion.
Allow during absorption of the burnt gas.
Dilute the solution (EPA300)
Analyze absorbed solution using Ion Chromatography.
Data

*** End ***

NOTE:
(1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

SGS Korea Co.,Ltd. 322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080
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F052 Version4 Member of the SGS Group (Société Générale de Surveillance)

Annex 3: Analysis Result of Die-Bonding Solder (Page 1-4 of 6)

SGS

Test Report No: 10247220(2) Date: 20-Sep-11 Page 1 of 6

Heraeus Materials Singapore Pte Ltd
No. 2 Corporation Road, #06-15/16/17 Corporation Place, Singapore 618494

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

Sample Description : PbSn10Ag2 Solder Wire

Sample Receiving Date : 13-Sep-11
Testing Period : 13-Sep-11 to 20-Sep-11

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Result(s) : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS Testing & Control Services Singapore Pte Ltd

Y.C. Tham
Laboratory Manager

SGS

Test Report No: 10247220(2) Date: 20-Sep-11 Page 2 of 6

Test Result(s):

Sample Description : PbSn10Ag2 Solder Wire

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC62321, Ed1.2008. Analysis was performed by ICP/AES	n.d.	2	100
Lead (Pb)	mg/kg	With reference to IEC62321, Ed1.2008. Analysis was performed by ICP/AES	855189.5*	2	1000
Mercury (Hg)	mg/kg	With reference to IEC62321, Ed1.2008. Analysis was performed by ICP/AES	n.d.	2	1000
Hexavalent Chromium (CrVI) (By spot test / boiling water extraction)	---	With reference to IEC62321, Ed1.2008 and performed by Spot test / boiling water extraction method. (see Note 9)	Negative	0.02 mg/kg with 50 cm^2 surface area	#
Sum of PBBs	mg/kg		**n.d.**	-	1000
Monobromobiphenyl	mg/kg		n.d.	5	-
Dibromobiphenyl	mg/kg		n.d.	5	-
Tribromobiphenyl	mg/kg		n.d.	5	-
Tetrabromobiphenyl	mg/kg		n.d.	5	-
Hexabromobiphenyl	mg/kg		n.d.	5	-
Pentabromobiphenyl	mg/kg		n.d.	5	-
Heptabromobiphenyl	mg/kg		n.d.	5	-
Octabromobiphenyl	mg/kg		n.d.	5	-
Nonabromobiphenyl	mg/kg	With reference to IEC62321,	n.d.	5	-
Decabromobiphenyl	mg/kg	Ed1.2008. Analysis was	n.d.	5	-
Sum of PBDEs	mg/kg	performed by GC/MS	**n.d.**	-	1000
Monobromodiphenyl ether	mg/kg		n.d.	5	-
Dibromodiphenyl ether	mg/kg		n.d.	5	-
Tribromodiphenyl ether	mg/kg		n.d.	5	-
Tetrabromodiphenyl ether	mg/kg		n.d.	5	-
Pentabromodiphenyl ether	mg/kg		n.d.	5	-
Hexabromodiphenyl ether	mg/kg		n.d.	5	-
Heptabromodiphenyl ether	mg/kg		n.d.	5	-
Octabromodiphenyl ether	mg/kg		n.d.	5	-
Nonabromodiphenyl ether	mg/kg		n.d.	5	-
Decabromodiphenyl ether ##	mg/kg		n.d.	5	-

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Test Report No: 10247220(2) Date: 20-Sep-11 Page 3 of 6

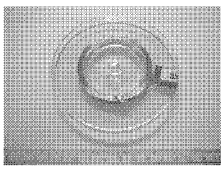
Note: (1) mg/kg = ppm ; 0.1wt% = 1000ppm
(2) n.d.= Not Detected
(3) MDL = Method Detection Limit
(4) ## = The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008.
(5) "-" = Not regulated
(6) "---": No unit (Qualitative Test)
(7) " : Exceeds limit
(8) # : Positive means the presence of CrVI on the tested areas.
Negative means the absence of CrVI on the tested areas.
(9) Spot-test:
Negative = Absence of Cr(VI) coating / surface layer
Positive = Presence of Cr(VI) coating / surface layer
The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.
Boiling-water extraction:
Negative = Absence of Cr(VI) coating / surface layer
Positive = Presence of Cr(VI) coating / surface layer
the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.

***Exemption: The received sample is exempted under directive 2002/95/EC Annex Article 7: lead in high melting temperature solder type solders (i.e. tin-lead solder alloys containing more than 85% of lead).**

Lab Analyst[S]: Jay,Joji and Eileen
Remarks: Sample received was totally dissolved by preconditioning method.

Sample photo:
Sample Description : PbSn10Ag2 Solder Wire

SGS authenticate the photo on original report only



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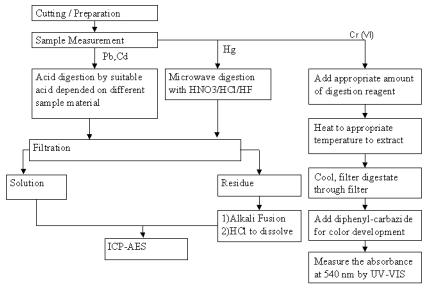
Test Report No: 10247220(2) Date: 20-Sep-11 Page 4 of 6

Process Flow of IEC 62321 (Pb, Cd, Hg & Cr^{6+})



Remarks: Sample received was totally dissolved by preconditioning method. (CrVI method excluded)

Annex 3: Analysis Result of Die-Bonding Solder (Page 5-7 of 7)

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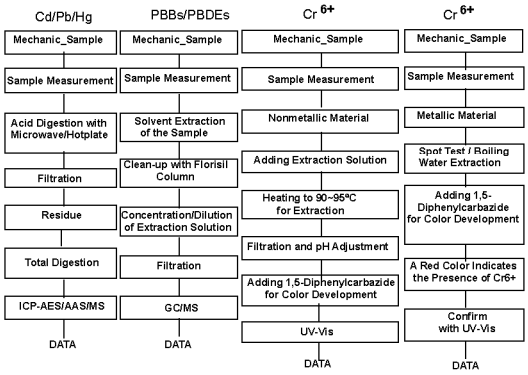
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 5 of 7

Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr^{6+} /PBBs&PBDEs Testing



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.
Section Chief : Gilsae Yi

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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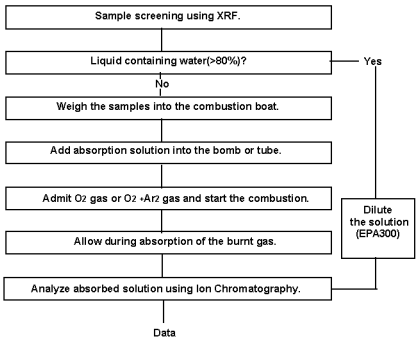
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 6 of 7

Flow Chart for Halogen Test



NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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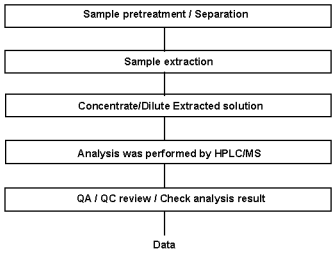
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 7 of 7

Flow Chart for PFOS/PFOA Test



*** End ***

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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Annex 4: Analysis Result of Die-bonding Wire (Page 1-4 of 7)

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Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 1 of 7

To: HEESUNG METAL CO., LTD.
#693-1
Gojan-dong
Namdong-gu
Incheom
Korea

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

SGS File No.	: AYAA11-38595
Product Name	: Gold Bonding Wire(4N)
Item No./Part No.	: Gold Bonding Wire(4N)
Received Date	: 2011. 11. 29
Test Period	: 2011. 11. 30 to 2011. 12. 02
Test Results	: For further details, please refer to following page(s)
Test Performed	: SGS Korea tested the sample(s) selected by applicant with following results.

SGS Korea Co. Ltd.

Timothy Jeon
Jinhee Kim
Cindy Park
Jerry Jung/ Testing Person

Jeff Jang / Chemical Lab Mgr

SGS

Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 2 of 7

Sample No.	: AYAA11-38595.001
Sample Description	: Gold Bonding Wire(4N)
Item No./Part No.	: Gold Bonding Wire(4N)
Materials	: Au

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321:2008, ICP	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321:2008, ICP	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008, ICP	2	N.D.
Hexavalent Chromium (Cr VI) By boiling water extraction*	**	With reference to IEC 62321:2008	-	Negative
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 3 of 7

Sample No.	: AYAA11-38595.001
Sample Description	: Gold Bonding Wire(4N)
Item No./Part No.	: Gold Bonding Wire(4N)
Materials	: Au

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008, GC-MS	5	N.D.

Halogen Contents

Test Items	Unit	Test Method	MDL	Results
Bromine(Br)	mg/kg	With reference to ASTM D 7359-08 , IC	30	N.D.
Chlorine(Cl)	mg/kg	With reference to ASTM D 7359-08 , IC	30	N.D.
Fluorine(F)	mg/kg	With reference to ASTM D 7359-08 , IC	30	N.D.
Iodine(I)	mg/kg	With reference to ASTM D 7359-08 , IC	50	N.D.

Flame Retardants

Test Items	Unit	Test Method	MDL	Results
Tetrabromobisphenol A	mg/kg	US EPA 3540C, GC/MS	10	N.D.

Other(s)

Test Items	Unit	Test Method	MDL	Results
PFOA(Perfluorooctanioc acid)	mg/kg	US EPA 3540C/3550C, LC/MS	1	N.D.
PFOS(Perfluorooctane Sulfonates-Acid/Metal Salt/Amide)	mg/kg	US EPA 3540C/3550C, LC/MS	1	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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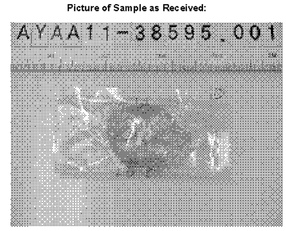
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 4 of 7

Picture of Sample as Received:



NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

Annex 4: Analysis Result of Die-bonding Wire (Page 5-7 of 7)

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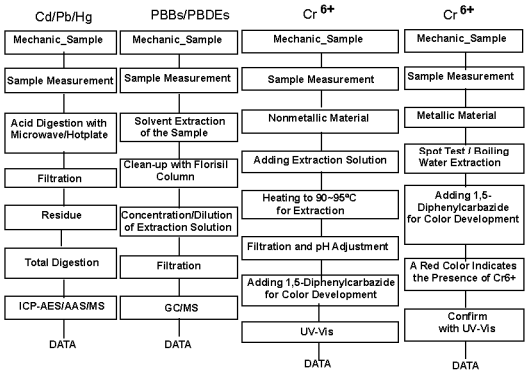
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 5 of 7

Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr^{6+} /PBBs&PBDEs Testing



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg.
Section Chief : Gilsae Yi

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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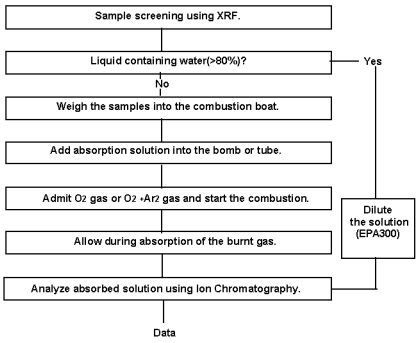
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 6 of 7

Flow Chart for Halogen Test



NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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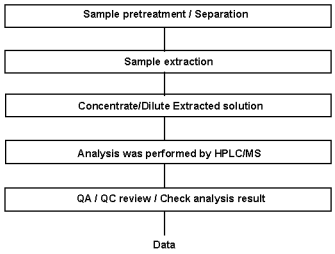
Test Report No. F690101/LF-CTSAYAA11-38595 Issued Date: 2011. 12. 02 Page 7 of 7

Flow Chart for PFOS/PFOA Test



*** End ***

NOTE: (1) N.D. = Not detected.(<MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) * = Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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Annex 5: Analysis Result of Lead Frame (page 1-4 of 4)

Test Report No. 2177136 Date : 23-Feb-2012 **Page 1 of 4**

Client : TSP - T Co.,Ltd.
Northern Region Industrial Estate 123 Moo 4,
T.Banklang, A. Muang, Lamphun 51000 Thailand

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

Sample Description	:	Lead Frame
Sample No.	:	2238918
Sample Condition	:	Sample is contained in plastic bag.
Quantity Submitted	:	48.15 g.
Part No.	:	TO-92 Ag 0.40T/ PMC
Lot No.	:	TS1108-0729-101
Manufacturer	:	Poongsan
Country of Origin	:	Korea
Country of Destination	:	Thailand
Buyer's Name	:	KEC-T
Sample Receiving Date	:	20-Feb-2012
Testing Period	:	20-Feb-2012 to 23-Feb-2012
Test Requested	:	In accordance with the RoHS Directive 2011/65/EU Annex II ; recasting 2002/95/EC

Test Method :
(1) With reference to IEC 62321:2008 for Lead content, Analysis was performed by ICP-OES.
(2) With reference to IEC 62321:2008 for Cadmium content, Analysis was performed by ICP-OES.
(3) With reference to IEC 62321:2008 for Mercury content, Analysis was performed by ICP-OES.
(4) With reference to IEC 62321:2008 for Hexavalent Chromium by Colorless and Colored Chromate Coating on Metals/ Colorimetric Method, Analysis was performed by UV-Vis spectrometry.

Test Results : Please refer to next page.

Signed for and on behalf of SGS (Thailand) Limited

Pornpana Lirathpong
Hardlines Testing Manager

Test Report No. 2177136 Date : 23-Feb-2012 **Page 2 of 4**

TEST RESULTS

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result (1)	MDL	RoHS Limit
Lead (Pb)	(1)	n.d.	2	1000
Cadmium (Cd)	(2)	n.d.	2	100
Mercury (Hg)	(3)	n.d.	2	1000
Hexavalent Chromium (CrVI) by Spot test / boiling water extraction (optional)	(4)	Negative	-	#

Test Part Description
Result (1) metal

Note :
(a) mg/kg = ppm ; 0.1wt% = 1000 ppm
(b) n.d. = Not Detected
(c) MDL = Method Detection Limit
(d) Spot-test:
Negative - Absence of CrVI coating, Positive = Presence of CrVI coating;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)
Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample area.
(e) # = Positive indicates the presence of Hexavalent Chromium on the areas and result be regarded as conflict with RoHS requirement.
Negative indicates the absence of CrVI on the tested areas and result be regarded as no conflict with RoHS requirement.
(f) "-" = Not regulated
(g) 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 represent status of the sample at the time of testing.

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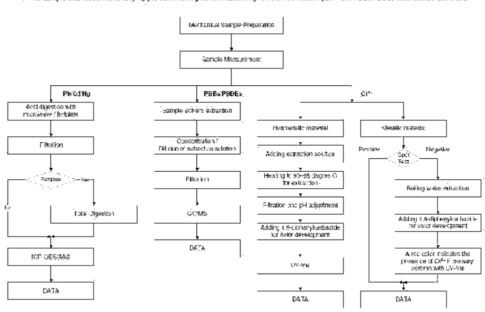
Test Report No. 2177136 Date : 23-Feb-2012 **Page 3 of 4**

Flow Chart for RoHS : Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing

1. Operator : Siam Palarwan
2. Section Chief : Laddawan Uranpitr
3. The sample was dissolved totally by pre-conditioning method according to below flowchart. (Cr6+ and PBBs/PBDEs test method excluded)



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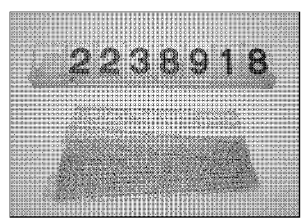
Test Report No. 2177136 Date : 23-Feb-2012 **Page 4 of 4**

SAMPLE/ATTACHMENT PICTURE



************************************ End of Report ************************************

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SGS (Thailand) Limited | Laboratory Services 41/23 Soi Rama III 59 Rama III Road Chongnonsee Yannawa Bangkok 10120 t +66 (0)2 683 05 41 294 74 85-90 f +66 (0)2 294 74 84 683 07 58 www.sgs.com
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Annex 6: Analysis Result of Silicon Wafer (Page 1-4 of 7)

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Validity unknown
For Questions
Please Contact with SGS
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Test Report

No. : CE/2011/B3037 Date : 2011/11/21 Page: 1 of 7

LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

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

Sample Description	:	WAFER
Style/Item No.	:	THYRISTOR
Sample Receiving Date	:	2011/11/16
Testing Period	:	2011/11/16 TO 2011/11/21

===

Test Result(s) : Please refer to next page(s).

SGS TAIWAN LTD

Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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Test Report

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LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

Test Result(s)

PART NAME No.1 : WAFER

Test Item(s)	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	23100
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs			-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether			5	n.d.
Decabromodiphenyl ether			5	n.d.

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Test Report

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LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

Test Item(s)	Unit	Method	MDL	Result No.1
Halogen				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)			50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.

Note :

1. mg/kg = ppm；0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. "-" = Not Regulated

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Test Report

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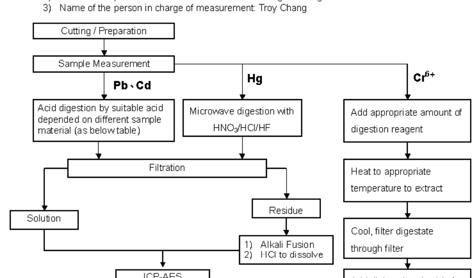
LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} test method excluded)
2) Name of the person who made measurement: Climbgreat Yang
3) Name of the person in charge of measurement: Troy Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

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Annex 6: Analysis Result of Silicon Wafer (Page 5-7 of 7)

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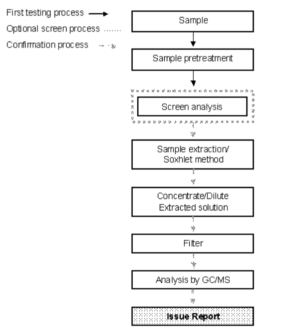
LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

PBB/PBDE analytical FLOW CHART

1) Name of the person who made measurement: Roman Wong
2) Name of the person in charge of measurement: Troy Chang



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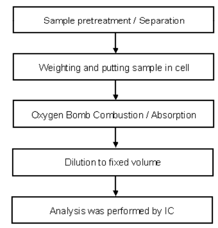
LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

Analytical flow chart of halogen content

1) Name of the person who made measurement: Rita Chen
2) Name of the person in charge of measurement: Troy Chang



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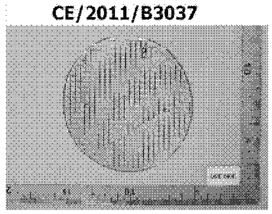
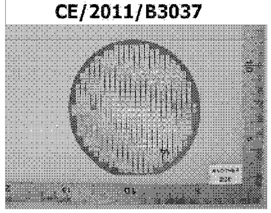
LITE-ON SEMICONDUCTOR CORP.
28-1, WU-SHIN ST., TA WU LUNG, KEELUNG, TAIWAN, R. O. C.

" The tested sample / part is marked by an arrow if it's shown on the photo. "

CE/2011/B3037



CE/2011/B3037



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Annex 7: Applicable RoHS exemptions (2011/65/EU Annex III)

	Exemption	Scope and dates of applicability
6(a)	Lead as an alloying element in steel for machining purposes and in galvanised steel containing up to 0,35 % lead by weight	
6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(c)	Copper alloy containing up to 4 % lead by weight	
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound	
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8(b)	Cadmium and its compounds in electrical contacts	
9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	
9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11(a)	Lead used in C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 24 September 2010
11(b)	Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
12	Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13(a)	Lead in white glasses used for optical applications	
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	Expired on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011