Littelfuse
Expertise Applied | Answers Delivered

Certificate of non-use of The Controlled Substances

Company name	Littelfuse, LP (Subsidiary of Littelfuse, Inc.)
Product Covered	Thyristor TO-218 J & K Packages (Isolated) Thyristor TO-218 M & W Packages (Non-isolated) SIDACtor® TO-218 Package
Issue Date	August 13, 2010

It is hereby certified by Littelfuse, LP, that there is neither RoHS (EU Directive 2002/95/EC)-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

< K. Yoshimoto, Senior Product Engineer, Littelfuse, L.P.>

(1) Parts, sub-materials and unit parts

This document covers Thyristor and SIDACtor TO-218 series products supplied by Littelfuse. Actual values in this report are taken from S4065K (representing TO-218 Isolated package) and S8070W (representing TO-218 non-isolated package including SIDACtor) and the result is generally applicable to all TO-218 products. Please see page 2 and 3 for the complete list of part number covered by this report.

＜Homogeneous Materials used＞

Please see figure and table 1 on page 4 and table 2 on page 5 and 6 of this document.

(2) The analytical data on all measurable substances

Please see annex 1 through 7, attached to this document. Please also see annex 4 (part B) for Halogen testing of entire component using P2300MEL as representative sample.

Remarks :

1. Pb (lead) contained in die bonding solder (item 8 on page 4) and passivation glass (item 7) to be categorized as exempt in RoHS Annex 5 and 7.

Please refer to Annex 8 of this report for the extract of the applicable exemptions of RoHS (EU Directive 2002/95/EC)

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Littelfuse Part Number covered by this report (1/2)

TO-218 isolated package

Standard (Catalog) Part Number				SPECIAL DEVICE P/N
Q2025J6	Q7025J6	S0335J	S8065J	Any Special P/N that has base standard P/N listed in this table
Q2025K6	Q7025K6	S0335K	S8065K	
Q2040J7	Q7040J7	S0535J	SK035K	
Q2040J9	Q7040J9	S0535K	SK065K	
Q2040K7	Q7040K7	S0550J		
Q2040K9	Q7040K9	S0565J		
Q3025J6	Q7025J6	S0565K		
Q3025K6	Q7025K6	S1035J		
Q3040J7	Q7040J7	S1035K		
Q3040J9	Q7040J9	S1050J		
Q3040K7	Q8025J6	S1065J		
Q3040K9	Q8025K6	S1065K		**OPTIONAL SUFFIX**
Q4025J6	Q8040J7	S2035J		
Q4025K6	Q8040J9	S2035K		Any Part Number listed here may be followed by suffix for packing options, such as “TP” and/or lead form options such as “LB”, “81”, “82” etc.
Q4040J7	Q8040K7	S2050J		
Q4040J9	Q8040K9	S2065J		
Q4040K7	QK025K6	S2065K		
Q4040K9	QK040K7	S4035J		
Q5025J6		S4035K		
Q5025K6		S4050J		
Q5040J7		S4065J		
Q5040J9		S4065K		
Q5040K7		S6035J		
Q5040K9		S6035K		
Q6025J6		S6050J		
Q6025K6		S6065J		
Q6040J7		S6065K		
Q6040J9		S8035J		
Q6040K7		S8035K		
Q6040K9		S8050J		

Littelfuse
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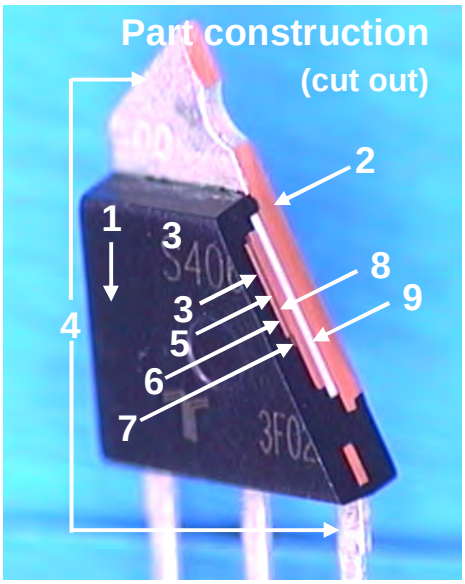
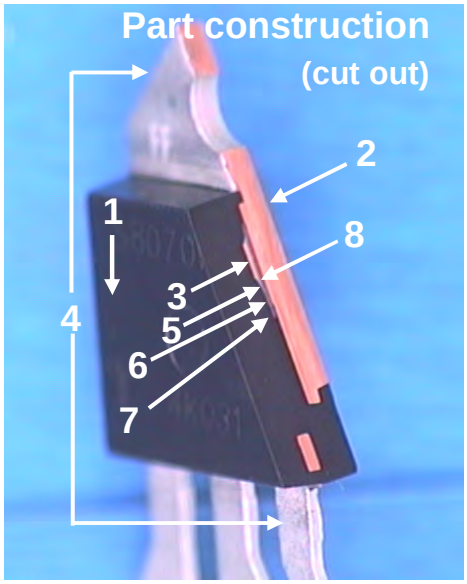
Littelfuse Part Number covered by this report (2/2)

TO-218 non-isolated package

Standard (Catalog) Part Number				SPECIAL DEVICE P/N
P1500MEL	S0555M			Any Special P/N that has base standard P/N listed in this table
P1900MEL	S0555W			
P2300MEL	S0570W			
	S1055W			
	S1070W			P589
Q2040W7	S2055M			P595P2300ME
Q2040W9	S2055W			S838
Q3040W7	S2070W			
Q3040W9	S4055M			
Q4040W7	S4055W			
Q4040W9	S4070W			
Q5040W7	S5070W			**OPTIONAL SUFFIX**
Q5040W9	S6055M			
Q6040W7	S6055W			Any Part Number listed here may be followed by suffix for packing options, such as “TP” and/or lead form options such as “LB”, “81”, “82” etc.
Q6040W9	S6070W			
Q7040W7	S8055M			
Q7040W9	S8055W			
Q8040W7	S8070W			
Q8040W9	SK055M			
	S0555M			



TO-218 Isolated



TO-218 Non-isolated

Table 1: Homogeneous Material Used

#	Description	Name of Material	Type	Analysis data
1	Molding compound	epoxy resin	plastic	annex 1
2	Lead frame	copper alloy	metal	annex 2
3	Preform	copper alloy	metal	annex 2 Clip uses same copper material as lead frame
4	Matte-Tin plating	Tin	metal	annex 3
5	Silicon die	silicon	metal	annex 4, tested as Nickel-plated wafer.
6	Nickel electrode	nickel	metal	
7	Passivation glass	glass	glass	annex 5. Pb in this glass is exempted by RoHS Annex 7.
8	Die bonding solder	solder	metal	annex 6. Pb in this solder is exempted by RoHS Annex 5.
9	Substrate	alumina	ceramic	annex 7, applicable to TO-218 Isolated packages only

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Table 2: RoHS-regulated substance in raw materials

Components	Analysis Result						
	Cd Cadmium	Cr Chromium	Hg Mercury	Pb Lead	PBB	PBDE	Halogens (Total)
As Component Total (Values of S4065K *[1], as representative of Thyristor, TO-218 J & K Package)	**< 2ppm**	**< 2ppm**	**< 2ppm**	**<10 ppm*[2] (1.0%*[3])**	**< 5 ppm**	**< 5 ppm**	**<50ppm**
Epoxy Resin compound See Annex 1 for the detail.	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	<5 ppm	100ppm
Lead frame / Clip (Copper Alloy, KFC) See Annex 2 for the detail.	< 2ppm	< 2ppm	< 2ppm	11 ppm *[4]	< 5ppm	<5 ppm	---
Outside lead finish (Matte-Tin plated, Sn 100%) See Annex 3 for the detail.	< 2ppm	< 2ppm	< 2ppm	24 ppm *[4]	< 5ppm	<5 ppm	---
Silicon Die (Silicon wafer + Ni electrode) See Annex 4 for the detail.	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	<5 ppm	< 50ppm
Passivation Glass See Annex 5 for the detail.	< 2ppm	< 2ppm	< 2ppm	41% *[5]	< 5ppm	<5 ppm	< 50ppm
Die Bonding Solder (Pb/Sn/Ag=88/10/2) See Annex 6 for the detail.	< 2ppm	< 2ppm	< 2ppm	88 wt% *[6]	< 5ppm	<5 ppm	240ppm
Ceramic Substrate (Al_2O_3) See Annex 7 for the detail.	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	<5 ppm	---

***1 Other products may contain equal or less amount of Pb as S4065K value shown here, but not more than the value shown here.**

***2 Less than 10ppm Pb content overall, <u>excluding</u> Pb from the die bonding solder and the passivation glass on the silicon die.**

***3 1.0wt% or 40mg of Pb (lead) content overall, including the RoHS-exempted use of Pb**

***4 Pb (lead) contained in lead frame and outside finish <u>not</u> exempted from restriction by RoHS, but considered as process contamination. Littelfuse does not add Pb (lead) intentionally.**

***5 Pb (lead) contained in passivation glass is exempted from restriction by RoHS Annex 5.**

***6 Pb (lead) contained in die bonding solder is exempted from restriction by RoHS Annex 7, first item.**

<u>Please refer to Annex 8 of this report for the applicable exemptions of RoHS (EU Directive 2002/95/EC)</u>

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

Intertek

TEST REPORT NUMBER: WUXH00002758

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO., LTD.
EAST 1#,ZHENFA 6 ROAD, SHUO FANG INDUSTRIAL PARK WUXI NATIONAL HIGH-TECH DEVELOPMENT ZONE,
WUXI,JIANGSU,CHINA
ATTN: ZHANG XIAOPENG

DATE: AUG 06, 2010

SAMPLE DESCRIPTION:
ONE(1)PIECE OF SUBMITTED SAMPLE SAID TO BE :**BLACK COMPOUND.**
ITEM NAME : MOLDING COMPOUND.
VENDOR : COOKSON ELECTONICS SEMICONDUCTOR PRODUCTS.
COMPONENT OR PART NO. : CK2000C.
TEST ITEM : Pb,Cd,Hg,CrVI,PBB PBDE,F,Cl,Br,I.

****

TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

****

SUMMARY:

TESTED SAMPLE	STANDARD	RESULT
SUBMITTED SAMPLE	WITH REFERENCE TO TEST METHOD OF IEC 62321 EDITION 1.0: 2008 AND MAXIMUM CONCENTRATION LIMITS QUOTED FROM RoHS DIRECTIVES 2002/95/EC AND AMENDMENT 2005/618/EC	PASS

****

TO BE CONTINUED

PREPARED AND CHECKED BY:
FOR INTERTEK TESTING SERVICES WUXI LTD.

Jessica

JESSICA LU
GENERAL MANAGER

Intertek Testing Services Wuxi Ltd.
No.8 Fubei Road, Xishan Economic Development Zone,
Wuxi 214101, Jiangsu, China
Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

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

Intertek

TEST REPORT NUMBER: WUXH00002758

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	ND
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr^{6+}) CONTENT (mg/kg) (FOR NON-METAL)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:
mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm
ND = NOT DETECTED
****

TO BE CONTINUED

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Annex 1: Analysis Result of Molding Compound (Page 3 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002758

TESTS CONDUCTED

(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	REPORTING LIMIT
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
CHROMIUM (VI) (Cr^{6+}) CONTENT (FOR NON-METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ALKALINE DIGESTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	1 mg/kg
POLYBROMINATED BIPHENYLS (PBBs)& POLYBROMINATED DIPHENYL ETHERS (PBDEs)	WITH REFERENCE TO IEC IEC 62321 EDITION 1.0: 2008, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS AND FURTHER HPLC CONFIRMATION WHEN NECESSARY.	5 mg/kg

DATE SAMPLE RECEIVED:AUG 02, 2010
TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

****

TO BE CONTINUED

Intertek Testing Services Wuxi Ltd.
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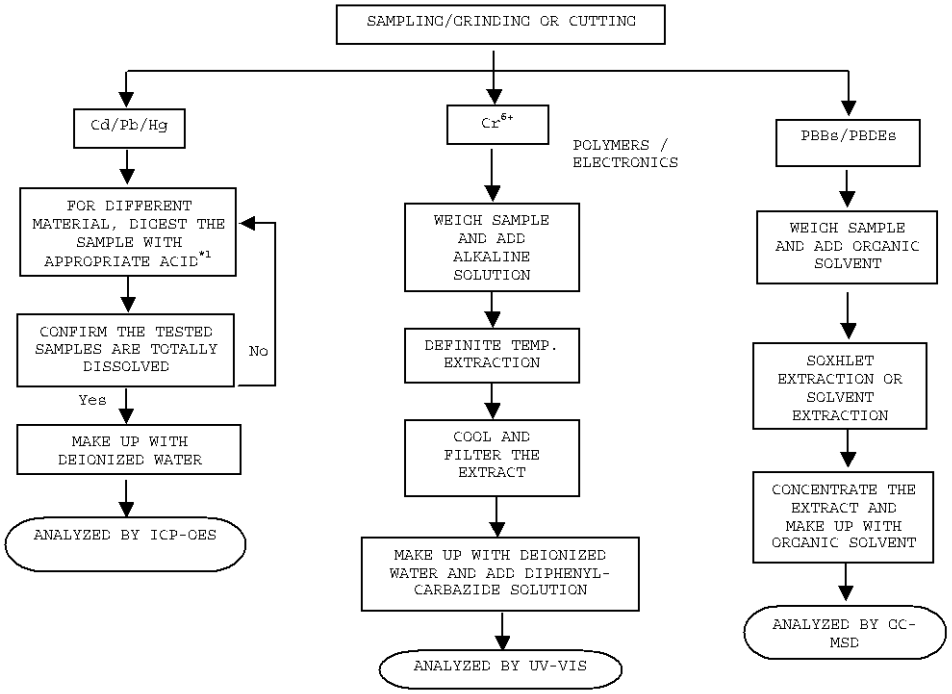
Annex 1: Analysis Result of Molding Compound (Page 4 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002758

TESTS CONDUCTED

(D)MEASUREMENT FLOWCHART:
TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS
REFERENCE STANDARD: IEC 62321 EDITION 1.0: 2008



CHEMIST: INORGANIC (ANN LUO/FRED WANG/ALLY WAN)
ORGANIC (JENNY XU/CHERRY SUN)

REMARKS:

*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO_3, HCl, HF, H_2O_2, H_3BO_3
METALS	HNO_3, HCl, HF
ELECTRONICS	HNO_3, HCl, H_2O_2, HBF_4

*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

****

TO BE CONTINUED

Intertek Testing Services Wuxi Ltd.
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Annex 1: Analysis Result of Molding Compound (Page 5 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002758

TESTS CONDUCTED

(Ⅰ) TEST RESULT SUMMARY :
HALOGEN CONTENT :

TESTING ITEM	RESULT (ppm)
FLUORINE (F) CONTENT	ND
CHLORINE (Cl) CONTENT	100
BROMINE (Br) CONTENT	ND
IODINE (I) CONTENT	ND

REMARKS : ppm = PARTS PER MILLION = mg/kg
ND = NOT DETECTED
DATE SAMPLE RECEIVE: AUG 02, 2010
TEST PERIOD: AUG 02, 2010 TO AUG 05, 2010

(Ⅱ) TEST METHOD :

TESTING ITEM	TESTING METHOD	REPORTING LIMIT
HALOGEN (F,Cl, Br,I) CONTENT	WITH REFERENCE TO IEC 61189-2:2006 BY COMBUSTION FLASK AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE
****

TO BE CONTINUED

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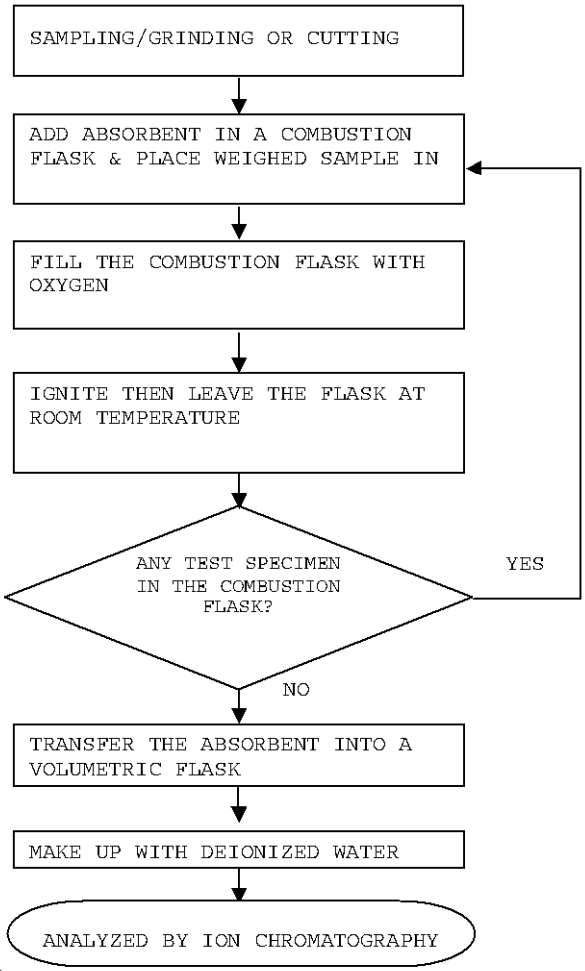
Annex 1: Analysis Result of Molding Compound (Page 6 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002758

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:
TEST FOR HALOGEN CONTENT
REFERENCE METHOD: IEC 61189-2 TEST 2C12



CHEMIST: FRED WANG/ ALLY WAN

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TO BE CONTINUED

PAGE 6 OF 7

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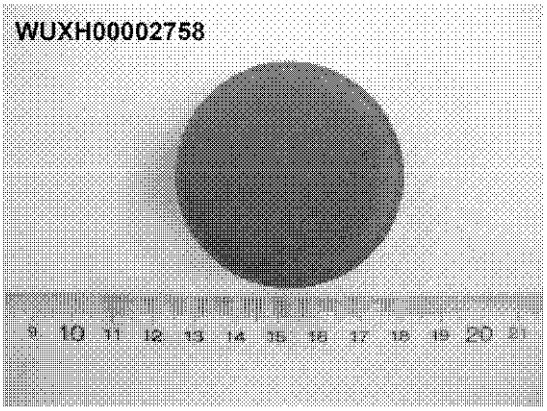
Annex 1: Analysis Result of Molding Compound (Page 7 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002758

TESTS CONDUCTED

PHOTO



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END OF REPORT

Intertek Testing Services Wuxi Ltd.
No.8 Fubei Road, Xishan Economic Development Zone,
Wuxi 214101, Jiangsu, China
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Annex 2: Analysis Result of Lead frame (Page 1 of 4)

SGS

Test Report No. SHAML1008240101 Date: 21 Jun 2010 Page 1 of 4

NINGBO ESC PHOTOELECTRON CO., LTD
ECONOMIC & TECHNICAL DEVELOPMENT ZONE, NO.88 YICHENG RD, BEILUN NINGBO, CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : LEAD FRAME

SGS Job No. :	SC100602277 - SH
Material and Mark :	KFC
Product Specification :	TO LEA FRAME Cu SERIES
Date of Sample Received :	12 Jun 2010
Testing Period :	12 Jun 2010 - 21 Jun 2010
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).

Signed for and on behalf of
SGS-CSTC Ltd.

Fan Jingjie, JJ
Approved Signatory

No.99, Block 1159, East Kangqiao Road, Pudong District, Shanghai, China 201319 t (86-21) 61136300 f (86-21) 68183127/68183620 www.cn.sgs.com
中国·上海·浦东康桥东路1159号99号 邮编: 201319 t (86-21) 61136300 f (86-21) 68183127/68183620 e sgs.china@sgs.com

Annex 2: Analysis Result of Lead frame (Page 2 of 4)

SGS

Test Report No. SHAML1008240101 Date: 21 Jun 2010 Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA10-082401.001	Copper metal frame

Remarks :

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

RoHS Directive 2002/95/EC

Test Method : With reference to IEC 62321:2008
(1) Determination of Cadmium by ICP-OES.
(2) Determination of Lead by ICP-OES.
(3) Determination of Mercury by ICP-OES.
(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.
(5) Determination of PBBs / PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	11
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◊	Negative
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

No.88 Block 1155 East Kang Qiao Road, Pudong District, Shanghai, China 201319 t [86-21] 61136300 f [86-21] 58183122/58183620 www.cn.sgs.com
中国 · 上海 · 浦东康桥东路1155弄88号 邮编: 201319 t [86-21] 61136300 f [86-21] 58183122/58183620 e sgs.china@sgs.com

Annex 2: Analysis Result of Lead frame (Page 3 of 4)

SGS

Test Report No. SHAML1008240101 Date: 21 Jun 2010 Page 3 of 4

Test Item(s)	Limit	Unit	MDL	*001*
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

Notes :

(1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

(2) ◇ 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 is Negative or 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 cm^2 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.

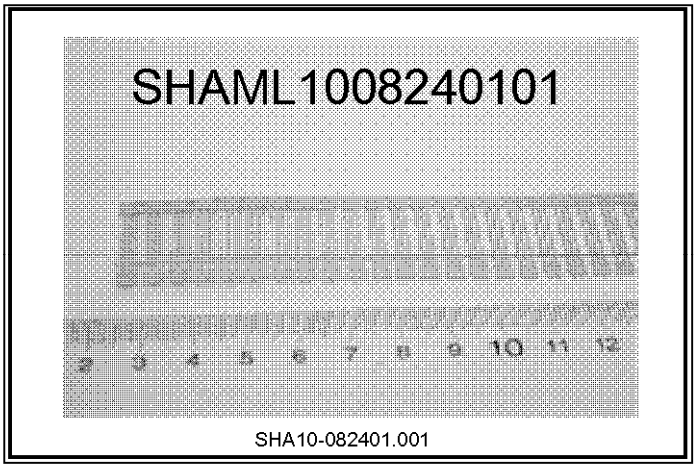
No.88 Block 1189, East Kang Qiao Road, Pudong District, Shanghai, China 201319 t [86-21] 61136300 f [86-21] 58183122/58183620 www.cn.sgs.com
中国 · 上海 · 浦东康桥东路1189弄88号 邮编: 201319 t [86-21] 61136300 f [86-21] 58183122/58183620 e sgs.china@sgs.com

Annex 2: Analysis Result of Lead frame (Page 4 of 4)

SGS

Test Report No. SHAML1008240101 Date: 21 Jun 2010 Page 4 of 4

Sample photo:



SHA10-082401.001

SGS authenticate the photo on original report only

*** End of Report ***

Annex 3: Analysis Result of Lead finish (page 1 of 6)

SGS

Test Report No.: GZ0912123513/CHEM Date: JAN 06, 2010 Page 1 of 6

GAOXIN STANNUM INDUSTRY (HUIZHOU) CO., LTD.
XIANAN INDUSTRIAL CENTRE, YUANZHOU TOWN, BOLUO, COUNTY, HUIZHOU CITY, CHINA

The following sample(s) was/were submitted and identified on behalf of the applicant as Solder Ball 99.98

SGS Job No.	: SZ12327648
SGS Internal Reference No.	: 47.24
Date of Sample Received	: DEC 30, 2009
Testing Period	: DEC 30, 2009 TO JAN 06, 2010
Test Requested	: Selected test (s) as requested by client.
Test Method	: Please refer to next page(s).
Test Result(s)	: Please refer to next page(s).

Signed for and on behalf of
SGS-CSTC Ltd.

Manson Yang
Sr. Engineer

Annex 3: Analysis Result of Lead finish (page 2 of 6)

SGS

Test Report No.: GZ0912123513/CHEM Date: JAN 06, 2010 Page 2 of 6

Test Results:
Description for specimen 1 : Silvery metal

Elementary Analysis

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Cadmium (Cd)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2
Lead (Pb)	mg/kg	IEC 62321: 2008, ICP-OES	24	2
Mercury (Hg)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2
Hexavalent Chromium (CrVI) by boiling water extraction	-	IEC 62321: 2008, UV-Vis	Negative	◇

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. ◇ = 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 is negative or 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 cm^2 sample surface area.
   Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.
5. "-" = Not regulated

Flame Retardants

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Sum of PBBs	mg/kg	-	N.D.	-
Monobromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Dibromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tribromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tetrabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Pentabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Hexabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Heptabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Octabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Nonabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Decabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Sum of PBDEs	mg/kg	-	N.D.	-
Monobromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Dibromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tribromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Tetrabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5

Annex 3: Analysis Result of Lead finish (page 3 of 6)

SGS

Test Report No.: GZ0912123513/CHEM Date: JAN 06, 2010 Page 3 of 6

Pentabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Hexabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Heptabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Octabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Nonabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5
Decabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated

Remark: Results & photo(s) of this report refer to test report GZ0912123511/CHEM.

Annex 3: Analysis Result of Lead finish (page 4 of 6)

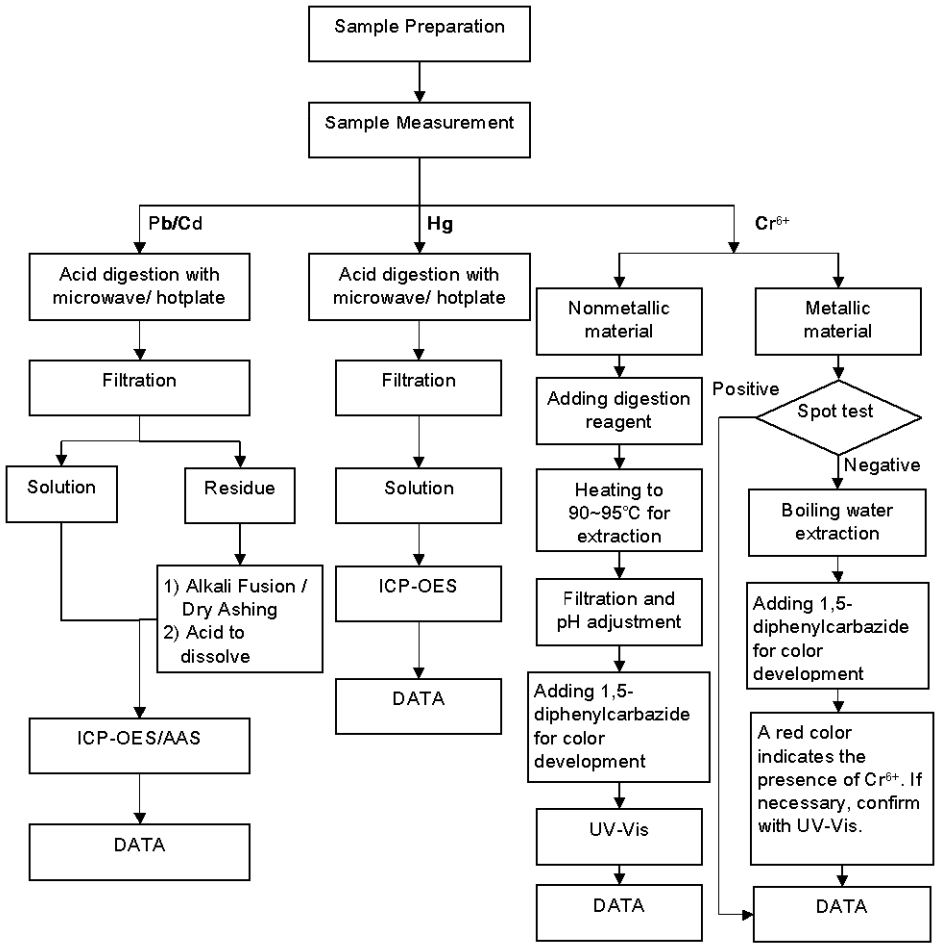
SGS

Test Report No.: GZ0912123513/CHEM Date: JAN 06, 2010 Page 4 of 6

ATTACHMENTS

Testing Flow Chart

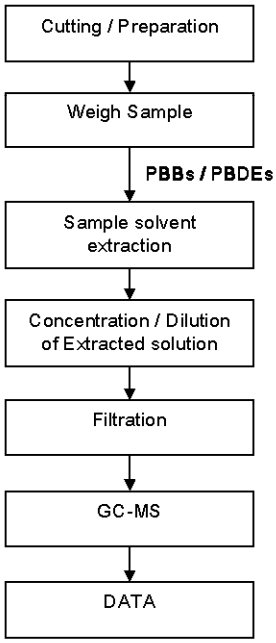
1) Name of the person who made measurement: Bella Wang
2) Name of the person in charge of measurement: Adams Yu



Annex 3: Analysis Result of Lead finish (page 5 of 6)

Testing Flow Chart

1) Name of the person who made measurement: Tina Zhao
2) Name of the person in charge of measurement: Ryan Yang

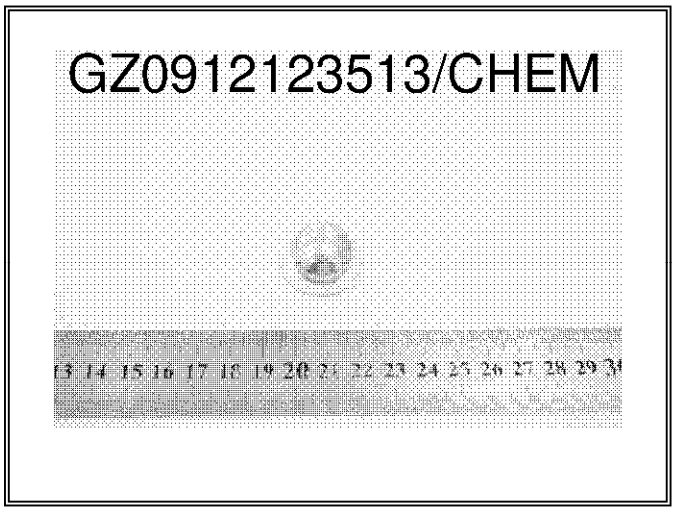


Annex 3: Analysis Result of Lead finish (page 6 of 6)

SGS

Test Report No.: GZ0912123513/CHEM Date: JAN 06, 2010 Page 6 of 6

Sample photo :



SGS authenticate the photo on original report only

*** End of Report ***

Annex 4: Analysis Result of Ni-plated Wafer (Page 1 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO., LTD.
EAST 1#,ZHENFA 6 ROAD, SHUO FANG INDUSTRIAL PARK WUXI NATIONAL HIGH-TECH DEVELOPMENT ZONE,
WUXI,JIANGSU,CHINA
ATTN: ZHANG XIAOPENG

DATE: AUG 06, 2010

SAMPLE DESCRIPTION:
ONE(1)PIECE OF SUBMITTED SAMPLE SAID TO BE :**SILVER GREY METAL.**
ITEM NAME : SILICON WAFER WITH NICKEL PLATING.
VENDOR : CONCORD.
COMPONENT OR PART NO. : SILICON+NICKEL.
TEST ITEM : Pb,Cd,Hg,CrVI,PBB PBDE,F,Cl,Br,I.

****

TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

****

SUMMARY:

TESTED SAMPLE	STANDARD	RESULT
SUBMITTED SAMPLE	WITH REFERENCE TO TEST METHOD OF IEC 62321 EDITION 1.0: 2008 AND MAXIMUM CONCENTRATION LIMITS QUOTED FROM RoHS DIRECTIVES 2002/95/EC AND AMENDMENT 2005/618/EC	PASS

****

TO BE CONTINUED

PREPARED AND CHECKED BY:
FOR INTERTEK TESTING SERVICES WUXI LTD.

Jessica

JESSICA LU
GENERAL MANAGER

Intertek Testing Services Wuxi Ltd.
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Annex 4: Analysis Result of Ni-plated Wafer (Page 2 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	ND
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr^{6+}) RESULT (BY BOILING WATER EXTRACTION ON METAL) (mg/kg WITH 50cm^2)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:

mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm

ND = NOT DETECTED

mg/kg WITH 50cm^2 = MILLIGRAM PER KILOGRAM WITH 50 SQUARE CENTIMETER

****

TO BE CONTINUED

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Annex 4: Analysis Result of Ni-plated Wafer (Page 3 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

TESTS CONDUCTED

(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	REPORTING LIMIT
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, 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, BY BOILING WATER EXTRACTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	0.02mg/kg WITH 50cm^2 (IN TESTING SOLUTION)
POLYBROMINATED BIPHENYLS (PBBs)& POLYBROMINATED DIPHENYL ETHERS (PBDEs)	WITH REFERENCE TO IEC IEC 62321 EDITION 1.0: 2008, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS AND FURTHER HPLC CONFIRMATION WHEN NECESSARY.	5 mg/kg

DATE SAMPLE RECEIVED:AUG 02, 2010
TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

****

TO BE CONTINUED

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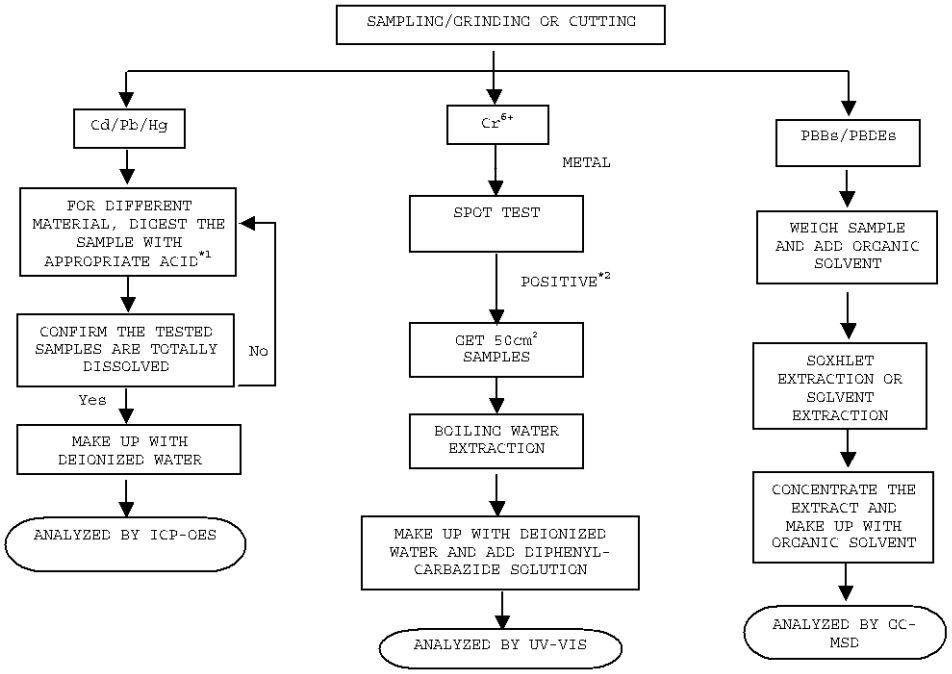
Annex 4: Analysis Result of Ni-plated Wafer (Page 4 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

TESTS CONDUCTED

(D)MEASUREMENT FLOWCHART:
TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS
REFERENCE STANDARD: IEC 62321 EDITION 1.0: 2008



CHEMIST: INORGANIC (ANN LUO/FRED WANG/ALLY WAN)
ORGANIC (JENNY XU/CHERRY SUN)

REMARKS:

*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO_3, HCl, HF, H_2O_2, H_3BO_3
METALS	HNO_3, HCl, HF
ELECTRONICS	HNO_3, HCl, H_2O_2, HBF_4

*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

****

TO BE CONTINUED

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Annex 4: Analysis Result of Ni-plated Wafer (Page 5 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

TESTS CONDUCTED

(I) TEST RESULT SUMMARY :

HALOGEN CONTENT :

TESTING ITEM	RESULT (ppm)
FLUORINE (F) CONTENT	ND
CHLORINE (Cl) CONTENT	ND
BROMINE (Br) CONTENT	ND
IODINE (I) CONTENT	ND

REMARKS : ppm = PARTS PER MILLION = mg/kg
ND = NOT DETECTED
DATE SAMPLE RECEIVE: AUG 02, 2010
TEST PERIOD: AUG 02, 2010 TO AUG 05, 2010

(II) TEST METHOD :

TESTING ITEM	TESTING METHOD	REPORTING LIMIT
HALOGEN (F,Cl, Br,I) CONTENT	WITH REFERENCE TO IEC 61189-2:2006 BY COMBUSTION FLASK AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE

****

TO BE CONTINUED

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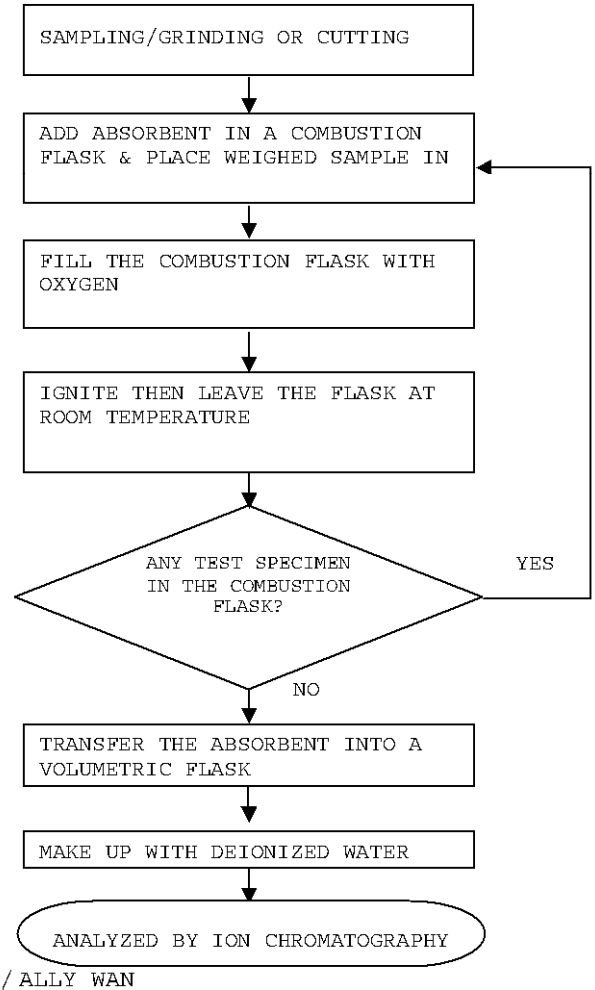
Annex 4: Analysis Result of Ni-plated Wafer (Page 6 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:
TEST FOR HALOGEN CONTENT
REFERENCE METHOD: IEC 61189-2 TEST 2C12



CHEMIST: FRED WANG/ ALLY WAN

****

TO BE CONTINUED

PAGE 6 OF 7

Intertek Testing Services Wuxi Ltd.
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Annex 4: Analysis Result of Ni-plated Wafer (Page 7 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002719

TESTS CONDUCTED

PHOTO

****

END OF REPORT

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Annex 5: Analysis Result of Passivation Glass (Page 1 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO., LTD.
EAST 1#,ZHENFA 6 ROAD, SHUO FANG INDUSTRIAL PARK WUXI NATIONAL HIGH-TECH DEVELOPMENT ZONE,
WUXI,JIANGSU,CHINA
ATTN: ZHANG XIAOPENG

DATE: AUG 06, 2010

SAMPLE DESCRIPTION:
ONE(1)PIECE OF SUBMITTED SAMPLE SAID TO BE :**WHITE POWDER.**
ITEM NAME : WAFER PASSIVATION.
VENDOR : PROPRIETY.
COMPONENT OR PART NO. : PROPRIETY.
TEST ITEM : Pb,Cd,Hg,CrVI,PBB PBDE,F,Cl,Br,I.

****

TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)

****

TO BE CONTINUED

PREPARED AND CHECKED BY:
FOR INTERTEK TESTING SERVICES WUXI LTD.

Jessica

JESSICA LU
GENERAL MANAGER

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Annex 5: Analysis Result of Passivation Glass (Page 2 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	207400
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr^{6+}) CONTENT (mg/kg) (FOR NON-METAL)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:
mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm
ND = NOT DETECTED
# = THE RESULT IS FOR REFERENCE ONLY

****

TO BE CONTINUED

Intertek Testing Services Wuxi Ltd.
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Annex 5: Analysis Result of Passivation Glass (Page 3 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

TESTS CONDUCTED

(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	REPORTING LIMIT
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
CHROMIUM (VI) (Cr^{6+}) CONTENT (FOR NON-METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ALKALINE DIGESTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	1 mg/kg
POLYBROMINATED BIPHENYLS (PBBs)& POLYBROMINATED DIPHENYL ETHERS (PBDEs)	WITH REFERENCE TO IEC IEC 62321 EDITION 1.0: 2008, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS AND FURTHER HPLC CONFIRMATION WHEN NECESSARY.	5 mg/kg

DATE SAMPLE RECEIVED:AUG 02, 2010
TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

****

TO BE CONTINUED

Intertek Testing Services Wuxi Ltd.
No.8 Fubei Road, Xishan Economic Development Zone,
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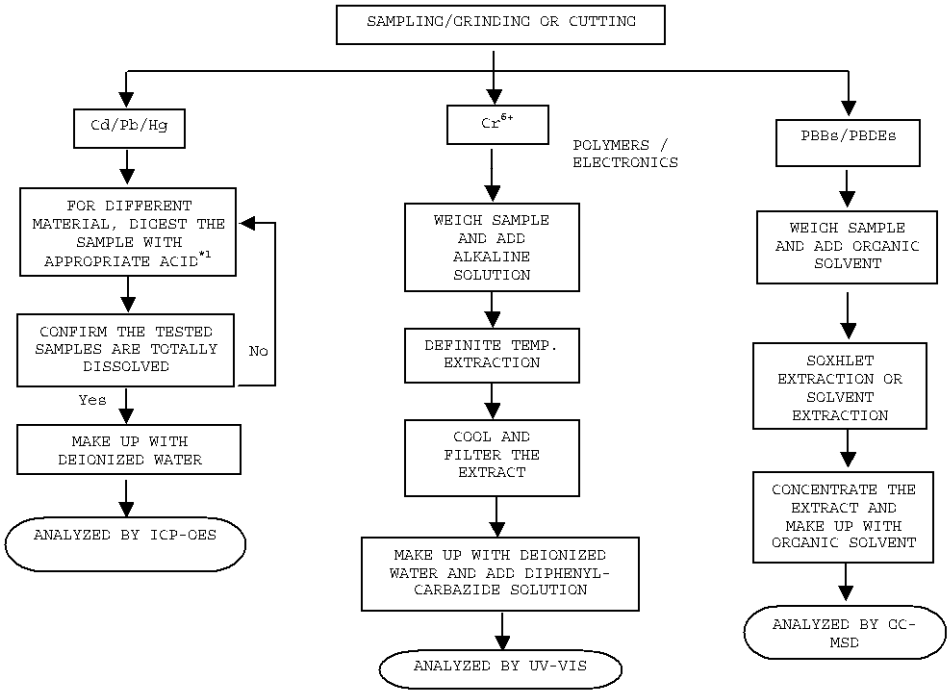
Annex 5: Analysis Result of Passivation Glass (Page 4 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

TESTS CONDUCTED

(D)MEASUREMENT FLOWCHART:
TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS
REFERENCE STANDARD: IEC 62321 EDITION 1.0: 2008



CHEMIST: INORGANIC (ANN LUO/FRED WANG/ALLY WAN)
ORGANIC (JENNY XU/CHERRY SUN)

REMARKS:

*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO_3, HCl, HF, H_2O_2, H_3BO_3
METALS	HNO_3, HCl, HF
ELECTRONICS	HNO_3, HCl, H_2O_2, HBF_4

*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

****

TO BE CONTINUED

Intertek Testing Services Wuxi Ltd.
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Annex 5: Analysis Result of Passivation Glass (Page 5 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

TESTS CONDUCTED

(Ⅰ) TEST RESULT SUMMARY :
HALOGEN CONTENT :

TESTING ITEM	RESULT (ppm)
FLUORINE (F) CONTENT	ND
CHLORINE (Cl) CONTENT	ND
BROMINE (Br) CONTENT	ND
IODINE (I) CONTENT	ND

REMARKS : ppm = PARTS PER MILLION = mg/kg
ND = NOT DETECTED
DATE SAMPLE RECEIVE: AUG 02, 2010
TEST PERIOD: AUG 02, 2010 TO AUG 05, 2010

(Ⅱ) TEST METHOD :

TESTING ITEM	TESTING METHOD	REPORTING LIMIT
HALOGEN (F,Cl, Br,I) CONTENT	WITH REFERENCE TO IEC 61189-2:2006 BY COMBUSTION FLASK AND DETERMINED BY ION CHROMATOGRAPHY	50 ppm

REMARKS : REPORTING LIMIT = QUANTITATION LIMIT OF ANALYTE IN SAMPLE
****

TO BE CONTINUED

Intertek Testing Services Wuxi Ltd.
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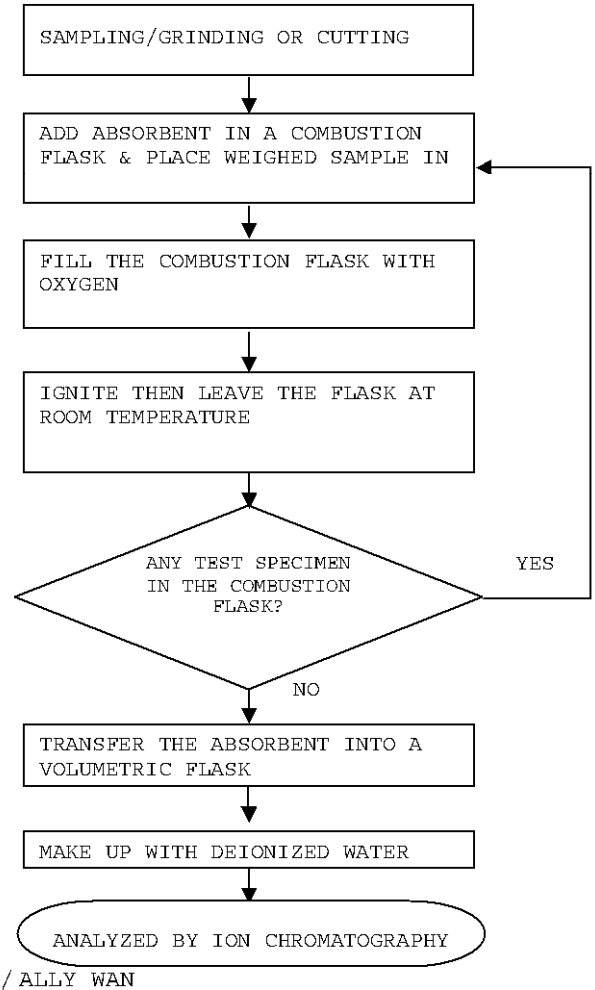
Annex 5: Analysis Result of Passivation Glass (Page 6 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

TESTS CONDUCTED

(III) MEASUREMENT FLOWCHART:
TEST FOR HALOGEN CONTENT
REFERENCE METHOD: IEC 61189-2 TEST 2C12



CHEMIST: FRED WANG/ ALLY WAN

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TO BE CONTINUED

PAGE 6 OF 7

Intertek Testing Services Wuxi Ltd.
No.8 Fubei Road, Xishan Economic Development Zone,
Wuxi 214101, Jiangsu, China
Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

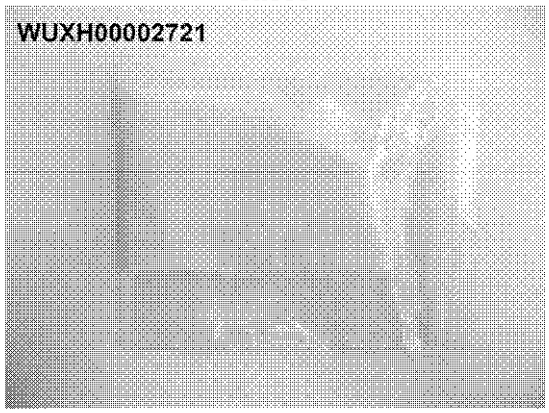
Annex 5: Analysis Result of Passivation Glass (Page 7 of 7)

Intertek

TEST REPORT NUMBER: WUXH00002721

TESTS CONDUCTED

PHOTO



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END OF REPORT

PAGE 7 OF 7

Intertek Testing Services Wuxi Ltd.
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Annex 6: Analysis Result of Die Bonding Solder (Page 1 of 7)

SGS

Test Report No. CANEC1001775101 Date: 29 Apr 2010 Page 1 of 7

SHENZHEN EARLYSUN TECHNOLOGY CO.,LTD
6F,BUILDING OF BAODAZHOU,INTERCHANGE OF LONGZHU AVENUE AND LONGZHU 3 ROAD,TAOYUAN STEET,NANSHAN,SHENZHEN,CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :
High-temperature Solder Paste

SGS Job No.	:	12486589 - SZ
Client Ref. Information	:	ES-500、ES-660 (Sn5Pb92.5Ag2.5 Sn5Pb95 Sn10Pb90 Sn20Pb88Ag2 Sn20Pb78Ag2 Sn3Pb97 Sn5Pb93Ag2) MIXTURE
Date of Sample Received	:	31 Mar 2010
Testing Period	:	31 Mar 2010 - 06 Apr 2010
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	:	A: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-CSTC Ltd.

Manson Yang
Sr. Engineer

Annex 6: Analysis Result of Die Bonding Solder (Page 2 of 7)

SGS

Test Report No. CANEC1001775101 Date: 29 Apr 2010 Page 2 of 7

Test Results:
ID for specimen 1 : CAN10-017751.001
Description for specimen 1 : Grey paste

A:RoHS Directive 2002/95/EC

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium (Cd)	mg/kg	IEC 62321:2008, ICP-OES	N.D.	2	100
Lead (Pb)	mg/kg	IEC 62321:2008, ICP-OES	891100<1>	2	1000
Mercury (Hg)	mg/kg	IEC 62321:2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by alkaline extraction	mg/kg	IEC 62321:2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	-	N.D.	-	1000
Monobromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Dibromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tribromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tetrabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Pentabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Hexabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Heptabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Octabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Nonabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Decabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Sum of PBDEs	mg/kg	-	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Dibromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tribromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Tetrabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Pentabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Hexabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Heptabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Octabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Nonabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	
Decabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated
5. The results of Pb shown are only for reference
6.The result(s) shown is/are of the total weight of dried sample.
7.Remark<1>: According to the declaration from client, the source of Lead in specimen could be from the high melting temperature type solder, while Lead in high melting temperature type solders is exempted by RoHS

Annex 6: Analysis Result of Die Bonding Solder (Page 3 of 7)

regulatory (Directive 2002/95/EC of the European Parliament and of the council of 27 January 2003).

B:Halogen

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Fluorine (F)	mg/kg	BS EN 14582:2007, IC	N.D.	50
Chlorine (Cl)	mg/kg	BS EN 14582:2007, IC	N.D.	50
Bromine (Br)	mg/kg	BS EN 14582:2007, IC	240	50
Iodine (I)	mg/kg	BS EN 14582:2007, IC	N.D.	50

Note:
1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. The result(s) shown is/are of the total weight of wet sample.

Remark1: For Halogen tests, specimen is/are extracted by organic solvent and subsequently burned in oxygen bomb.
Remark2: Results and photo(s) of this report refer to test report CANEC1001467301.
Remark3: Results and photo(s) of test report CANEC1001467301 refer to test report CANEC1001261801.

Annex 6: Analysis Result of Die Bonding Solder (Page 4 of 7)

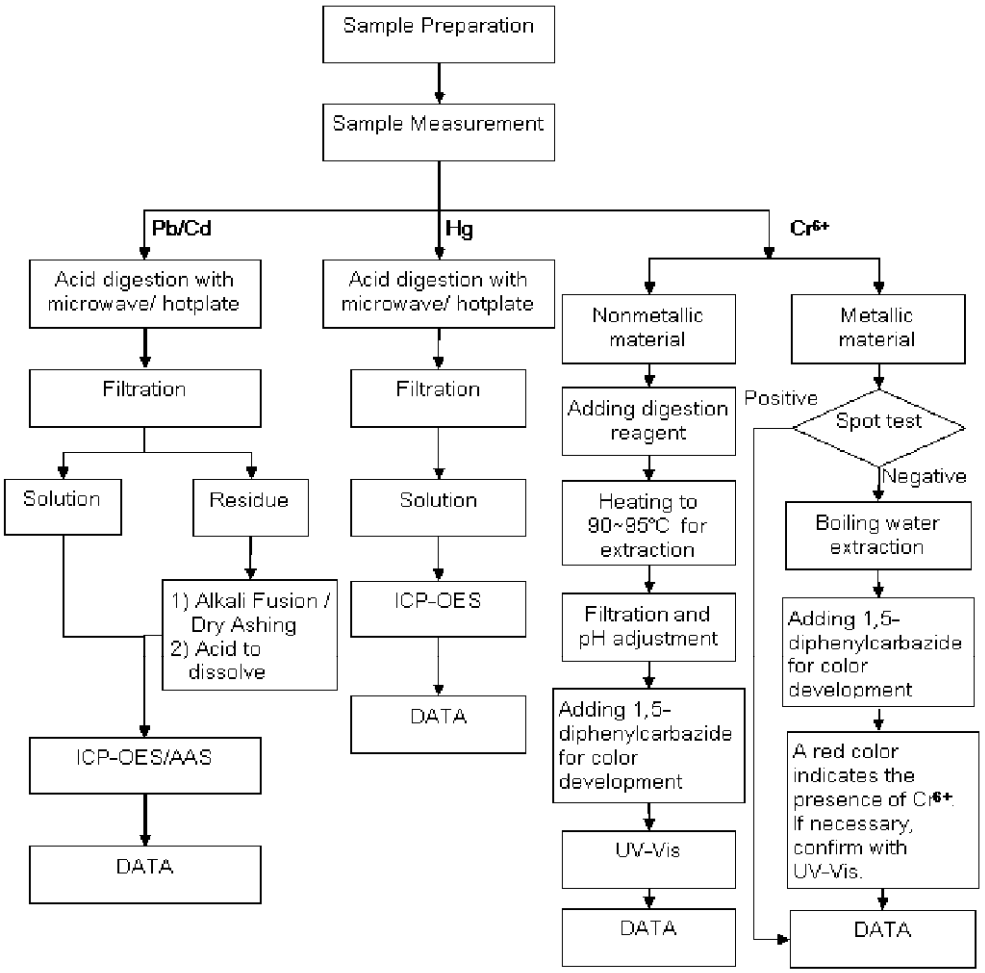
SGS

Test Report No. CANEC1001775101 Date: 29 Apr 2010 Page 4 of 7

ATTACHMENTS

Testing Flow Chart

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



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Member of the SGS Group (SGS SA)

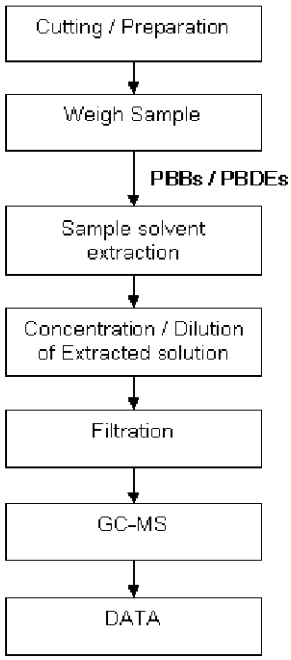
Annex 6: Analysis Result of Die Bonding Solder (Page 5 of 7)

SGS

Test Report No. CANEC1001775101 Date: 29 Apr 2010 Page 5 of 7

Testing Flow Chart

1) Name of the person who made measurement: Tina Zhao
2) Name of the person in charge of measurement: Ryan Yang



Annex 6: Analysis Result of Die Bonding Solder (Page 6 of 7)

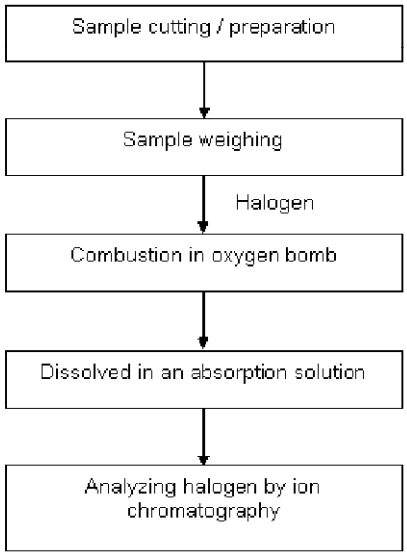
SGS

Test Report No. CANEC1001775101 Date: 29 Apr 2010 Page 6 of 7

ATTACHMENTS

Testing Flow Chart

1) Name of the person who made measurement: Sawen, Chen
2) Name of the person in charge of measurement: Michael Tso



Annex 6: Analysis Result of Die Bonding Solder (Page 7 of 7)

SGS

Test Report No. CANEC1001775101 Date: 29 Apr 2010 Page 7 of 7

Sample photo:

CAN10-017751.001

SGS authenticate the photo on original report only

*** End of Report ***

Annex 7: Analysis Result of Ceramic Substrate (Page 1 of 5)

Intertek

TEST REPORT NUMBER: WUXH00002764

APPLICANT: CONCORD SEMICONDUCTOR(WUXI) CO.,LTD. DATE: AUG 06, 2010
EAST 1#,ZHENFA 6 ROAD, SHUO FANG
INDUSTRIAL PARK WUXI NATIONAL HIGH-
TECH DEVELOPMENT ZONE,
WUXI,JIANGSU,CHINA
ATTN: ZHANG XIAOPENG

SAMPLE DESCRIPTION:
ONE(1)PIECE OF SUBMITTED SAMPLE SAID TO BE :**GREY CERAMIC.**

ITEM NAME	: CERAMIC.
VENDOR	: CERAMTEC AG.
COMPONENT OR PART NO.	: CERAMIC.
TEST ITEM	: Pb,Cd,Hg,CrVI,PBB PBDE.
TEST MODE	: AS PER CLIENT'S REQUEST, THE TESTED SAMPLE WAS TESTED AS A WHOLE AND SAMPLED.

****
TESTS CONDUCTED:
AS REQUESTED BY THE APPLICANT, FOR DETAILS REFER TO ATTACHED PAGE(S)
****

TO BE CONTINUED

PREPARED AND CHECKED BY:
FOR INTERTEK TESTING SERVICES WUXI LTD.

Jessica

JESSICA LU
GENERAL MANAGER

Intertek Testing Services Wuxi Ltd.
No.8 Fubei Road, Xishan Economic Development Zone,
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Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

Annex 7: Analysis Result of Ceramic Substrate (Page 2 of 5)

Intertek

TEST REPORT NUMBER: WUXH00002764

TESTS CONDUCTED

(A) TEST RESULT SUMMARY:

TESTING ITEM	RESULT
CADMIUM (Cd) CONTENT (mg/kg)	ND
LEAD (Pb) CONTENT (mg/kg)	ND
MERCURY (Hg) CONTENT (mg/kg)	ND
CHROMIUM (VI) (Cr^{6+}) CONTENT (mg/kg) (FOR NON-METAL)	ND
POLYBROMINATED BIPHENYLS (PBBs) (mg/kg)	
MONOBROMO BIPHENYLS (MonoBB)	ND
DIBROMO BIPHENYLS (DiBB)	ND
TRIBROMO BIPHENYLS (TriBB)	ND
TETRABROMO BIPHENYLS (TetraBB)	ND
PENTABROMO BIPHENYLS (PentaBB)	ND
HEXABROMO BIPHENYLS (HexaBB)	ND
HEPTABROMO BIPHENYLS (HeptaBB)	ND
OCTABROMO BIPHENYLS (OctaBB)	ND
NONABROMO BIPHENYLS (NonaBB)	ND
DECABROMO BIPHENYL (DecaBB)	ND
POLYBROMINATED DIPHENYL ETHERS (PBDEs) (mg/kg)	
MONOBROMO DIPHENYL ETHERS (MonoBDE)	ND
DIBROMO DIPHENYL ETHERS (DiBDE)	ND
TRIBROMO DIPHENYL ETHERS (TriBDE)	ND
TETRABROMO DIPHENYL ETHERS (TetraBDE)	ND
PENTABROMO DIPHENYL ETHERS (PentaBDE)	ND
HEXABROMO DIPHENYL ETHERS (HexaBDE)	ND
HEPTABROMO DIPHENYL ETHERS (HeptaBDE)	ND
OCTABROMO DIPHENYL ETHERS (OctaBDE)	ND
NONABROMO DIPHENYL ETHERS (NonaBDE)	ND
DECABROMO DIPHENYL ETHER (DecaBDE)	ND

REMARK:
mg/kg = MILLIGRAM PER KILOGRAM BASED ON DRY WEIGHT= ppm
ND = NOT DETECTED
****

TO BE CONTINUED

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Annex 7: Analysis Result of Ceramic Substrate (Page 3 of 5)

Intertek

TEST REPORT NUMBER: WUXH00002764

TESTS CONDUCTED

(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	REPORTING LIMIT
CADMIUM (Cd) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
LEAD (Pb) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
MERCURY (Hg) CONTENT	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ACID DIGESTION AND DETERMINED BY ICP-OES	2 mg/kg
CHROMIUM (VI) (Cr^{6+}) CONTENT (FOR NON-METAL)	WITH REFERENCE TO IEC 62321 EDITION 1.0: 2008, BY ALKALINE DIGESTION AND DETERMINED BY UV-VIS SPECTROPHOTOMETER	1 mg/kg
POLYBROMINATED BIPHENYLS (PBBs)& POLYBROMINATED DIPHENYL ETHERS (PBDEs)	WITH REFERENCE TO IEC IEC 62321 EDITION 1.0: 2008, BY SOLVENT EXTRACTION AND DETERMINED BY GC/MS AND FURTHER HPLC CONFIRMATION WHEN NECESSARY.	5 mg/kg

DATE SAMPLE RECEIVED:AUG 02, 2010
TESTING PERIOD:AUG 02, 2010 TO AUG 05, 2010

****

TO BE CONTINUED

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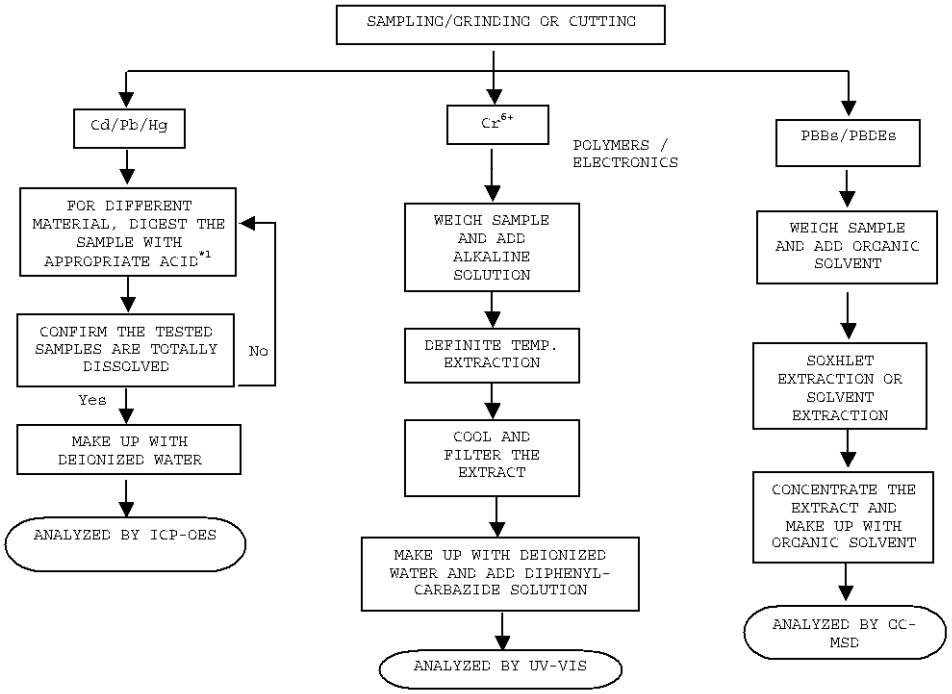
Annex 7: Analysis Result of Ceramic Substrate (Page 4 of 5)

Intertek

TEST REPORT NUMBER: WUXH00002764

TESTS CONDUCTED

(D)MEASUREMENT FLOWCHART:
TEST FOR Cd/Pb/Hg/Cr (VI)/PBBs/PBDEs CONTENTS
REFERENCE STANDARD: IEC 62321 EDITION 1.0: 2008



CHEMIST: INORGANIC (ANN LUO/FRED WANG/ALLY WAN)
ORGANIC (JENNY XU/CHERRY SUN)

REMARKS:

*1: LIST OF APPROPRIATE ACID:

MATERIAL	ACID ADDED FOR DIGESTION
POLYMERS	HNO_3, HCl, HF, H_2O_2, H_3BO_3
METALS	HNO_3, HCl, HF
ELECTRONICS	HNO_3, HCl, H_2O_2, HBF_4

*2: IF THE RESULT OF SPOT TEST IS POSITIVE, CHROMIUM VI WOULD BE DETERMINED AS DETECTED.

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TO BE CONTINUED

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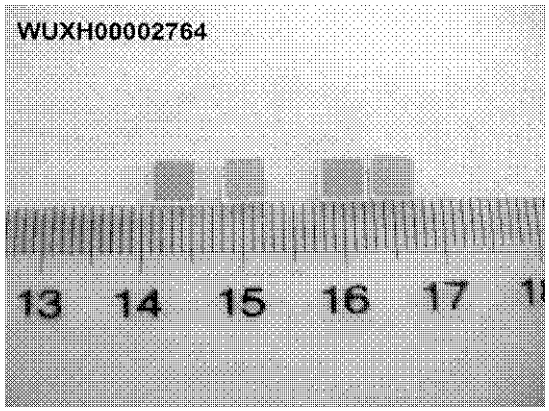
Annex 7: Analysis Result of Ceramic Substrate (Page 5 of 5)

Intertek

TEST REPORT NUMBER: WUXH00002764

TESTS CONDUCTED

PHOTO



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END OF REPORT

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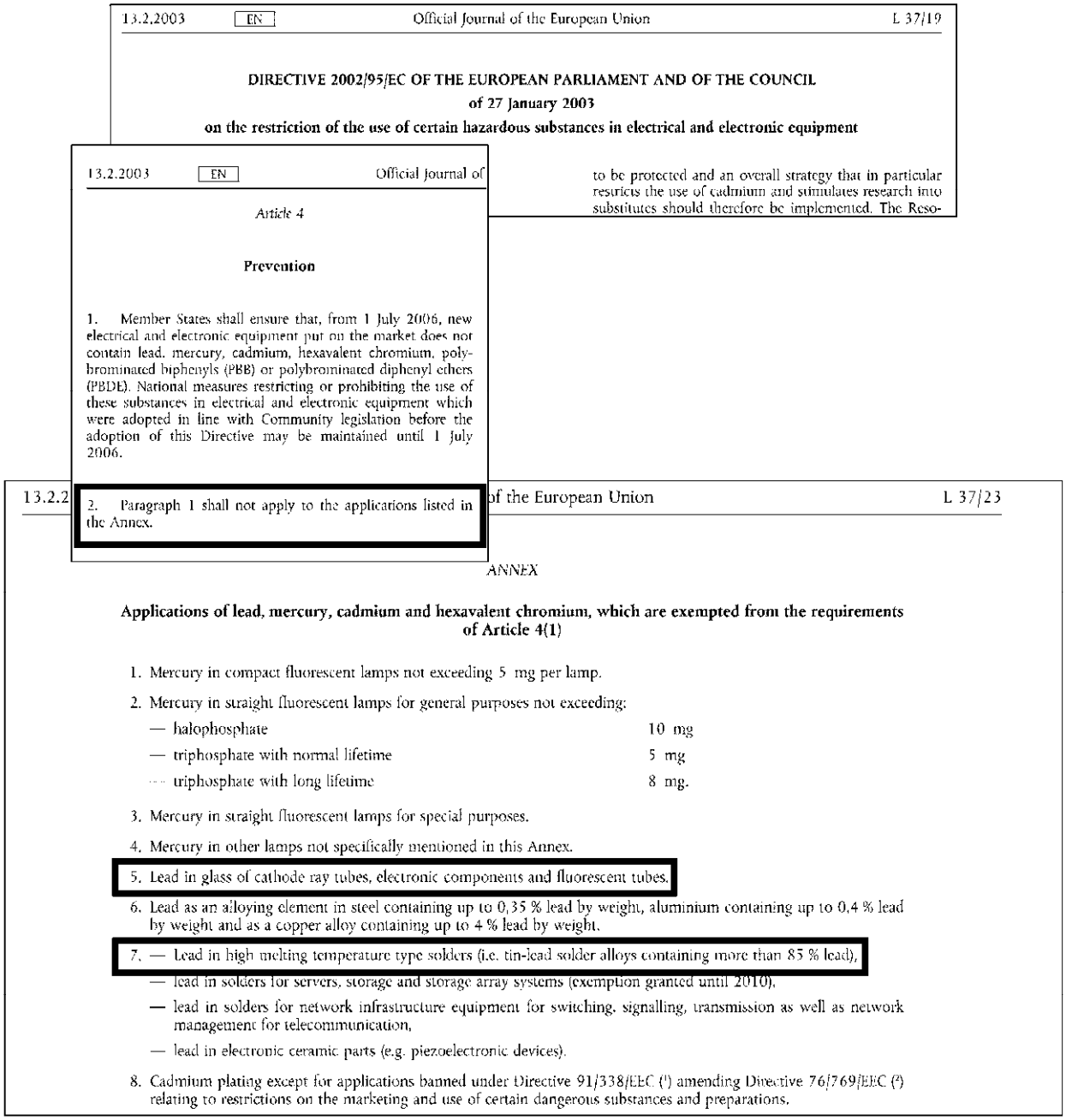
Wuxi 214101, Jiangsu, China
Tel: +86 510 8821 4567 Fax: +86 510 8820 0428 E-mail: consumergoods.wuxi@intertek.com

Littelfuse
Expertise Applied | Answers Delivered

Annex 8: Applicable RoHS exemptions



13.2.2003 EN Official Journal of the European Union L 37/19

DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 27 January 2003
on the restriction of the use of certain hazardous substances in electrical and electronic equipment

13.2.2003 EN Official Journal of

to be protected and an overall strategy that in particular restricts the use of cadmium and stimulates research into substitutes should therefore be implemented. The Reso-

Article 4

Prevention

1. Member States shall ensure that, from 1 July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE). National measures restricting or prohibiting the use of these substances in electrical and electronic equipment which were adopted in line with Community legislation before the adoption of this Directive may be maintained until 1 July 2006.

2. Paragraph 1 shall not apply to the applications listed in the Annex.

13.2.2 of the European Union L 37/23

ANNEX

Applications of lead, mercury, cadmium and hexavalent chromium, which are exempted from the requirements of Article 4(1)

1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.
2. Mercury in straight fluorescent lamps for general purposes not exceeding:
   - halophosphate 10 mg
   - triphosphate with normal lifetime 5 mg
   - triphosphate with long lifetime 8 mg.
3. Mercury in straight fluorescent lamps for special purposes.
4. Mercury in other lamps not specifically mentioned in this Annex.
5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.
6. Lead as an alloying element in steel containing up to 0,35 % lead by weight, aluminium containing up to 0,4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.
7. — Lead in high melting temperature type solders (i.e. tin-lead solder alloys containing more than 85 % lead),
   - lead in solders for servers, storage and storage array systems (exemption granted until 2010),
   - lead in solders for network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunication,
   - lead in electronic ceramic parts (e.g. piezoelectronic devices).
8. Cadmium plating except for applications banned under Directive 91/338/EEC (1) amending Directive 76/769/EEC (2) relating to restrictions on the marketing and use of certain dangerous substances and preparations.