



SM8/SOT223/SOT89/DPak/TO220 soft solder ICP Analysis Note

The appended ICP Analysis reports demonstrate compliance with EC directives 2002/95/EC (Restriction of the use of certain hazardous substances "RoHS") and the 24th amendment to 76/769/EEC (Restrictions on the marketing and use of certain dangerous substances and preparations).

This analysis was performed to independently verify that the content of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PDBE) present is within the permitted levels set.

Note 1: This report is a composite of the reports for the individual, homogenous parts of the product. The table below is a summary of the data in the following pages, and indicates the concentrations that would be present if the analysis had been performed on a whole device.

Note 2: The die attach material is a solder alloy with >85% lead as its main constituent. This lead content is not included in the table below, but is reported on the relevant page. The die attach solder is exempted from the RoHS Directive in clause 7 and is wholly contained within the device.

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K. Clithero
Group Quality Manager

RoHS Substance	Result (ppm)
Lead	15
Mercury	Not detected
Cadmium	Not detected
Hexavalent Chromium	Not detected
Polybrominated Biphenyls (PBB)	Not detected
Polybrominated Diphenyl Ethers (PDBE)	Not detected

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Sales offices

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3050 E. Hillcrest Drive
Westlake Village,
CA 91362-3154
Tel: (+1) 805 446 4800
Fax: (+1) 805 446 4850

Europe

Kustermannpark
Balanstraße 59,
D-81541 München
Germany
Tel: (+49) 894 549 490
Fax: (+49) 894 549 4949

Taiwan

7F, No. 50,
Min Chuan Road
Hsin-Tien
Taipei, Taiwan
Tel: (+886) 289 146 000
Fax: (+886) 289 146 639

Shanghai

Rm. 606, No.1158
Changning Road
Shanghai, China
Tel: (+86) 215 241 4882
Fax: (+86) 215 241 4891

Shenzhen

Room A1103-04,
ANLIAN Plaza, #4018
Jintian Road
Futian CBD,
Shenzhen, China
Tel: (+86) 755 882 849 88
Fax: (+86) 755 882 849 99

Korea

6 Floor, Changhwa B/D,
1005-5 Yeongtong-dong,
Yeongtong-gu, Suwon-si,
Gyeonggi-do,
Korea 443-813
Tel: (+82) 312 731 884
Fax: (+82) 312 731 885

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Test Report

No. : CE/2008/49068 Date : 2008/05/08 Page : 1 of 4

ZETEX SEMICONDUCTORS PLC
ZETEX TECHNOLOGY PARK, CHADDERTON, OLDHAM. OL9 9LL. UNITED
KINGDOM



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

Sample Description : WAFER
Buyer/Order No. : 65637
Sample Receiving Date : 2008/04/30
Testing Period : 2008/04/30 TO 2008/05/08

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

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

Test Report

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ZETEX SEMICONDUCTORS PLC
 ZETEX TECHNOLOGY PARK, CHADDERTON, OLDHAM. OL9 9LL. UNITED
 KINGDOM



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 62321/2nd CDV (111/95/CDV). Determination of Cadmium by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Lead by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Mercury by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.	2	n.d.
Antimony (Sb)	mg/kg	With reference to US EPA Method 3050B for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.
Halogen-Chlorine (Cl) (CAS No.: 007782-50-5)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Chlorine content.	50	n.d.
Halogen-Bromine (Br) (CAS No.: 007726-95-6)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Bromine content.	50	n.d.

Test Report

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ZETEX SEMICONDUCTORS PLC
 ZETEX TECHNOLOGY PARK, CHADDERTON, OLDHAM. OL9 9LL. UNITED
 KINGDOM



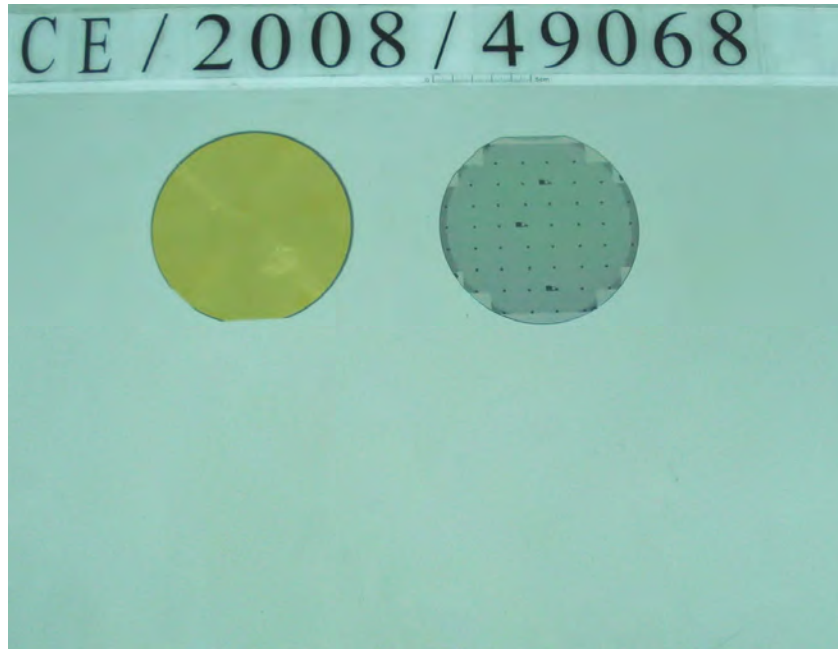
Test Item (s):	Unit	Method	MDL	Result
				No.1
Sum of PBBs	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of PBB and PBDE by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs (Mono to Nona) (Note 4)			-	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.
Sum of PBDEs (Mono to Deca)			-	n.d.

- Note :
1. mg/kg = ppm
 2. n.d. = Not Detected
 3. MDL = Method Detection Limit
 4. According to 2005/717/EC DecaBDE is exempt.
 5. " - " = Not Regulated

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ZETEX SEMICONDUCTORS PLC
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** End of Report **

Test Report

No. :KA/2008/10990A-01 Date: 2008/01/25 Page: 1 of 6

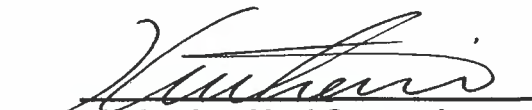


ASM HK
4F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG

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

Sample Description : A194 ALLOY
Lot No. : 080002
Style/Item No. : BROWN FOR Cu ALLOY
Color : COPPER
Sample Receiving Date : 2008/01/15
Testing Period : 2008/01/15 TO 2008/1/25

=====
Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method : With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products
: (1) Determination of Cadmium by ICP-AES.
: (2) Determination of Mercury by ICP-AES.
: (3) Determination of Lead by ICP-AES.
: (4) Determination of Hexavalent Chromium for metallic samples by Spot test / Colorimetric Method.
: (5) Determination of PBB and PBDE by GC/MS.
Test Result(s) : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the result **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.


Katherine Ho / Supervisor
Signed for and on behalf of
SGS Taiwan Limited

Test Report

No. :KA/2008/10990A-01 Date: 2008/01/25 Page: 2 of 6



ASM HK
4F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG

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

Test Item (s):	Method (Refer to)	Result	MDL	RoHS Limit
		No.1		
Cadmium (Cd)	(1)	n.d.	2	100
Mercury (Hg)	(2)	n.d.	2	1000
Lead (Pb)	(3)	14.5	2	1000
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(4)	Negative	See Note 5	#
Sum of PBBs	(5)	n.d.	-	1000
Monobromobiphenyl		n.d.	5	-
Dibromobiphenyl		n.d.	5	-
Tribromobiphenyl		n.d.	5	-
Tetrabromobiphenyl		n.d.	5	-
Pentabromobiphenyl		n.d.	5	-
Hexabromobiphenyl		n.d.	5	-
Heptabromobiphenyl		n.d.	5	-
Octabromobiphenyl		n.d.	5	-
Nonabromobiphenyl		n.d.	5	-
Decabromobiphenyl		n.d.	5	-
Sum of PBDEs (Mono to Nona)(Note 4)		n.d.	-	1000
Monobromobiphenyl ether		n.d.	5	-
Dibromobiphenyl ether		n.d.	5	-
Tribromobiphenyl ether		n.d.	5	-
Tetrabromobiphenyl ether		n.d.	5	-
Pentabromobiphenyl ether		n.d.	5	-
Hexabromobiphenyl ether		n.d.	5	-
Heptabromobiphenyl ether		n.d.	5	-
Octabromobiphenyl ether		n.d.	5	-
Nonabromobiphenyl ether	n.d.	5	-	
Decabromobiphenyl ether	n.d.	5	-	
Sum of PBDEs (Mono to Deca)	n.d.	-	-	

TEST PART DESCRIPTION:

NO.1 : A194 ALLOY

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TW 6167176

Test Report

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ASM HK
4F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG

- Note :
1. mg/kg = ppm
 2. n.d. = Not Detected
 3. MDL = Method Detection Limit
 4. According to 2005/717/EC DecaBDE is exempt.
 5. Spot-test:
Negative = Absence of Cr(VI) coating / surface layer, Positive = Presence of Cr(VI) coating / surface
(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 cm² sample surface area.
 6. # : Positive indicates the presence of Hexavalent Chromium on the tested areas and result be regarded as not comply with RoHS requirement.
Negative indicates the absence of Hexavalent Chromium on the tested areas and result be regarded as comply with RoHS requirement.
 7. " - " = Not Regulated

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TW 6167215

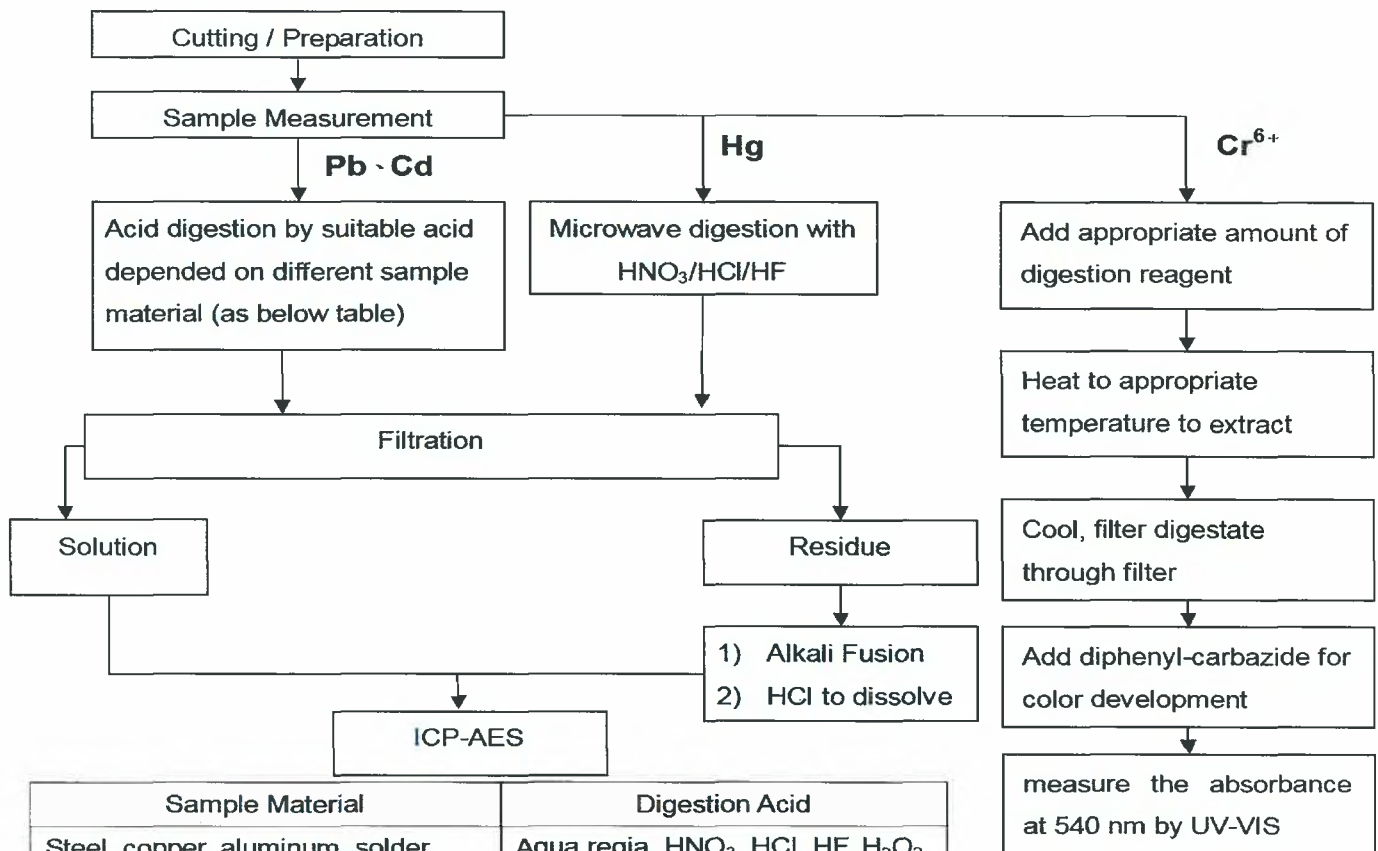
Test Report

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ASM HK
4F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Hungming Li
- 3) Name of the person in charge of measurement: George Huang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

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TW 6167214

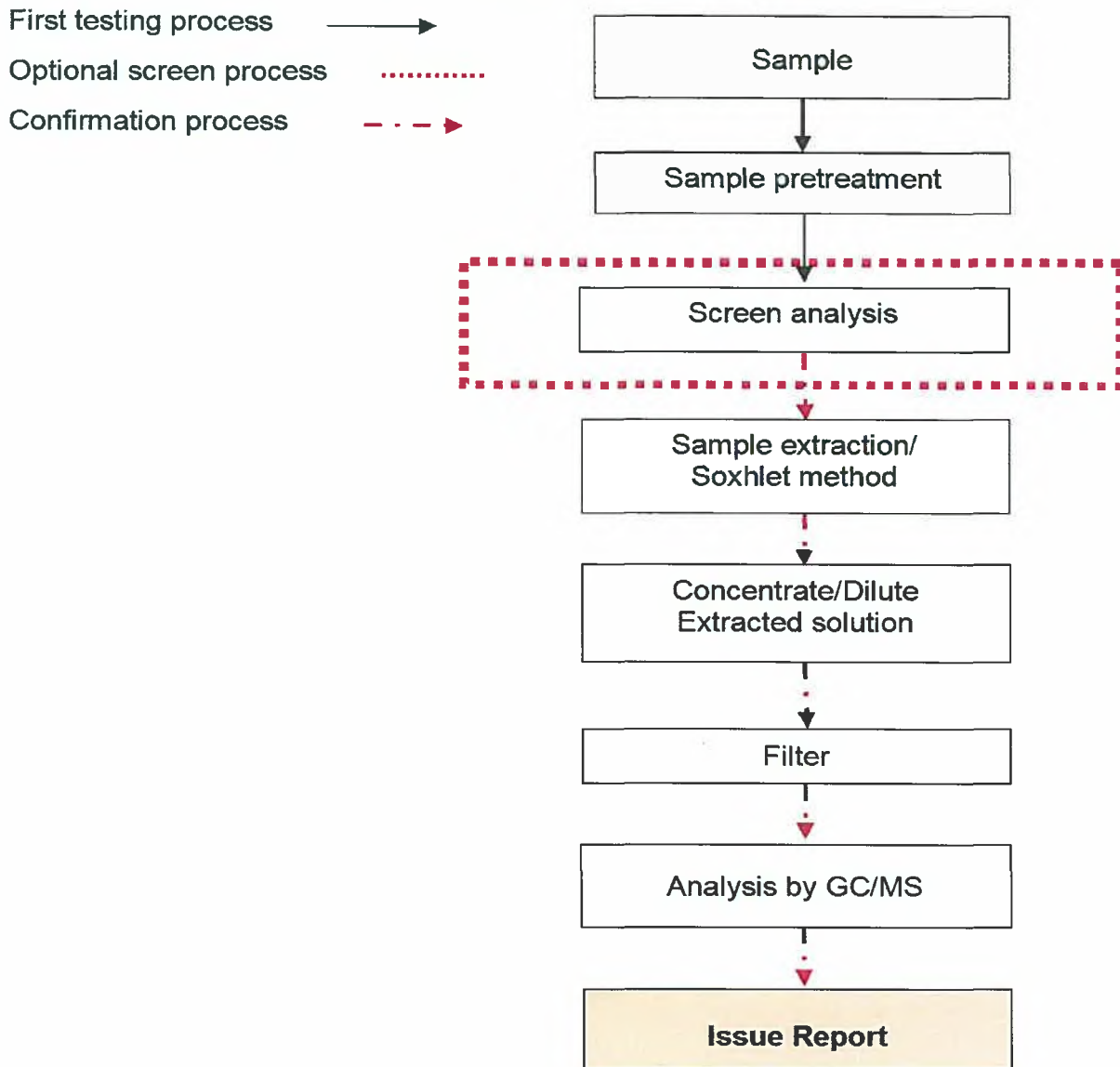
Test Report

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ASM HK
4F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG

PBB/PBDE analytical FLOW CHART



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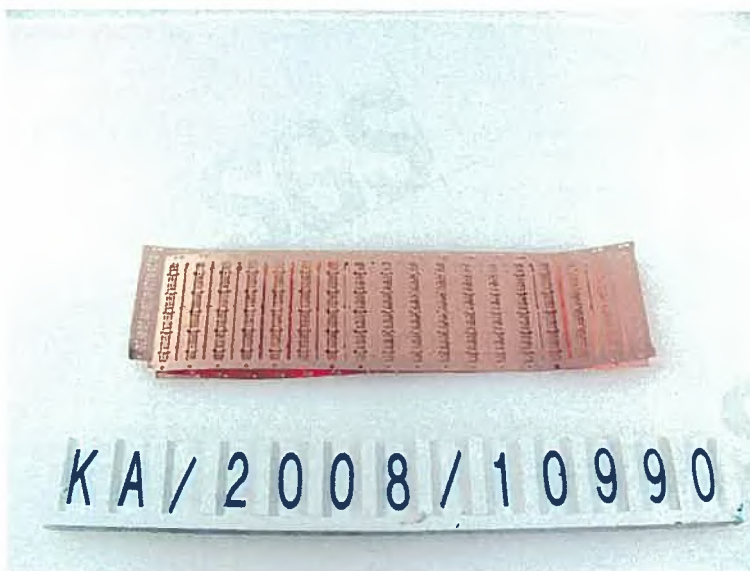
Test Report

No. :KA/2008/10990A-01 Date: 2008/01/25 Page: 6 of 6



ASM HK

4F, WATSON CENTRE, 16 KUNG YIP ST., KWAI CHUNG, HONG KONG



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TW 6167212

Test Report

No. SH8050865/CHEM

Date: Apr. 16, 2008

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HERAEUS ZHAOYUAN PRECIOUS METAL MATERIALS CO., LTD/ HERAEUS ZHAOYUAN (CHANGSHU) ELECTRONIC MATERIAL CO., LTD
NO.238 LINGLONG ROAD, ZHAOYUAN SHANGDONG/ NO.248 HUANGHE ROAD CHANGSHU, JIANGSU

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

Sample Name : GOLD BONDING WIRE HD
SGS Ref No. : 10960194
Main Substance : GOLD

Sample Receiving Date : Apr.15, 2008
Testing Period : Apr.15 – 16, 2008

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

Test Method : With reference to IEC 62321/2nd CDV (111/95/CDV)
Procedures for the Determination of Levels of Regulated Substances in
Electrotechnical Products
(1) Determination of Cadmium by ICP.
(2) Determination of Lead by ICP
(3) Determination of Mercury by ICP.
(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method.
(5) Determination of PBBs and PBDEs by GC/MS.

Test Results : Please refer to next pages

Conclusion : Based on the performed tests on submitted samples, the results comply with the
RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS-CSTC Chemical Laboratory



Ella Zhang
Section Manager

Signed for and on behalf of
SGS-CSTC Chemical Laboratory



Sandy Hao
Lab Manager

Test Report

No. SH8050865/CHEM

Date: Apr. 16, 2008

Page 2 of 5

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

Test Item(s):	Method (refer to)	1	MDL	RoHS Limit
Cadmium(Cd)	(1)	ND	2	100
Lead (Pb)	(2)	ND	2	1000
Mercury (Hg)	(3)	ND	2	1000
Hexavalent Chromium (CrVI) by spot test / boiling-water extraction	(4)	Negative	See Note (5)	#
Sum of PBBs	(5)	ND	-	1000
Monobromobiphenyl		ND	5	-
Dibromobiphenyl		ND	5	-
Tribromobiphenyl		ND	5	-
Tetrabromobiphenyl		ND	5	-
Pentabromobiphenyl		ND	5	-
Hexabromobiphenyl		ND	5	-
Heptabromobiphenyl		ND	5	-
Octabromobiphenyl		ND	5	-
Nonabromobiphenyl		ND	5	-
Decabromobiphenyl		ND	5	-
Sum of PBDEs (Note 4)		ND	-	1000
Monobromodiphenyl ether		ND	5	-
Dibromodiphenyl ether		ND	5	-
Tribromodiphenyl ether		ND	5	-
Tetrabromodiphenyl ether		ND	5	-
Pentabromodiphenyl ether		ND	5	-
Hexabromodiphenyl ether		ND	5	-
Heptabromodiphenyl ether		ND	5	-
Octabromodiphenyl ether		ND	5	-
Nonabromodiphenyl ether	ND	5	-	
Decabromodiphenyl ether	ND	5	-	
Sum of PBDEs (Mono to Deca)	ND	-	-	

Test Part Description:

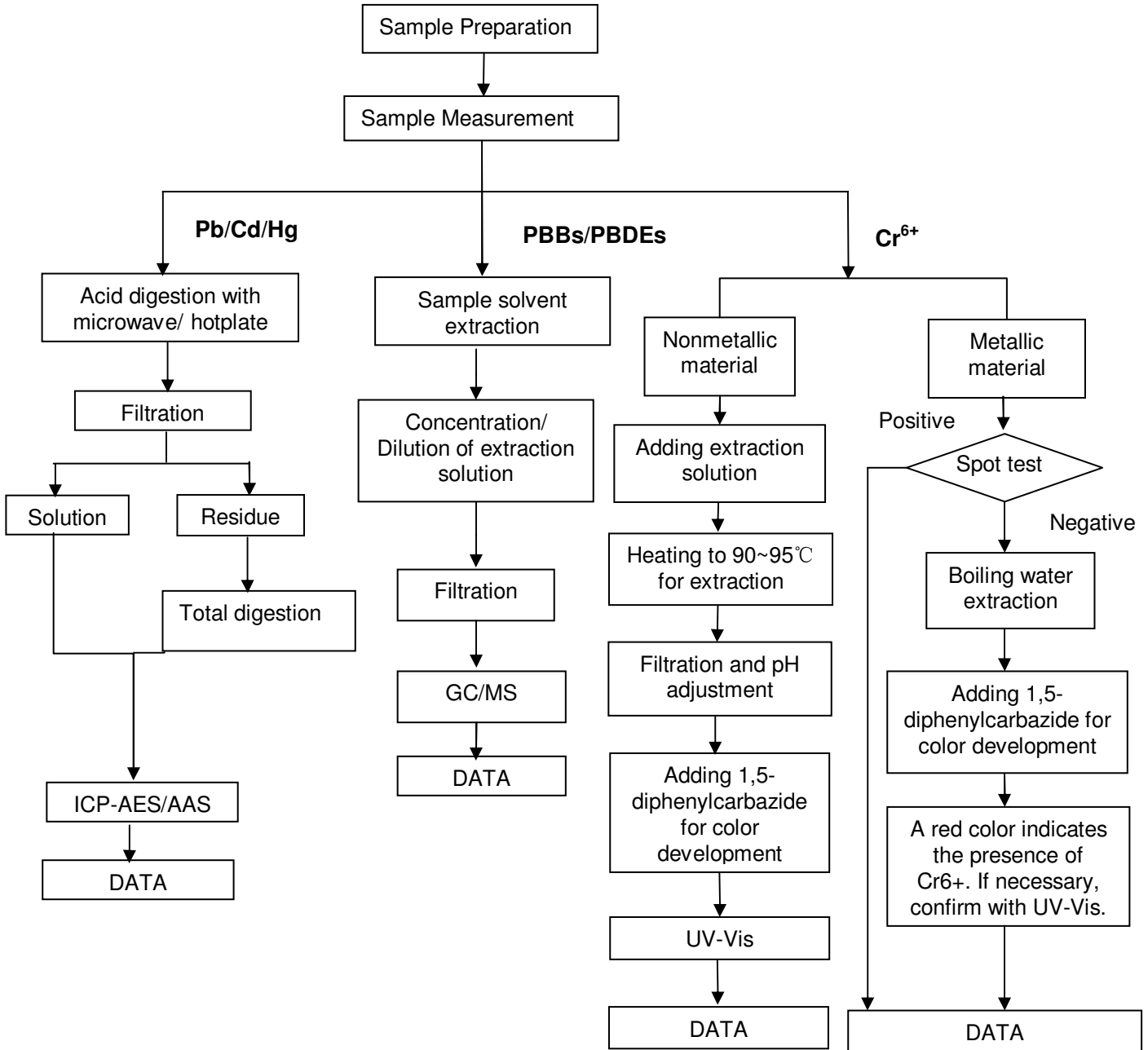
1. Golden metal thread

Note:

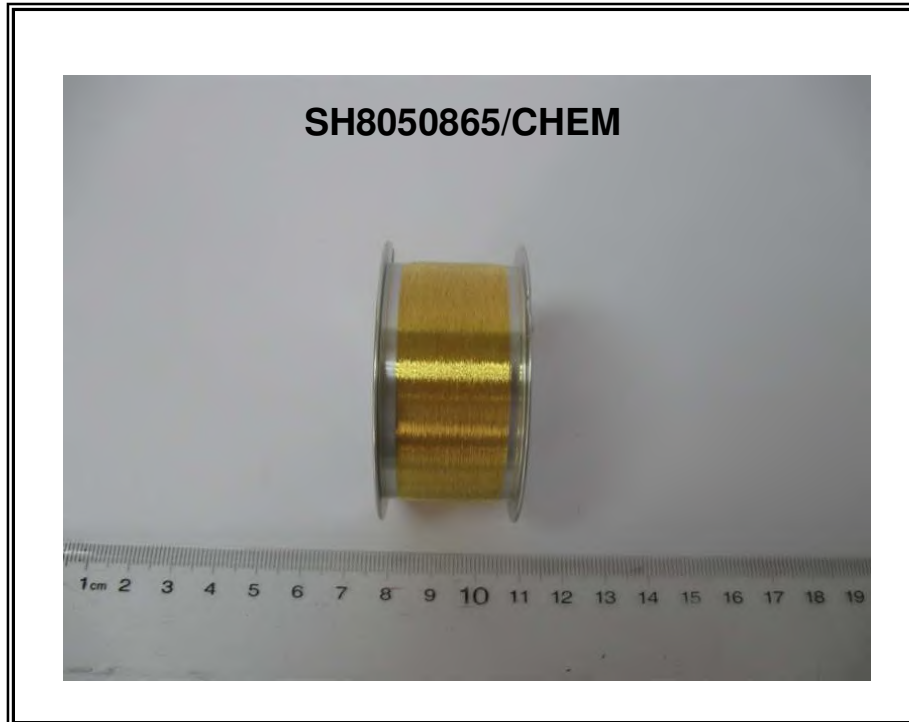
- (1) mg/kg = ppm
- (2) ND = Not Detected
- (3) MDL = Method Detection Limit
- (4) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
- (5) Spot-test:
 - Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;
 - (The tested sample should be further verified by boiling-water-extraction 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 cm² sample surface area.
- (6) # = Positive indicates the presence of Hexavalent Chromium on the tested areas.
Negative indicates the absence of CrVI on the tested areas.
- (7) "-" = Not Regulated
- (8) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

ATTACHMENTS

- 1) Name of the person who made measurement: Cathy Cai/George Xu/Diane Wang
- 2) Name of the person in charge of measurement: Terry Wang/Tracy Yue
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded)



Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

Test Report

No: 10143252(4) R1

Date: 24-Nov-2008

Page 1 of 6

Umicore Precious Metal (S) Pte Ltd
No. 2 Corporation Road, #06-16/17 Corporation Place, Singapore 618494

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

Sample Description : PbSn5Ag1.5 Solder Wire

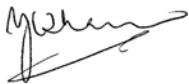
Sample Receiving Date : 13-Nov-2008
Testing Period : 13-Nov-2008 to 20-Nov-2008

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

Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944

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Test Result(s):

Sample Description : PbSn5Ag1.5 Solder Wire

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC62321 Ed1 111/95/CDV2. Analysis was performed by ICP/AES	n.d.	2	100
Lead (Pb) ⁺	mg/kg	With reference to IEC62321 Ed1 111/95/CDV2. Analysis was performed by ICP/AES	935333	2	1000
Mercury (Hg)	mg/kg	With reference to IEC62321 Ed1 111/95/CDV2. Analysis was performed by ICP/AES	n.d.	2	1000
Hexavalent Chromium (CrVI) (By boiling water extraction)	---	With reference to IEC62321 Ed1 111/95/CDV2. Analysis was performed by Colorimetric Method	Negative	-	#
Sum of PBBs	mg/kg	With reference to IEC 62321, Ed.1 111/95/CDV2. Analysis was performed by GC/MS	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		n.d.	5	-
Decabromobiphenyl	mg/kg		n.d.	5	-
Sum of PBDEs	mg/kg		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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- 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.

Remarks: Sample received was totally dissolved by preconditioning method.

Lab Analyst(s): Jay and Ray

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

Sample photo:

Sample Description : PbSn5Ag1.5 Solder Wire

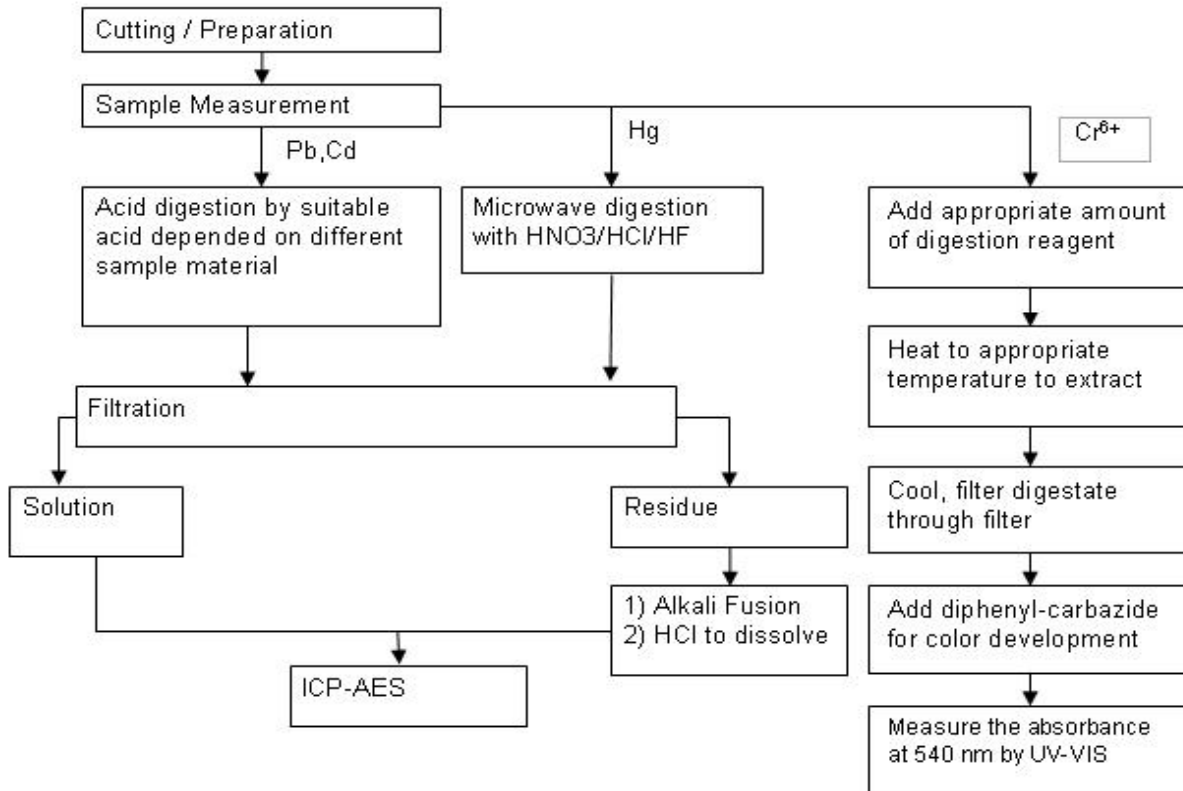
SGS authenticate the photo on original report only



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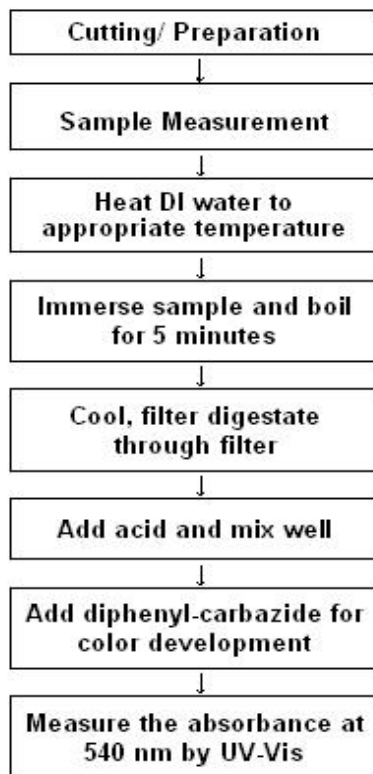
Process Flow of IEC 62321 (Pb, Cd, Hg & Cr⁶⁺)



Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944

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Process Flow of Cr6+ by boiling water extraction (IEC62321)

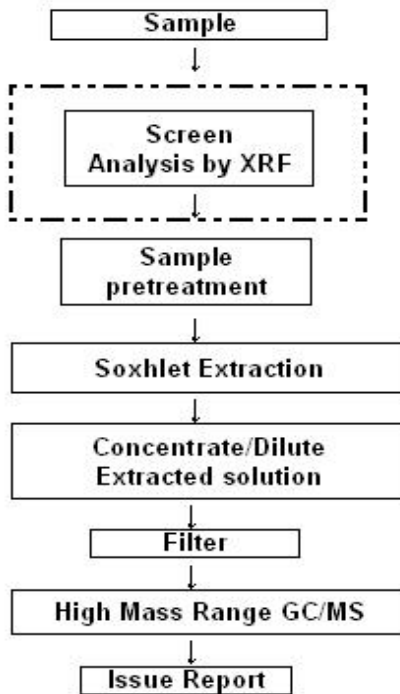


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Process Flow of PBBs and PBDEs by GC/MS (IEC 62321)

First Testing Process → Optional screen process Confirmation process ...→



End of Report

Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944

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Test Report

No.10111181C/08 (2)

Date: January 22, 2008

Page 1 of 5

Sumitomo Bakelite (S) Pte Ltd
1 Senoko South Road,
Singapore 758069

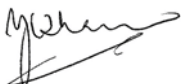
The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Description : EME-7351 Type LS (8012542)
Sample Receiving Date : 17 January 2008
Testing Period : 18 January 2008 to 21 January 2008
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 samples, the results are **compliant** with the limits of 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

Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944

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Test Report

No.10111181C/08 (2)

Date: January 22, 2008

Page 2 of 5

Test Result(s):

Sample Description : EME-7351 Type LS (8012542)

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV – Section 12. Analysis was performed by ICP/AES.	n.d.	2	100
Lead (Pb)	mg/kg		n.d.	2	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV – Section 10. Analysis was performed by ICP/AES.	n.d.	2	1000
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV – Section 8. Analysis was performed by Colorimetric Method.	Negative	See Note (4)	#
Sum of PBBs	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV – Section 7. Analysis was performed by GC/MS.	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		n.d.	5	-
Decabromobiphenyl	mg/kg		n.d.	5	-
Sum of PBDE (Mono to Nona)(Note 6)	mg/kg		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	-	
Sum of PBDEs (Mono to Deca)	mg/kg	n.d.	-	-	

Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944

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Test Report

No.10111181C/08 (2)

Date: January 22, 2008

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- Note:
- (1) mg/kg = ppm
 - (2) n.d.= Not Detected = Denoted less than MDL
 - (3) MDL = Method Detection Limit
 - (4) 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 cm² sample surface area.
 - (5) # : Positive means the presence of Cr(VI) on the tested areas and result be regarded as not comply with RoHS requirement.
 Negative means the absence of Cr(VI) on the tested areas and result be regarded as comply with RoHS requirement.
 - (6) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
 - (7) “-“ = Not regulated
 - (8) “ --- “ = Not Conducted

Remarks: Sample received was totally dissolved by preconditioning & destroyed after the analysis.
 Lab Analyst: Christine Choy, Irene Li & Jessica Chong.

Sample photo:



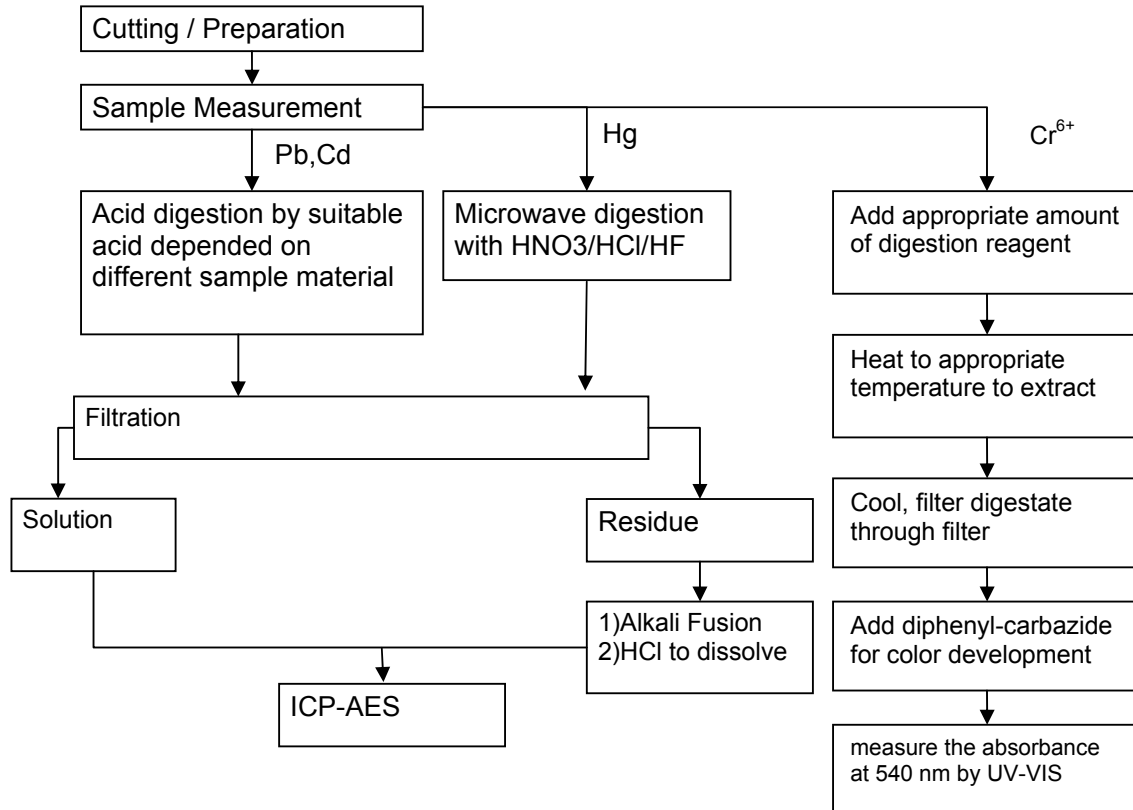
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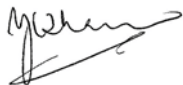
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Process Flow of IEC 62321 (Pb, Cd, Hg & Cr⁶⁺)



Lab Analyst : Jessica Chong & Christine Choy.

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

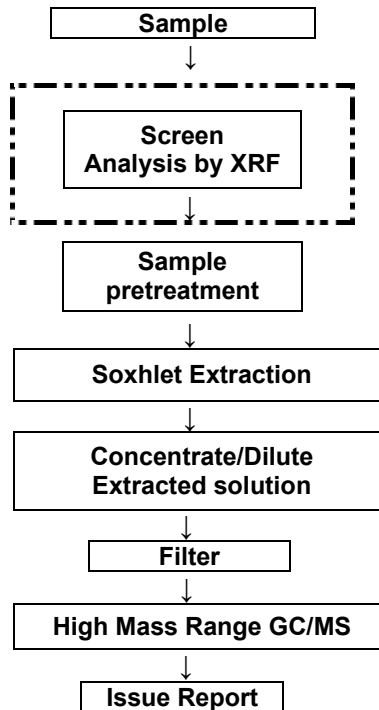


Y.C. Tham
Laboratory Manager

Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944
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Process Flow of PBBs and PBDEs by GC/MS (IEC 62321)

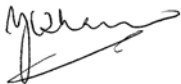
First Testing Process → Optional screen process Confirmation process ...→



Lab Analyst : Irene Li

Sample received has been totally digested and dissolved by preconditioning method.

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



Y.C. Tham
Laboratory Manager

End of Report

Test Location: 26 Ayer Rajah Crescent, #07-07, Singapore 139944
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Test Report

No. SH8075804/CHEM

Date: May. 31, 2008

Page 1 of 4

SHANGHAI YUANHAO SURFACE FINISHING CO., LTD.
NO.8, LANE18, SANZHUANG ROAD, SONGJIANG EXPORT PROCESSING ZONE, SHANGHAI

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

Sample Name : MATTE TIN
SGS Ref No. : 11051414
Main Substance : PURE TIN

Sample Receiving Date : May.28, 2008
Testing Period : May.28 – 31, 2008

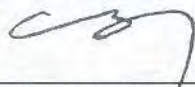
Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321/2nd CDV (111/95/CDV)
Procedures for the Determination of Levels of Regulated Substances in
Electrotechnical Products
(1) Determination of Cadmium by ICP.
(2) Determination of Lead by ICP and AAS.
(3) Determination of Mercury by ICP.
(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method.

Test Results : Please refer to next pages

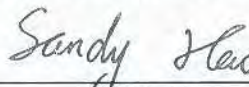
Conclusion : Based on the performed tests on submitted samples, the results comply with the
RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS-CSTC Chemical Laboratory



Ella Zhang
Section Manager

Signed for and on behalf of
SGS-CSTC Chemical Laboratory



Sandy Hao
Lab Manager

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Test Report

No. SH8075804/CHEM

Date: May. 31, 2008

Page 2 of 4

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

Test Item(s):	Method (refer to)	1	MDL	RoHS Limit
Cadmium(Cd)	(1)	ND	2	100
Lead (Pb)	(2)	ND	2	1000
Mercury (Hg)	(3)	ND	2	1000
Hexavalent Chromium (CrVI) by spot test / boiling-water extraction	(4)	Negative	See Note (4)	#

Test Part Description:

1. Silvery-white metal part

Note:

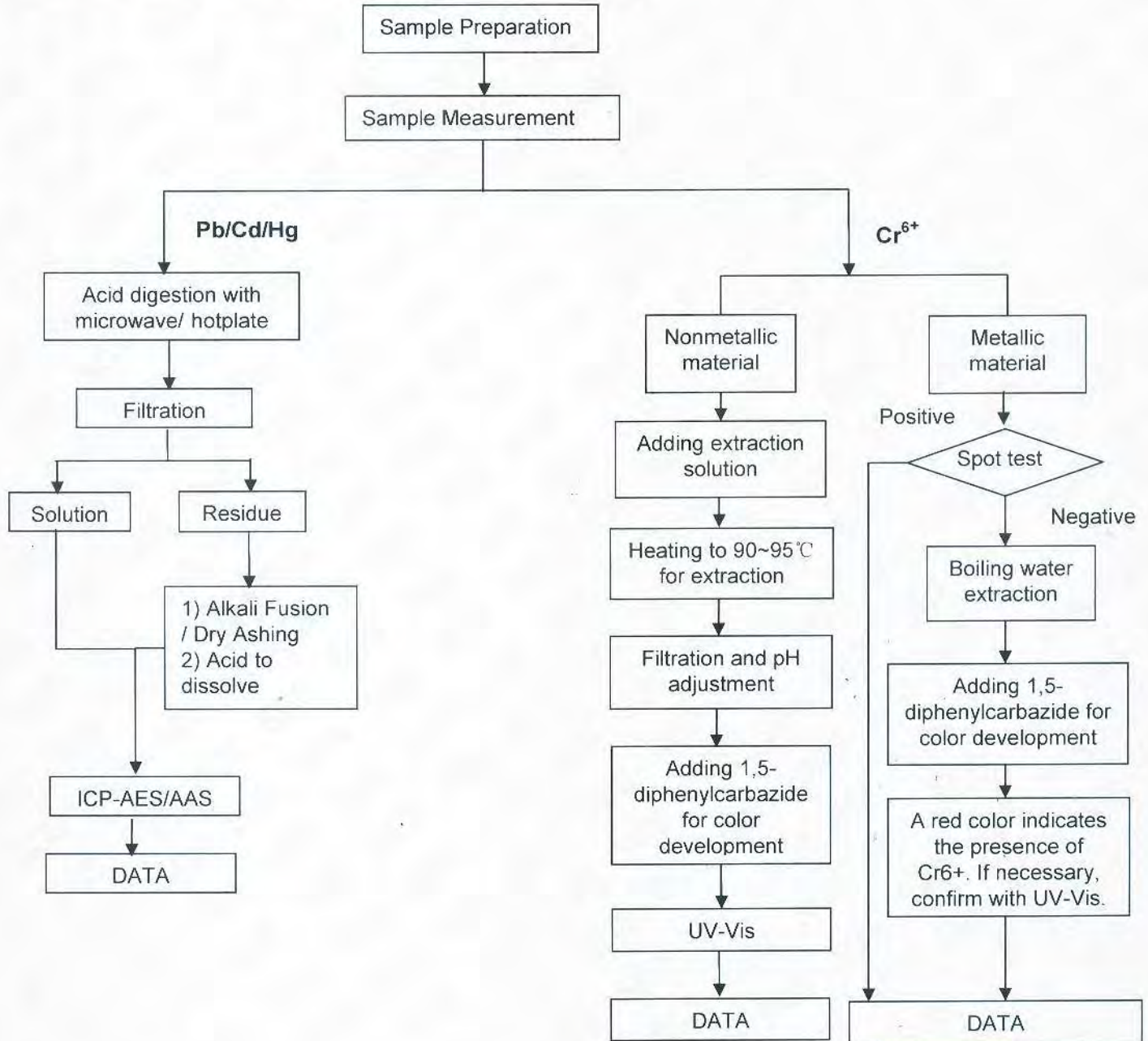
- (1) mg/kg = ppm
- (2) ND = Not Detected
- (3) MDL = Method Detection Limit
- (4) Spot-test:
Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)
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 cm² sample surface area.
- (5) # = Positive indicates the presence of Hexavalent Chromium on the tested areas.
Negative indicates the absence of CrVI on the tested areas.
- (6) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

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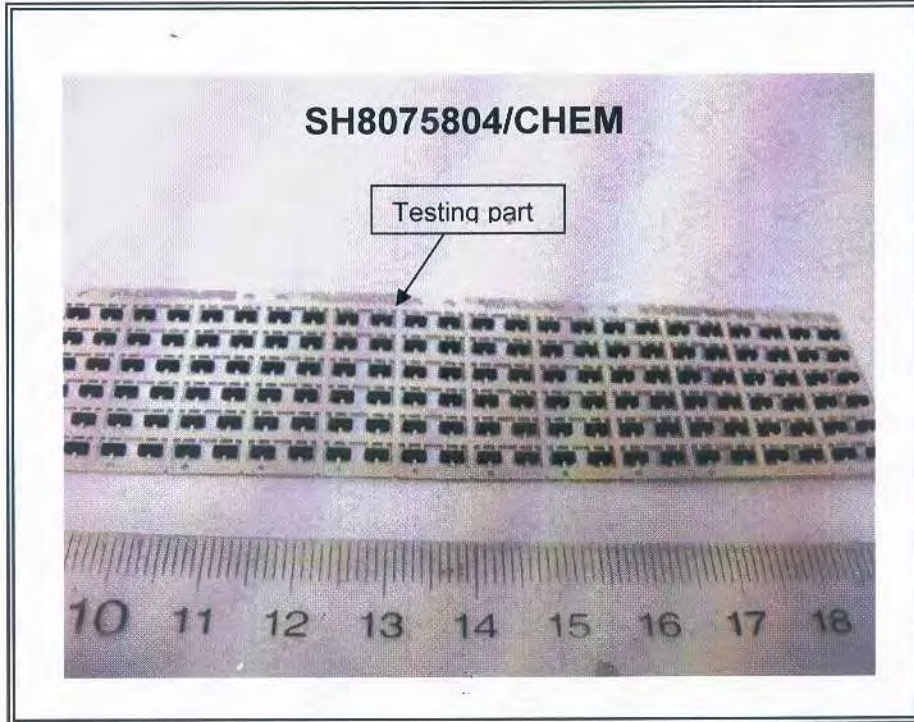
ATTACHMENTS

- 1) Name of the person who made measurement: Cathy Cai/George Xu
- 2) Name of the person in charge of measurement: Terry Wang



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Sample photo:



SGS authenticate the photo on original report only

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