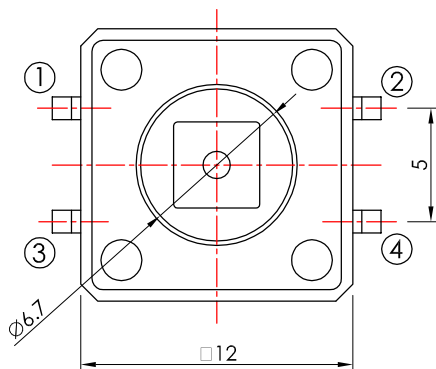


版本：V2.2

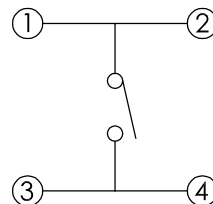
本圖面若與目錄之規格尺寸不符，以本圖面規格尺寸為主。

Below is our main specification if different from catalog.

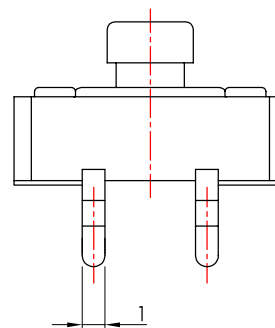
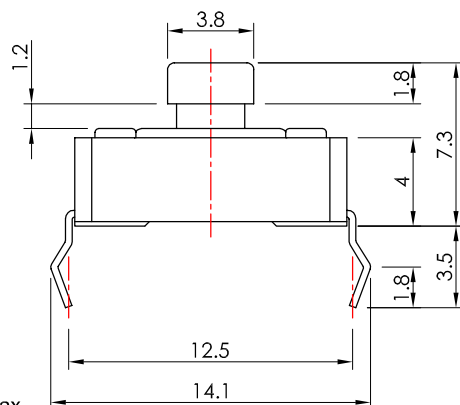
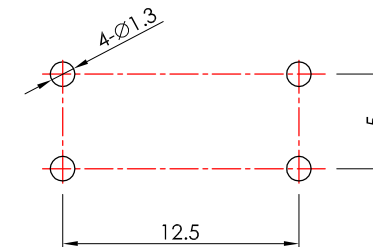
RoHS compliant



CIRCUIT DIAGRAM



P.C.B LAYOUT



SPECIFICATION

Rating: 50mA 12V DC Max.

Operating force: 160±50g.

Travel: 0.3±0.15mm.

Contact resistance: 100mΩ Max. (initial)

Life: 100,000 Cycles Min.

Minimum load: 10mA 3.3V DC. (reference only)

Soldering temperature: 250°C Max for 3 Sec.

Soldering time: 1 time only.

Note: Note washable, don't immerse into epoxy and organic solvent.

MATERIAL

Base: Nylon 66, UL 94 HB.

Cover: SPCC, Ni plating.

Stem: Nylon 66, UL 94 HB.

Terminal: Brass t=0.2, Ag plating.

Contact: C5210R-EH t=0.05, Ag plating.

RoHS compliant

1273HA-XXXG-G

OPERATING FORCE

160, 250



V2.2	△		
V2.1	無	改 版	2008.01.24
V2.0	無	新繪製	2006.10.18
版本 VER.	符號 SYMBOL	修 改 內 容 ALTERATION	更新日期 DATE

產品 PRODUCT		Tact Switch		型號 MODEL NO.		1273HA-160G-G	
製圖 DRAWN BY	核圖 CHECKED BY	主管 APPROVED BY	單位 UNIT	mm			
Jack Liao	Alex Lin	Margaret Lee	比例 SCALE	3 : 1			
			公差 TOLERANCE	.X=±0.3mm, .XX=±0.2mm			

SWITRONIC
INDUSTRIAL CORP.
Switches



一綺電子企業股份有限公司

總公司：110 台北市信義路四段415號12樓之2

12F-2 NO. 415, SEC. 4, HSIN YI ROAD, TAIPEI, TAIWAN

TEL : 886-2-27290229 (Rep.) FAX : 886-2-27582086

URL : <http://www.switronic.com.tw>

E-MAIL : switches@ms36.hinet.net

一綺電子企業股份有限公司

SWITRONIC INDUSTRIAL CORP.

MODEL NO: 12XXHA SERIES

V2.2

V.DATE: 2008/01/23

1、 Induction :

This specification intends to provides a guideline for the engineering qualification and summarize the results of standard "Tact Switch". All the dimension here in millimeter unless indicated otherwise. All the tests and measurements shall be made in the following standard conditions unless otherwise specified.

Normal temperature	Temperature 5 to 35
Normal humidity	Relative humidity 45 to 85%
Normal pressure	Pressure 860 to 1060 m bars

2、 Electrical performance

Item	Test Condition	Specification
2.1 Contact resistance	To be measure with AC 1 K Hz \pm 200 Hz. (Max 20mV, Max 50mA)or 10mA, 5V DC. Applying a static load twice the operation force to the center of the stem	Max 100 m Ω
2.2 Insulation resistance	To be measured with an insulation measuring device of 500V DC between all the terminals and between the terminals and the frame for 1 minute \pm 5 seconds.	Min 100 M Ω
2.3 Dielectric breakdown voltage	AC 250V (50 - 60Hz ,2mA current) being applied between all the adjacent terminals and between the terminal and frame for 1 minute.	No breakdown insulation
2.4 Switch capacitance	To measured with frequency 1 MHz \pm 10 KHz applied between adjacent terminal and circuit.	Max 5PF
2.5 Bounce	Lightly striking the center of the stem at a rate encountered in normal use (15 to 20 operations per min) bounce shall be tested at "on" and "off".	10m sec Max



3、 Mechanical characteristic

Item	Test conditions	Specification
3.1 Operating force	Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the center of stem, the maximum load required for the stem to come to a stop shall be measured	160 ± 50 gf 250 ± 50 gf Other specified _____
3.2 Stop strength	Measurement is made with a static load applied to the foot of the control unit in the operating vertical direction. A static force of 3K gf being applied in one direction on the tip of the terminal for 1 minute. One time each terminal.	No bending or deflection experienced. The terminal may be bent, but shall not break or damage the insulation material.
3.3 Traveling Stroke	Placing the switch such that the direction of switch operation is vertical and then applying a static load twice the operating force to the center of stem, the travel distance for the stem to come to a stop shall be measured.	0.3±0.15 mm
3.4 Return Force	The sample switch is installed such that the direction of switch operation is vertical and, upon depression of the stem in its center the whole travel distance, the force of the stem to Return to its free position shall be measured.	50 gf Min
3.5 Vibration test	The range of vibration : 10 ~ 55 Hz Total width of vibration : 1.5 mm The proportion of vibration : 10 ~ 55~ 10 (Hz) approx. 1 minute The variation of the number of vibration : Logarithmic or approximately straight line The directions : 3 vertical directions including operation direction Duration : 2 hours each { total 6 hours }	Contact resistance (2.1)Max 50 mΩ Insulation resistance(2.2)Min100MΩ Dielectric breakdown voltage (2.3)AC 250 V 1 minute no breakdown insulation Operating force (3.1) :meet original spec. traveling stroke 0.25±0.1mm As per individual specifications no apparent effect on physical appearance or mechanical functions
3.6 Impact shock	Measurements shall be made following the test set forth below:	

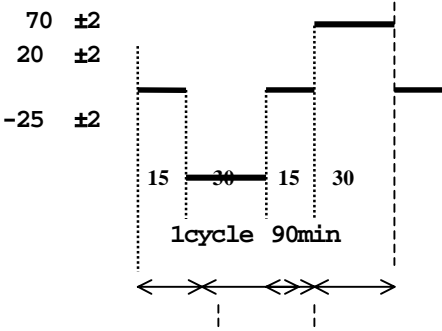


	(1).Acceleration:50G (2).Action time:11 ± 1 m sec (3).Cycles of test: 3 cycles each in 6 directions, for a total of 18 cycle.	
3.7 Solder ability	Soldering temperature : 250 max. Immersing time : 3 sec max.	More than 70%of the part immersed can be covered with solder.
3.8 Soldering temperature	P.C board terminal at 250 , 3second max. Soldering time : 1 time only.	No defect in appearance shall be observed but the electrical characteristic (2) shall be maintained.

4、 Reliability

Item	Test conditions	Specification
4.1 Cold resistance	Switch for testing being kept in the conditions at -30 ± 2 in temperature for 96 hours, and in a normal ambient condition for one hour, then to be measured within one hour. (Drops of water being taken away)	Contact resistance (2.1) Max 50 mΩ Insulation resistance(2.2) Min 100 MΩ Dielectric breakdown voltage: AC 250 V 1 minute no breakdown insulation Operating force (3.1) :meet original spec.
4.2 Dry heat resistance	Switch for testing being kept in the conditions at 70 ± 2 in temperature for 96 hours, and in a normal ambient condition for one hour, then to be measured within one hour.	There shall be no defects in appearance or in the mechanical functions
4.3 Resistance to humidity	Switch for testing being kept in the conditions at 40 ± 2 in temperature and 90 ~ 95 % RH for 96hours, and in a normal ambient condition for one hour, then measured within one hour.	Contact resistance (2.1) Max 200 mΩ Insulation resistance(2.2) Min 10 MΩ Dielectric breakdown voltage: AC250 V 1 minute no breakdown insulation Operating force (3.1) :meet original spec. There shall be no defects in appearance or in the mechanical functions
4.4 Salt-spray test	The sample is allowed to stand in the test chamber controlled to 35 ± 2 in temperature and $5\pm1\%$ (weight ratio) salt- water concentration for 24 ± 1 hours and is subjected to test. Then, salt deposits attached to the sample are washed away with water.	Shall be free from functionally harmful rust.



4.5 Temperature cycle test	<p>After 5 cycle testing under the following conditions, the sample is allowed to stand under normal temperature and humidity conditions for 1 hour, and measurement is made within 1 hour after that. Water drops should be eliminated.</p> 	<p>Contact resistance (2.1) Max 50 mΩ Insulation resistance(2.2) Min 100 MΩ Dielectric breakdown voltage: AC 250 V 1 minute no breakdown insulation Operating force (3.1) :meet original spec there shall be no defects in appearance or in the mechanical functions.</p>
---	--	---

5、Durability

Item	Test conditions	Specification
6.1 Operation life	<p>Measurements shall be made following the test set forth below:</p> <p>(1).DC 12V 50mA resistive load</p> <p>(2) Rate of operation: 15 to 20 operations per minute</p> <p>(3). Depression: Twice the operation force</p> <p>(4) Cycle of operation:</p> <p>50,000 cycles</p> <p>100,000 cycles</p> <p>500,000 cycles</p> <p>1,000,000 cycles</p>	<p>Contact resistance:500 m ohm Max</p> <p>Insulation resistance:10 M ohm Min</p> <p>Bounce 10 m sec Max</p> <p>operation force :initial force ±30%</p> <p>Item 2.3,3.3:original spec.</p>



一綺電子企業股份有限公司
SWITRONIC INDUSTRIAL CORP.

Material Certificate Sheet

Product	Tact Switch
Model No.	12XXHA Series

V2.0

DATE : 2010.01.28

No.	Parts Name	Material	Specification	Remark	LAB	Test Report No.
1	Base	Nylon 66	UL 94 HB		SGS	SHAEC1004900801
2	Cover	SPCC		Ni Plating	SGS	CANEC0905485701
3	Stem	Nylon 66	UL 94 HB		SGS	SHAEC1004900801
4	Terminal	Brass		Ag Plating (0.2t)	SGS CTI	Brass : SHAEC0900469101 Ag Plating : RLSHC000286660001C
5	Contacto	C5210R-EH		Ag Plating (0.05t)	SGS CTI	CANE1003186204
6						
7						
8						
9						
10						

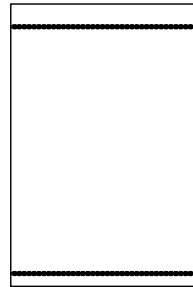
一綺電子企業股份有限公司

SWITRONIC INDUSTRIAL CORP.

入料包裝方式 Packing for Products

☒ 袋裝方式 Packing for polybag

成品
Products



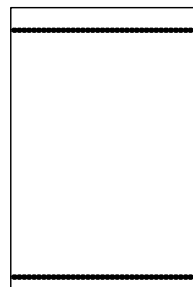
PE袋熱封
Sealed for PE-bag

Packing for polybag : 200 pcs / polybag , Quantity thickness for polybag : 0.08 mm.

Quantity desiccating agent : 1 pcs , Quantity Styrofoam board : 0 pcs.

☐ 袋裝方式 Packing for polybag

成品
Products



PE袋
PE-bag

Packing for polybag : _____ pcs / polybag.

Quantity thickness for polybag : _____ mm , Quantity desiccating agent : _____ pcs.

一綺電子企業股份有限公司

SWITRONIC INDUSTRIAL CORP.

產品綠色環保標章

"G" Mark for All RoHS Compliant Products

環保標章式樣

Initial "G": Standing for Green Label



外箱標示

Marked on The Outside of Carton As:





Test Report

No. SHAEC1004900801

Date: 26 Apr 2010

Page 1 of 5

YUEQING CHENGXIN PLASTIC CO., LTD

HONGQIAO TOWN, YUEQING CITY, ZHEJIANG PROVINCE NO.165 HONGQIAO ROAD

The following sample(s) was/were submitted and identified on behalf of the clients as : MODIFIED NYLON 66 ENGINEERING PLASTIC

SGS Job No. : SP10-013030 - SH
Composition : PA66
Model No. : 2030GB
Date of Sample Received : 21 Apr 2010
Testing Period : 21 Apr 2010 - 26 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 : 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 Ltd.

Crystal Zhou

Zhou Yan, Crystal
Report Reviewer

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Test Report

No. SHAEC1004900801

Date: 26 Apr 2010

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA10-049008.001	Black plastic pellet

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 Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs content by GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	7
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Report

No. SHAEC1004900801

Date: 26 Apr 2010

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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
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 :

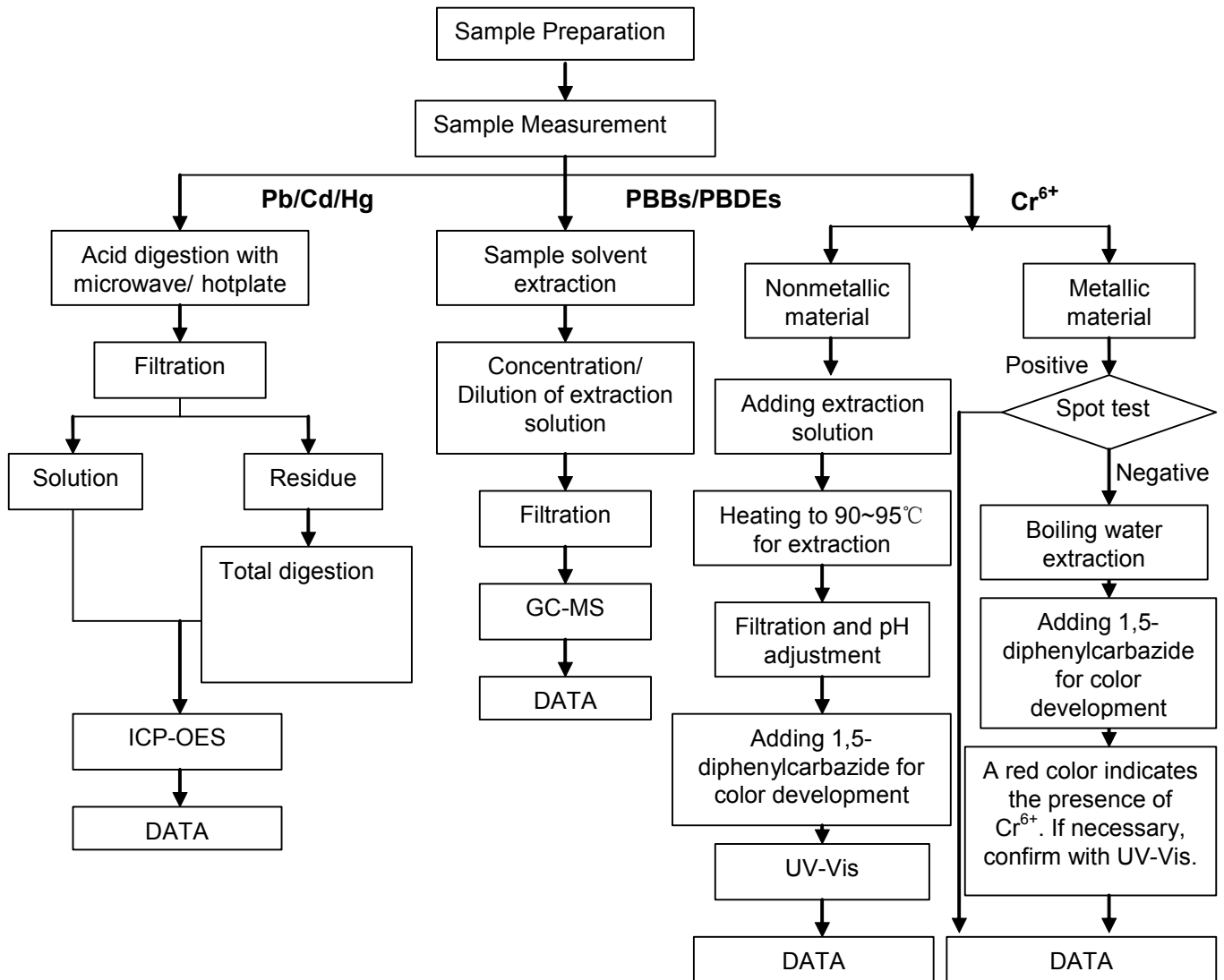
- (1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

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ATTACHMENTS

- 1) Name of the person who made measurement: Allan Xiao/Spring Zuo/Frank Fang/ Elim Lin
- 2) Name of the person in charge of measurement: Terry Wang/Phoebe Shen
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded)



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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No. CANEC0905485701

Date: 06 Nov 2009

Page 1 of 3

FOREVER WILL BENEFIT(ADVANTAGE XIN)HARDWARE GALVANIZATION FACTORY
DA YOU VILLAGE SHI WAN TOWN BO LUO COUNTY HUI ZHOU CITY
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :
ELECTRICITY NICKEL SHEET COPPER

SGS Job No. : 12243910 - GZ
Date of Sample Received : 14 May 2009
Testing Period : 14 May 2009 - 18 May 2009
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results **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

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Test Report

No. CANEC0905485701

Date: 06 Nov 2009

Page 2 of 3

Test Results:

ID for specimen 1 : CAN09-054857.001
Description for specimen 1 : Silver-grey plated metal

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	20	2	1000
Mercury (Hg)	mg/kg	IEC 62321:2008, ICP-OES	N.D.	2	1000
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 cm² 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. # = Positive indicates the presence of CrVI on the tested areas.

Negative indicates the absence of CrVI on the tested areas.

6. "-" = Not regulated

Remark: Results and photo(s) of this report refer to test report CANEC0902522301.

Test Report

No. CANEC0905485701

Date: 06 Nov 2009

Page 3 of 3

Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No. SHAEC0900469101

Date: 05 Jan 2010

Page 1 of 5

SHANGHAI LONGTAI COPPER INDUSTRY CO., LTD
NO.3750 ZHOUIJAZUI ROAD, SHANGHAI, CHINA

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

SGS Job No. : SP09-003061 - SH
Composition : CU, ZN
Model No. : H65
Date of Sample Received : 30 Dec 2009
Testing Period : 30 Dec 2009 - 05 Jan 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.

Hao Jinyu, Sandy
Lab Manager

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Test Report

No. SHAEC0900469101

Date: 05 Jan 2010

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	SHA09-004691.001	Copper metal

Remarks :

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

RoHS Directive 2002/95/EC

Test Method : (1) With reference to IEC 62321:2008 for Cadmium content.

Analysis was performed by ICP-OES.

(2) With reference to IEC 62321:2008 for Lead 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 JIS H8625: 1993, analysis was performed by UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	18
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	µg/cm²	0.02	ND

Notes :

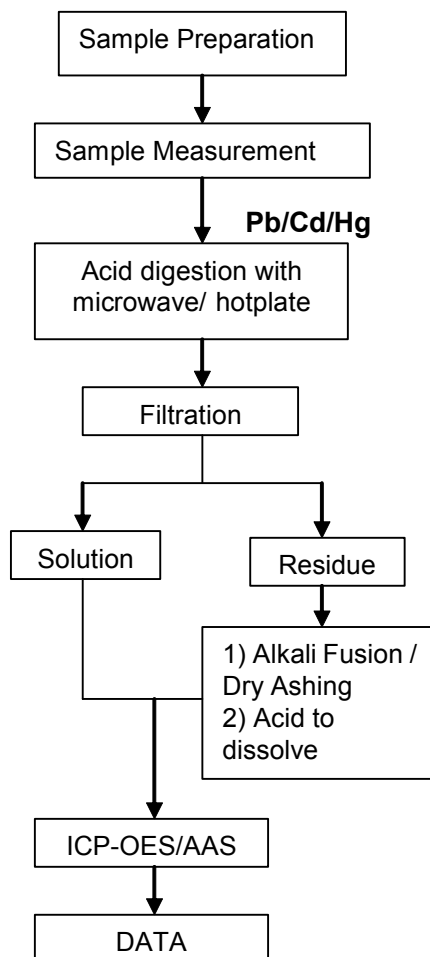
- (1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

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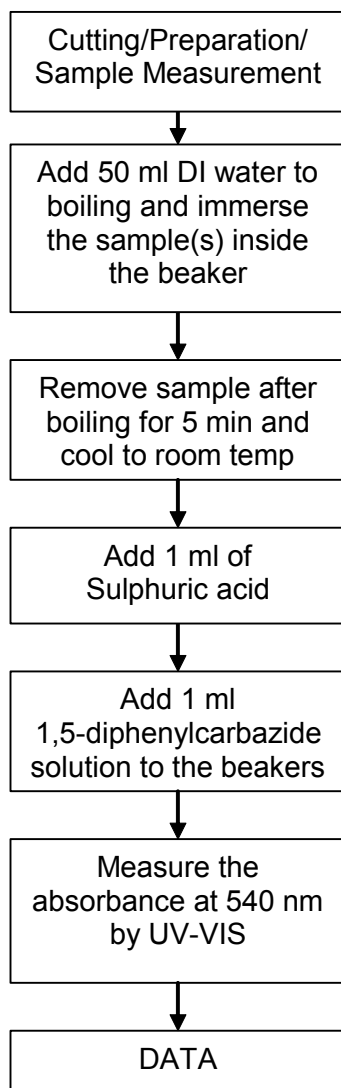
ATTACHMENTS

- 1) Name of the person who made measurement: Jeff Zhang
- 2) Name of the person in charge of measurement: Terry Wang



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CrVI Measurement Flowchart for sample



Tested by : Frank Fang
Checked by : Terry Wang

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检测报告

报告编号 RLSHC000286660001C

第 1 页 共 3 页

申请单位 乐清市石帆表面处理有限公司东升电镀厂

地 址 浙江省乐清市石帆镇西洙后湾山脚

样品信息

样品名称 电镀银镀层

样品描述 有银色镀层的金属

材料名称 银

样品接收日期 2010. 04. 26

样品检测日期 2010. 04. 26—2010. 04. 30

检测要求

根据客户要求, 测定所提交样品中的铅(Pb), 镉(Cd), 汞(Hg), 六价铬(Cr(VI))的含量。

检测依据

测试项目	测试方法	测试仪器	方法检测限
铅(Pb)	IEC 62321:2008 Ed. 1 Sec. 9	ICP-OES	2mg/kg
镉(Cd)	IEC 62321:2008 Ed. 1 Sec. 9	ICP-OES	2mg/kg
汞(Hg)	IEC 62321:2008 Ed. 1 Sec. 7	ICP-OES	2mg/kg
六价铬(Cr(VI))	IEC 62321:2008 Ed. 1 Annex B	UV-Vis	/

检测结果 请参见下页

主 检:



签 发:

技术经理

审 核:



签发日期:

2010. 04. 30

No. 94221061

检测报告

报告编号 RLSHC000286660001C

第 2 页 共 3 页

检测结果

测试项目	含量
铅 (Pb)	32 mg/kg
镉 (Cd)	N. D.
汞 (Hg)	N. D.
六价铬 (Cr (VI))	Negative

注释: 对于检测铅, 镉, 汞之样品已完全溶解。

-N.D. = 未检出 (小于方法检测限)

-mg/kg = ppm = 百万分之几

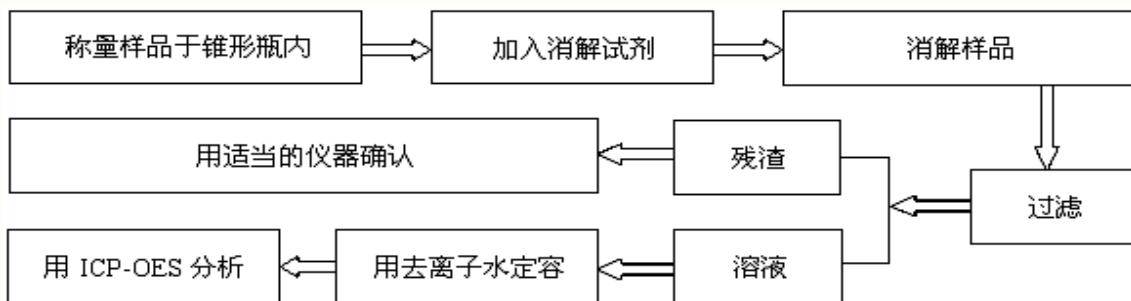
-Negative表示阴性

阴性=不含有六价铬, 由表面积为50cm²的样品所萃取出来的溶液中的六价铬的浓度小于0.02mg/kg

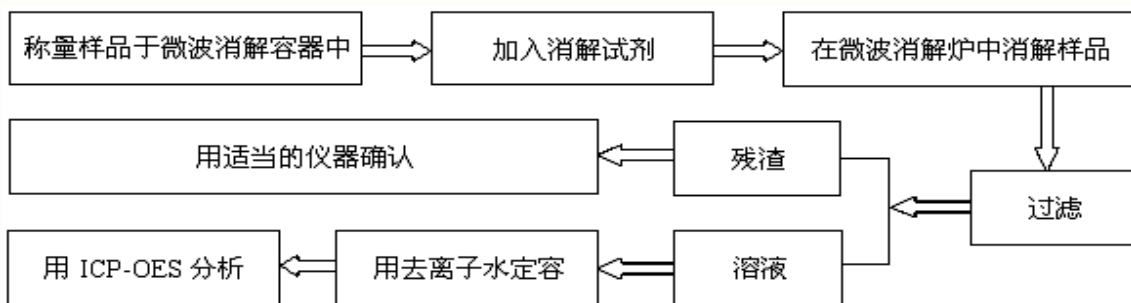
备注: 报告编号中“C”表示此报告为中文版本。

检测流程

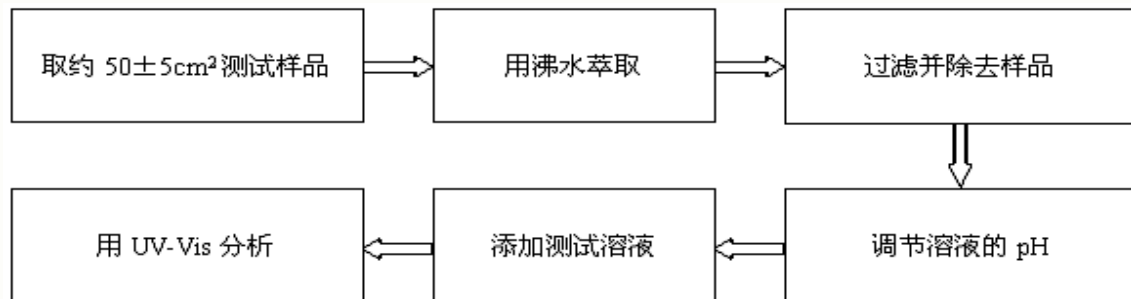
1. 铅 (Pb), 镉 (Cd)



2. 汞 (Hg)



3. 六价铬 (Cr (VI))

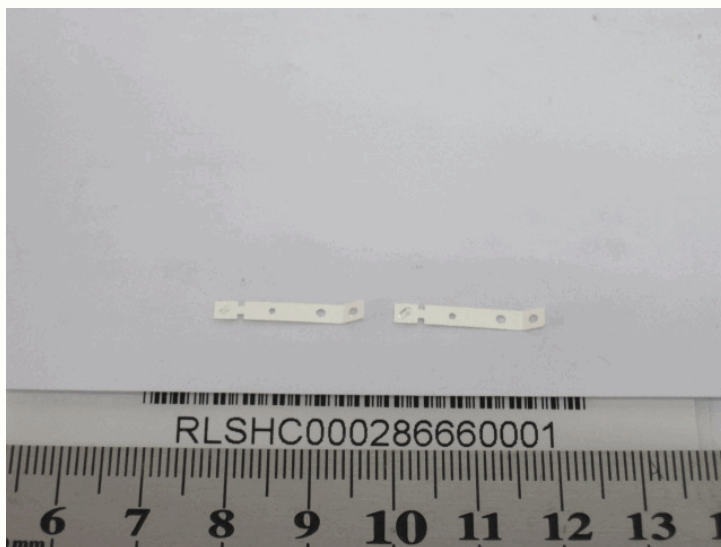


检测报告

报告编号 RLSHC000286660001C

第 3 页 共 3 页

样品图片



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上海市浦东新区新金桥路1996号

Test Report

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Date: 29 Jul 2010

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FIRST DOME CORP.

XIE KENG INDUSTRIAL PARK,XIE KENG ADMINISTRATIVE AREA QING XI TOWN,DONG GUAN CITY
GUANG DONG PROVINCE
CHINA

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

磷青铜单面覆银散装弹片

SGS Job No. : 12645662 - GZ
SGS Internal Reference No. : 6.4
Date of Sample Received : 26 Jul 2010
Testing Period : 26 Jul 2010 - 29 Jul 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.



Alpher Qiu
Approved Signatory



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Test Results:

ID for specimen 1 : CAN10-031862.004
Description for specimen 1 : Copper-colored metal piece w/ silvery plating

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	29	2	1000
Mercury (Hg)	mg/kg	IEC 62321:2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by boiling water extraction	-	IEC 62321:2008, UV-Vis	Negative	◇	#
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	

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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 cm² 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. # = Positive indicates the presence of CrVI on the tested areas.
Negative indicates the absence of CrVI on the tested areas.
6. "- " = Not regulated

B:Phthalate(s)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Dimethyl Phthalate (DMP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diethyl Phthalate (DEP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dibutyl Phthalate (DBP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Benzylbutyl Phthalate (BBP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Di-(2-ethylhexyl) Phthalate (DEHP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisononyl Phthalate (DINP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Di-n-octyl Phthalate (DNOP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisodecyl Phthalate (DIDP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Diiso butyl Phthalate (DIBP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dinonyl Phthalate (DNP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisooctyl Phthalate (DIOP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Dipropyl Phthalate (DPrP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dicyclohexyl Phthalate (DCHP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dipentyl Phthalate (DPP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Dibenzyl Phthalate (DBzP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diphenyl Phthalate (DPhP)	% (w/w)	EN14372: 2004, GC-MS	N.D.	0.003

Note :

1. mg/kg = ppm; 0.1% = 1000ppm
2. N.D. = Not detected (< MDL)
3. MDL = Method Detection Limit

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For reference:

Entry 51/52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):

For DBP, BBP, DEHP

(1) Shall not be used as substances or in mixtures, in concentrations greater than 0,1 % by weight of the plasticised material, in toys and childcare articles.

(2) Toys and childcare articles containing these phthalates in a concentration greater than 0,1 % by weight of the plasticised material shall not be placed on the market.

For DINP, DNOP, DIDP

(1) Shall not be used as substances or in mixtures, in concentrations greater than 0,1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.

(2) Such toys and childcare articles containing these phthalates in a concentration greater than 0,1 % by weight of the plasticised material shall not be placed on the market.

C:PFOA & PFOS (Perfluorooctanoic acid & Perfluorooctane sulfonates)

Test Item(s)	Unit	Test Method (Reference)	Result	MDL
Perfluorooctanoic acid (PFOA)	µg/m ²	EPA 3550C: 2007, LC-MS	N.D.	1
Perfluorooctane sulfonates (PFOS)	µg/m ²	EPA 3550C: 2007, LC-MS	N.D.	1
PFOS Acid				
PFOS Metal Salt				
PFOS Amide				

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

For reference: Entry 53 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2006/122/EC):

(1) May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0,005 % by mass.

(2) May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0,1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1µg /m² of the coated material.

D: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	N.D.	50

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Test Item(s)	Unit	Test Method (Reference)	Result	MDL
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

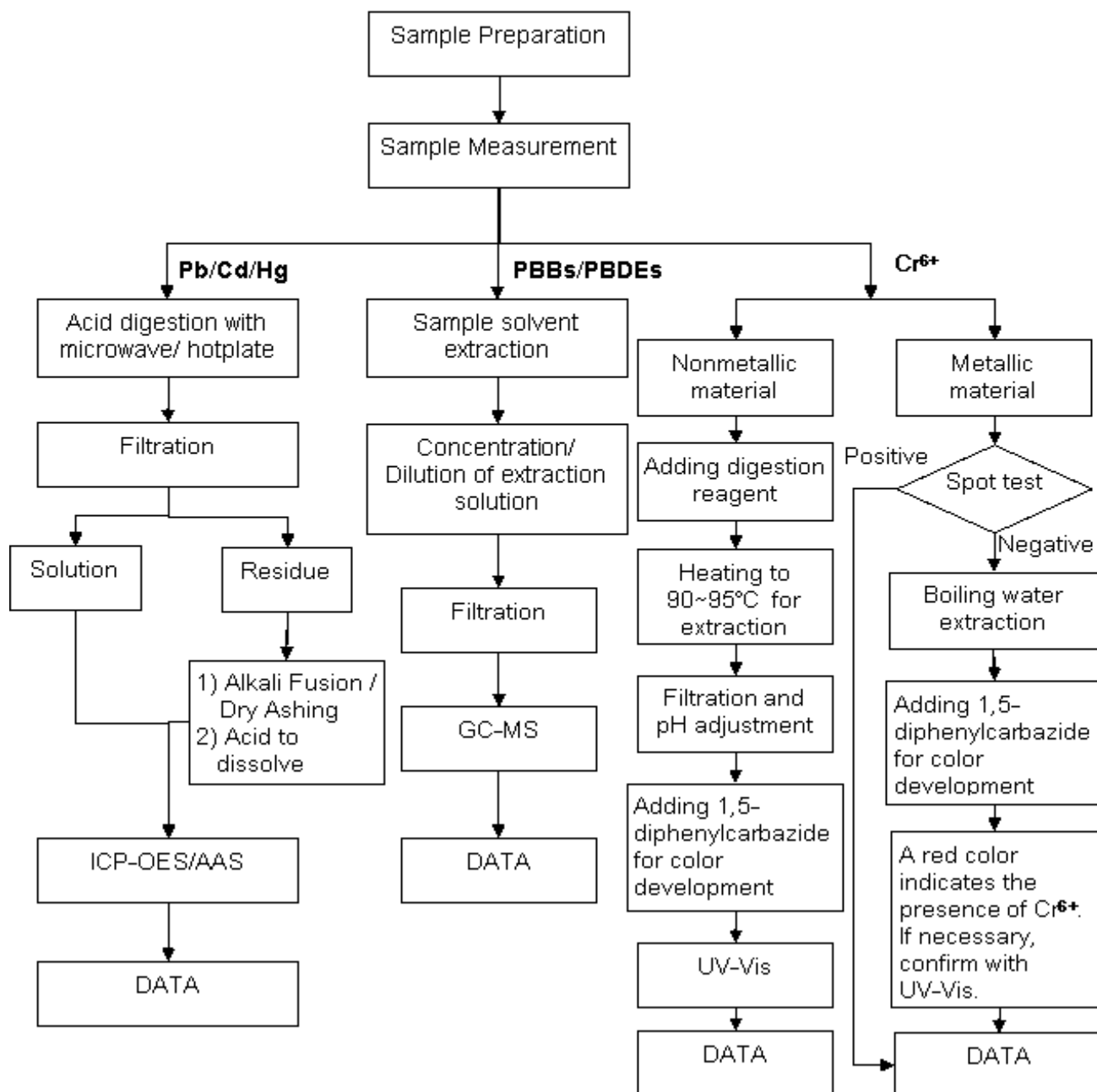
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ATTACHMENTS

RoHS Testing Flow Chart

1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan

2) Name of the person in charge of testing: Adams Yu / Ryan Yang

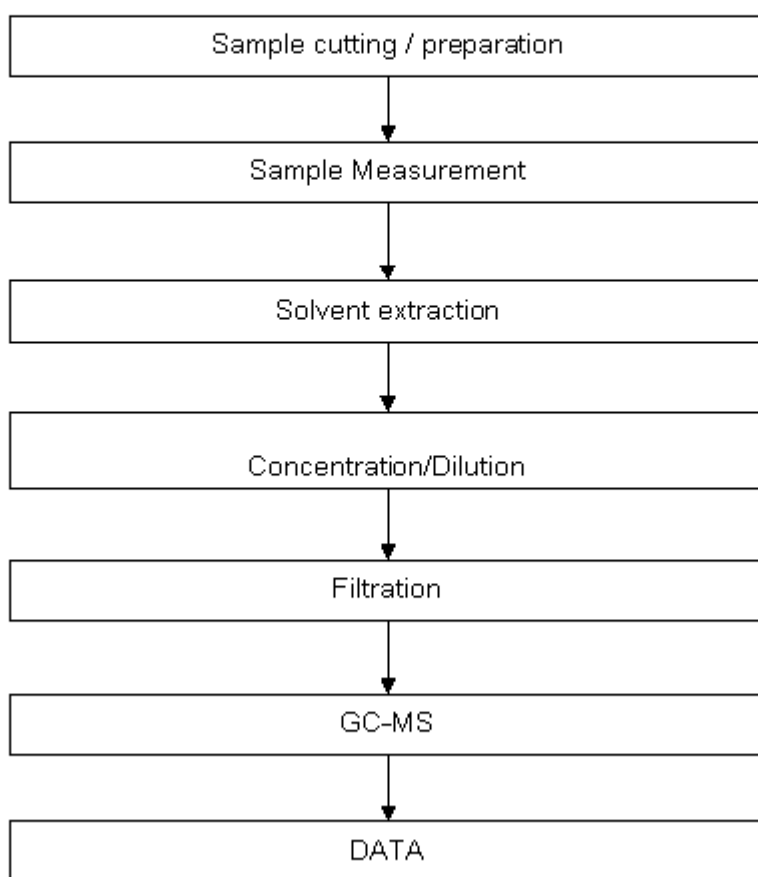


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ATTACHMENTS

Phthalates Testing Flow Chart

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

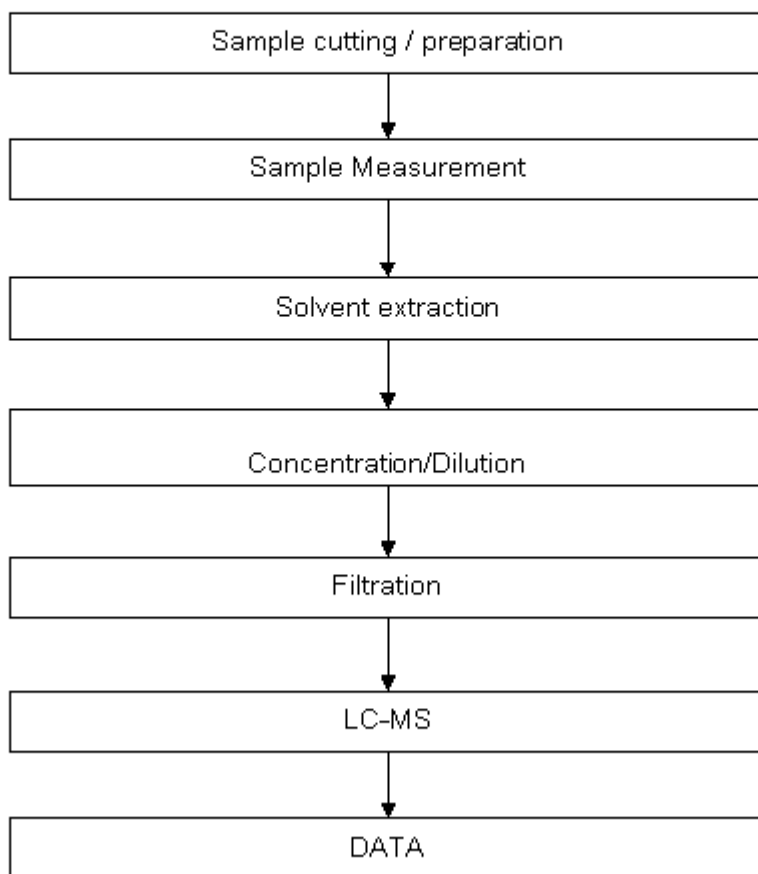


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ATTACHMENTS

PFOA / PFOS Testing Flow Chart

- 1) Name of the person who made testing: Cindy Huang
2) Name of the person in charge of testing: Ryan Yang

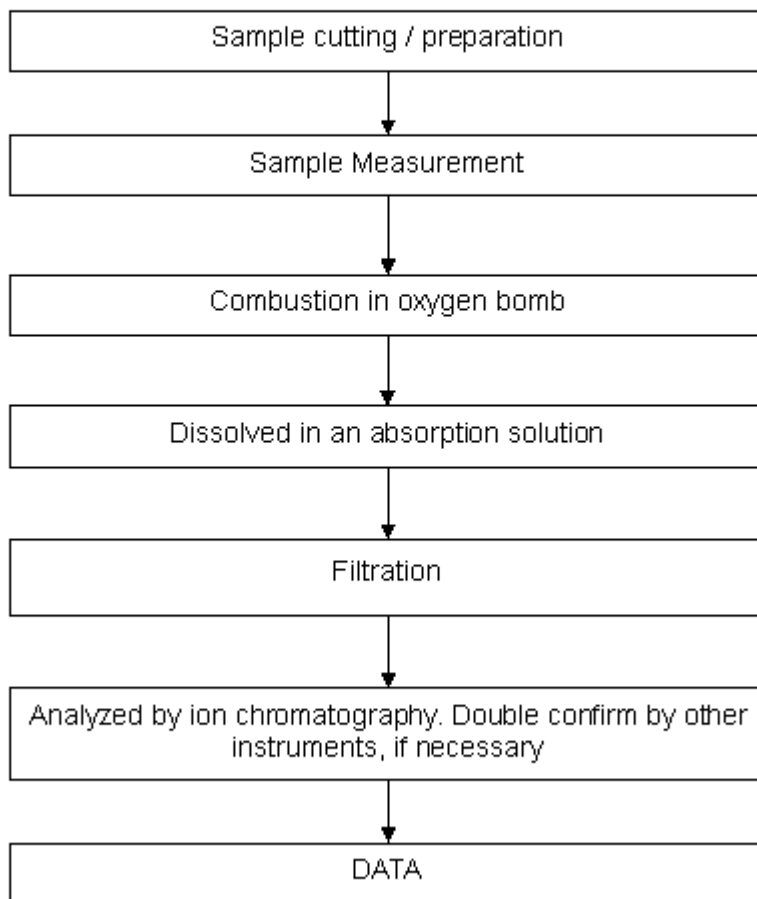


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ATTACHMENTS

Halogen Testing Flow Chart

- 1) Name of the person who made testing: Liang Wang
- 2) Name of the person in charge of testing: Michelle Song



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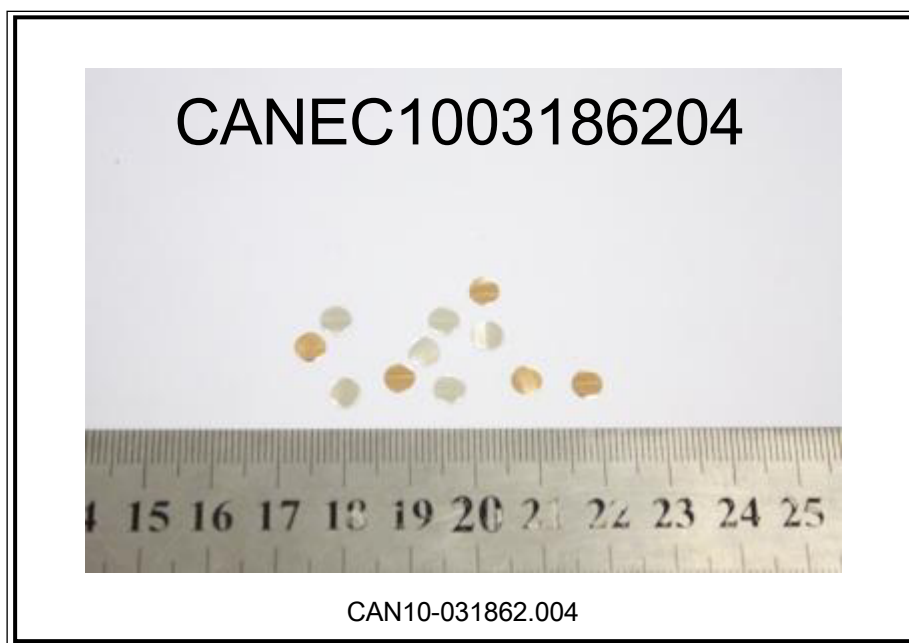
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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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