FLWCONN®

承认书

Approval Sheet

客户(Customer): /

客户料号 (Cus . P/N): /

华联威料号 (HLW P/N): 216104-1095-G61018

品名规格 (PronameSpec): FPC 高度2.0间距0.5 32PIN

送样日期 (Delivery Date):2022/03/21

承认日期 (Acknowledge Date): 2022/03/21

Approved No:	客	户								
	Customer									
采 购 部	品 质 部	工程 部	确认							
Purchasing Dept	QC Dept	Engineering Dept	Approved By							
深 垻	市华联威电	子科技有限公司								
SHEN ZHEN S	HI HUA LIAN WEI EI	LECTRONICS TECHNOLOG	Y CO; LTD.							
业务部	品 管 部	工 程 部	核 准							
Sales Dept	QC Dept	Engineering Dept	Checked By							
万金菊	欠必锋	魏红	唐竹君							

地址:深圳市龙华区观澜街道桂香社区观澜桂花路 307 号

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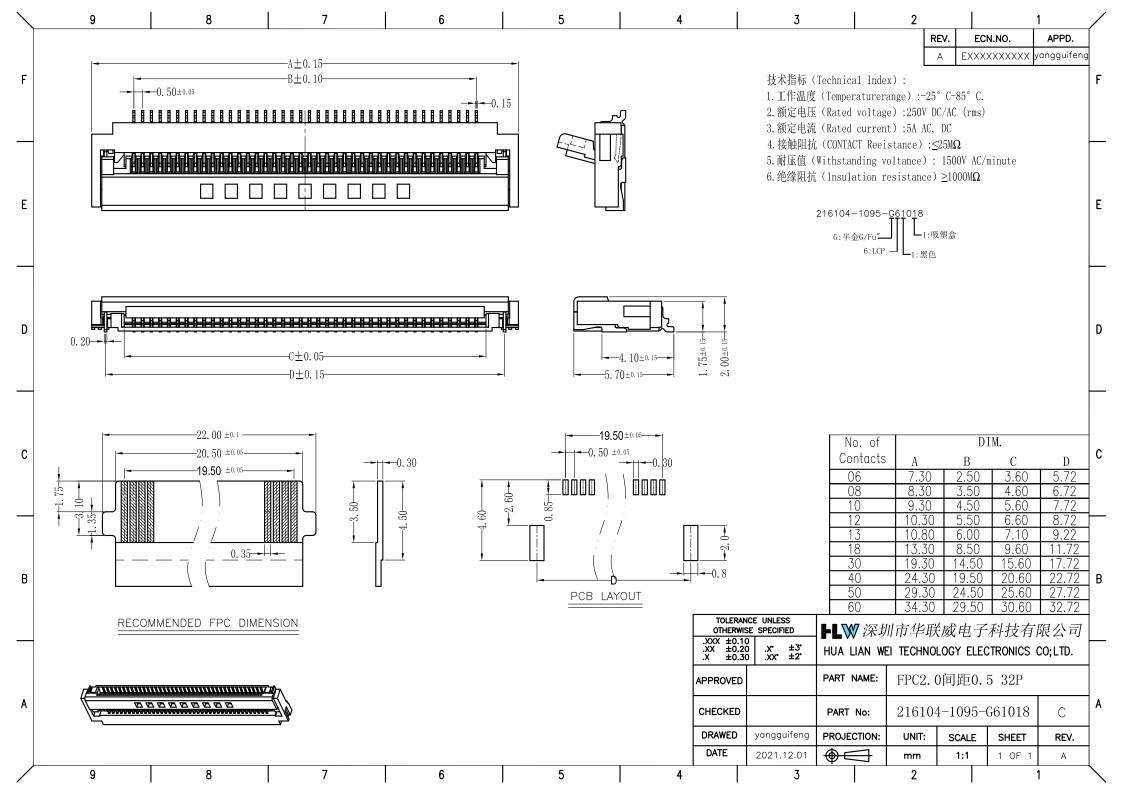


FLWCONN®

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rtwconn° 深圳市华联威电子科技有限公司

FPC系列產品SPEC

	TEST ITEM	TT し余りが生日の「	PROCEDURE
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
2	Operating Temperature		
3	Storage Temperature:	-25°C~+85°C	
		ELECTRICAL REQUIREM	ENT
4	Rating Voltage	50V AC max	
5	Rating Current	0.5Ampheres max	
6	Contact Resistance	[40]Milliohms Max.(Initial) [60]Milliohms Max.(Final)	Subject mated contacts assembled in housing to 40mV Max open circuit at 1A Max.
7	Dielectric No creeping discharge or flashover shall withstanding Voltage occur.Current leakage: 0.5mA Max.		200V AC for 1minute Test between adjacent circuits of unmated connector.
8	Insulation Resistance	500M Ohm Min	Impressed voltage 200 VDC.Test between adjacent circuits of unmated connector.
		Mechanical Requirement	t
9	Connector Withdrawal ForceForce	F(N)= P x 0.39 MIN (P: Number of Contacts) (With Black Slider) F(N)= P x 0.27 MIN (P: Number of Contacts) (With Brown Slider	Operation Speed: 25mm/min.Measure the force required to mate connector.
10	erminal &Solder Peg Retention Force	Test method complies with EIA-364-29	200gf MIN
11	Durability	See Note	Operation Speed: 200cycle/Hour.Durability Cycles: 20Cycles
12	Vibration	No electrical discontinuity greater than 1 μ sec shall occur.	Measure change in contact resistance after 2 hours of vibration in reach of the X,Y and Z directions. Frequency varying in 1 Minutes sweeping as 10~55~10 Hz with 1.5mm
13	Thermal Shock	5 Cycles - 55°C±3°C for 30 minutes. +85°C±2°C The connectors under test must be mated. There shall be no evidence of damage.	It shall be subjected to temperature cycle at the following condition 1 cycle consists of -55°C±3°C for 30 minutes. +85°C±2°C for 30minutes. Time of cycles: 5 cycles. Test method complies with EIA-364-32
		ENVIRONMENTAL REQUIRE	MENTS
14	Solder ability	Wet solder coverage:95%Min	Solder Temperature : 260±5°C, Duration:5±0.5sec.
15	Resistance to Wave Soldering Heat	No physical damage shall occur.	Solder Temp.: 260±5°C, 10±1sec.

16	Salt enray teet	Visual Inspection-No physical damage LLCR-60 m Ω max per contact	Mated connector expose to 5% salt concentration for 48 hours at temperature 35+2 °C. After the test specimens shall be washed with running water and dried naturally
----	-----------------	--	--

		Product (Qualificati	ion and R	equalific	ation test				
					Test	Group				
Test or Examination	Α	В	С	D	Е	F	G	H	I	J
				Т	est Sequ	uence (a	a)			
Examination of Product	1, 7	1, 9	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 3	1, 3
Contact Resistance		2, 8	2, 5	2, 4	2, 4	2, 4	2, 4			
Dielectric withstanding	3, 6									
Insulation Resistance	2, 5									
Temperature Rising								2		
Mating Force		3, 7								
Unmating Force		4, 6								
Durability		5								
Vibration			3							
Mechanical Shock			4							
Solderability										2
Resistance to Soldering									2	
Thermal Shock				3						
Humidity Temperature	4				3					
Temperature Life						3				
Salt Spray							3			
備注	無客戶	指定增加	加測試項	i目外,	 依照此	票准進行		靠性評価	估。	

核准: 唐竹君 制作人: 魏红



深圳市华联威电子科技有限公司

SHENZHENHUALIANWEIELECTRONICS CO., LTD.

測試報告

TEST REPORT

TEST REPORT														
產品 名稱 Part Name	FPC	高度2.0间	可距0.5 32PIN		測試日期 e of Testing		2022. 03 2022. 03		報告 Repor	編號 t NO.	MD20220319-01		1	
產品 型號 Part Name	21	16104–109	5-G61018	樣品數量 Quantity		5PCS 測試 Date of		^{- 現場} - 田野湿度						
一. 電	性測試 ELEC	CTRICAL TES	ST											
序號 NO	測試項目 Testing		試條件 g Conditions	測試設備 Testing Equipment	規格 SPEC			測試記錄Testing Result					判定 Judge	
1	Item 接觸阻抗		20mA	直流低電 阻測試儀	20m Ω Ma	ax	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	ОК V	NG	
2	絕緣阻抗	500 V	7 DC/1分钟	絕緣電阻 測試儀	5000 MΩ N	Min.	Pass	Pass	Pass	Pass	Pass	V		
3	耐壓測試		00V AC / mA 50秒	耐壓測試 儀	耐壓測試 No damaged		OK	OK	OK	OK	OK	v		
二. 机械特性測試 MECHANICAL TEST														
序號	測試項目 Testing	測試條件		測試設備 Testing 規格		測試記錄Testing Result				判定 Judge				
NO	Item	Testing	g Conditions	Equipment s	nt SPEC		1	2	3	4	5	OK	NG	
4	插入力	每分钟12.	. 7±3㎜的速度	插拔力計	间距 2.54mm 2.00mm 1.27mm	插拔 力 2.94 N MAX 1.96 N MAX 1.47 N MAX 0.78 4N MAX	OK	OK	OK	OK	OK	V		
5	拔出力	每分钟12.	. 7±3㎜的速度	插拔力計	间距 2.54mm 2.00mm 1.27mm	插拔 力 0.59 N MIN 0.49 N MIN 0.30 N MIN 0.15 N	OK	ОК	OK	OK	OK	V		
6	锁口保持力	间距 2.54mm 2.00mm 1.27mm 1.00mm	插拔力 9.8N MIN 7.84N MIN 2.45N MIN 0.08N MIN	吊重测试 机	不得发生物理。		OK	OK	OK	OK	OK	v		

7	耐久性	测试速度:每分钟15个循环,测试次数:100次循环最少	插拔力計	不得发生物理损坏。	OK	OK	OK	OK	OK	V		
三. 环	三.环境特性测试 ENVIRONMENTAL TEST											
序號	測試項目	7011 = r(1) \$2.14 =	測試設備 Testing	規格		測試記	錄Testing	g Result		判分 Jud		
NO	Testing Item	Testing Conditions	Equipment	SPEC	1	2	3	4	5	ОК	NG	
9		温度-40±3℃ 温度105±3℃ 持续时间0.5H	高低温试 验箱	不得发生物理损坏 。	OK	OK	OK	OK	OK	V		
10	湿温循环	温度85℃±5℃, 持续时间:250H	湿温循环 机	最大接触阻抗20m Ω	OK	OK	OK	OK	OK	V		
11	盐雾试验	温度:35±2℃ 12小时	盐雾试验 箱	最大接触阻抗20m Ω	OK	OK	OK	OK	OK	V		
12	可焊性	焊锡温度: 260±5℃	熔锡炉	沾锡面积达90%以 上	OK	OK	OK	OK	OK	V		
13	焊接耐热试 验	260±5℃ 10秒	工业烘烤 箱	不得发生物理损坏	OK	OK	OK	OK	OK	V		
	綜合判定 TEST JUDGMENT □ 合格(Acceptable) □ 不合格(Reject)											
核准	È(Approver):	欠必锋							測試(T	ester): 1	旦芬	

HLWCONN® 深圳市华联威电子科技有限公司 檢驗報告

■首件檢験	☆ □入庫檢驗 □	出貨檢	驗 口名		儉 □延	料檢縣	☆ 口事	丰他		2022年	三03月	21日 版	次:A1
料號	216104-1095-G6	1018	制令	單號		/	送檢	單位		[程部	首件	製作者	裝配
口力	FPC 高度2.0间距	0.5	安后	小叶		1	批	量		/	送椅	鐱時間	1
品名	32PIN		客戶	1555		1	數	量	5	5PCS	確記	忍時間	1
抽樣標準			■單次 □雙次				抽样	数	AQL	CRI:0	MAJ:0.40	MIN:0.6	
M	IL-STD-105E(II)		■正常 □加嚴 □減			量	(5PC	S)	ACC/RE.	0	/	/	
不良数:		CRI (/) 1	MAJ (/)	MIN (/)	不良	以率(%)	/
NO.	檢驗項目	檢測		檢	驗記	錄		品管判	『定	CRI	MAJ	MIN	備注
NO.	單位:MM/G	儀器	1	2	3	4	5	AC RE		CKI	IVIAJ	1 V11 1N	
	19.30±0.15	D	19.32	19.35	19.34	19.36	19.34	√					
	14.50±0.10	D	14.52	14.55	14.53	14.55	14.52	√					
	15.60±0.05	D	15.62	15.63	15.65	15.64	15.63	√					
	17.72±0.15	D	17.72	17.75	17.76	17.78	17.75	√					
尺	2.00±0.15	D	2.03	2.04	2.05	2.03	2.05	√					
寸	1.75±0.15	D	1.76	1.74	1.75	1.76	1.74	√					
	5.70±0.15	D	5.72	5.75	5.73	5.74	5.73	√					
測													
量													
- 生													
檢驗依據:	<<工程圖紙>>	<u></u>	檢驗規範	範>> []<<承	認書>>		蒙品 [コ其	它			
檢測儀器:	A游標卡尺 B千分尺	C厚薄	儀 D投景	彡鏡 E放	大鏡 I	顯微鏡	G錫爐	重 H插技	犮力	器 I間位	尺 J其	文 它	
品保判定:			合格Ac			Reject]特采 V			」挑選		

核准: 欠必锋 审核: 李娟 检验员: 但芬

FLWCONN® 深圳市华联威电子科技有限公司

电镀报告表

品名:FPC 高度2.0间距0.5 32PIN(端子) 电镀规格:Ni40u", Sn40u", Au G/Fu" 日期:2021-12-20 页次:1/1

厂商:同华

测试设备:CMI X-射线膜厚测试仪

1、底层电镀测试(Ni)

数据	测试标准	实测值	判定	测试日期	测试时间
1	40u″MIN	50. 5u"	OK	2021/12/20	10:20:15
2	40u″MIN	56. 3u"	OK	2021/12/20	10:20:17
3	40u"MIN	67. 5u"	OK	2021/12/20	10:20:19
4	40u″MIN	62. 4u"	OK	2021/12/20	10:20:21

2、表层电镀测试(Sn)

数据	测试标准	实测值	判定	测试日期	测试时间
1	40u"MIN	65. 3u"	OK	2021/12/20	10:25:10
2	40u"MIN	74. 7u"	OK	2021/12/20	10:25:12
3	40u"MIN	75. 9u″	OK	2021/12/20	10:25:14
4	40u"MIN	70. 4u"	OK	2021/12/20	10:25:16

3、表层电镀测试(Au)

数据	测试标准	实测值	判定	测试日期	测试时间
1	0.5u"MIN	0.56u"	OK	2021/12/20	10:30:32
2	0.5u"MIN	0. 54u"	OK	2021/12/20	10:30:34
3	0.5u"MIN	0. 57u"	OK	2021/12/20	10:30:36
4	0.5u"MIN	0.55u"	OK	2021/12/20	10:30:38

核准: 欠必锋 检验员: 但芬 审核:李娟

FLWCONN®

深圳市华联威电子科技有限公司

盐水喷雾实验报告

试验方法	盐水喷雾腐蚀试验法	参考资料	MIL-STD-1216
METHOD	NEUTRL SALT SPRAY CORROSION TEST	REF	MIL OID 1210
客户	/	试验起始日期	2022年03月18日 20:00 时起
各广	/	DATE	2022年03月19日 08:00 时止
样品名称	FPC 高度2.0间距0.5 32PIN	试验数量	5PCS
P/N	216104-1095-G61018		

试验条件 (TEST CONDDITION)

- 1、盐水溶解(SALT SOLUTION:浓度50±10g/L,PH值6.5-7.2.
- 2、试验室温度 (TEMP. IT THE SPRAY DHAMBR):35±1℃.
- 3、盐水桶温度 (TEMP. OF SALE SOL'N TANK): 35±1℃.
- 4、 压力桶温度 (TEMP.OF SAR SUPPLIERY): 47±1℃.
- 5、 试验室相对湿度(R.H IN THE CHAMBER) 85%.
- 6、 压缩空气压力(COMPRESSED AIR PRESSURE): 1.00±0.01Kg/cm².
- 7、 样品放置位置(SPECIMEN SUPPORTED ANGLE): 尼龙绳吊挂70°-90°.
- 8、 喷雾收集量(COLLECT RATE OF SALT SOL'N)1-2mL/(8 cm²hr).
- 9、盐雾测试时间: 12小时 (H)

判定方法(ADFUSGD METHOD)

试验后以20倍放大镜观察、无蓝、绿色腐蚀物之现象(不包含折弯处),即判定合格.(Inspext the ecimen at 20 xmagnification no blue or green corrosion products are acceptable)

样品序号	试验后现象	判定
件加力亏	PHENOMENON AFTER TEST	COMMENT
1	无蓝、绿色腐蚀物之现象	OK
2	无蓝、绿色腐蚀物之现象	OK
3	无蓝、绿色腐蚀物之现象	OK
4	无蓝、绿色腐蚀物之现象	OK
5	无蓝、绿色腐蚀物之现象	OK

核准:欠必锋 审核: 李娟 试验员:但芬

钜鼎銅材廠檢驗報告單

公司名稱 Customer	钜鼎銅材廠檢驗報告單			重量 Weight(kg)	1078	出貨日期 Date		2021/11/23			
品名	2 12 12 12	標	[准			尺寸		狀態		銅卷編號	
Article		Stand	ard No		Dime	Dimension		Tenper		Coil No	
C2680	v.	JISH31	00:2017		0.18	*400	E	EH	1021	-C-08	
				化學	式分Chemical Con	mpositions(%)					
元素 Element	Cu %	Zn%	Pb%	Fe%	\	\	1	\	化學成分	雜質	
規範 Spec	64.0-68.0	餘量	<0.05	<0.05	\	1	\	\	合格	合格	
實測 Actual	64.32	餘量	0.0036	0.0136	\	1	١	\	合格	合格	
				機械性	質子Mechanical	Properties					
項目	結晶粒度	硬度	抗拉強度	伸長度	導電率	彎曲試驗	表面	粗度	彎	曲度	
Item	Grain Size	Hardness	TensionStrength	Elongation	Electrical Conduc	Bending Test	Surface F	Roughness		mber	
	Mm	Hv	Mpa	%	%IACS	180	Ra(u m)	m	m\n	
規範MAX Spec	\	170-190	490-610	\	\	\		\	-	\	
實測 Actual	\	178	574	5	\	١		\		\ - ·	

品質部

聯系電話:0755-28111847 傳真: 0755-28110077 送货专用量

Materials Information

PRODUCT NAME: LCP M-401 BK

COMPOSITION/INFORMATION OF LCP M-401 BK

SUBSTANCE/MIXTURE: Mixture

SYNONYM(S): Aromatic Liquid Crystal Polymer(LCP)

品名	比例	用途
德众泰 LCP 树脂	0.565	构成材料主要成分
抗氧剂	0.002	抗氧化
科莱恩热稳定剂	0.003	增加高温稳定性
黑色母	0.01	着色
滑石粉	0.2	增强剂,增加流动性
玻纤	0.22	增强

NAME OF COMPANY. DZT Engineering Plastics Tech. Co.,Ltd

ADDRESS: Building 2 Zhichong Industrial Park, Hi-Tech Zone, Jiangmen City,

Guangdong Province, China

SECTION CHARGE: Quality Assurance Department

TEL/FAX: +86-750-3689920/+86-750-3689921

EMERGENCY TEL: +86-750-3689708





Test Report No. CANEC2222380701 Date: 26 Oct 2022 Page 1 of 4

Client Name: SHENZHEN HUALIANWEI ELECTRONICS TECHNOLOGY CO.,LTD

Client Address: 101, 201, PLANT 1, NO.307, GUANLAN GUIHUA ROAD, GUIXIANG COMMUNITY, GUANLAN

SUB-DISTRICT, LONGHUA DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

Sample Name: C2680 Terminal

Model No.: C2680 terminal after plating

Client Ref. Info.: Used for USB series, HDMI series, RJ series, 1394 series, MICRO series, MINI

series, DISPLAYPORT series, VGA series, DVI series, TYPE-C series, JACK

series

The above sample(s) and information were provided by the client.

SGS Job No. : CP22-057100 - GZ

Date of Sample Received: 20 Oct 2022

Testing Period: 20 Oct 2022 - 26 Oct 2022

Test Requested: Selected test(s) as requested by the client.

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

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

Result Summary:

Test Requested	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU-	PASS
Lead, Mercury, Cadmium and Hexavalent chromium	

Signed for and on behalf of SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Dongyu Xie Approved Signatory



有限公司 测专用章 Testing Services achical Service Co., Ltd.

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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 83071443, or email: CN. Doccheck@gss.com"

198 Kezhu Road,Scientech Park Guangzhou Economic & Technology Development District,Guangzhou,China 510663 中国 - 广州 - 经济技术开发区科学城科珠路198号 邮编: 510663 t (86–20) 82155555 t (86–20) 82155555



Test Report No. CANEC2222380701 Date: 26 Oct 2022 Page 2 of 4

Test Result(s):

Test Part Description:

Specimen No. SGS Sample ID Description

SN1 CAN22-223807.001 Silver-grey/brassy metal

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and **Hexavalent chromium**

Test Method: With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	3
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	_	μg/cm²	0.10	ND

中国·广州·经济技术开发区科学城科珠路198号

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 μg/cm². The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
 - c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.



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No. CANEC2222380701

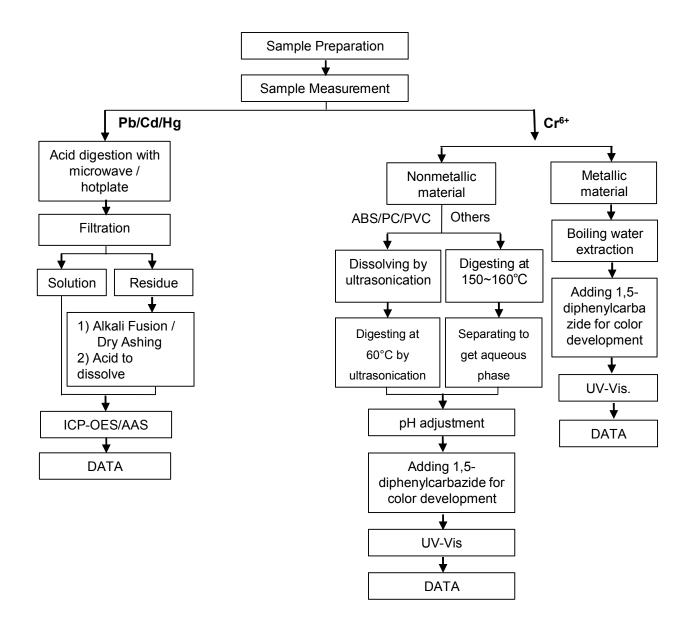
Date: 26 Oct 2022

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ATTACHMENTS

Pb/Cd/Hg/Cr6+ Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded).





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No. CANEC2222380701

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Date: 26 Oct 2022

Sample photo:



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Test Report No. CANEC2222380708 Date: 26 Oct 2022 Page 1 of 6

Client Name: SHENZHEN HUALIANWEI ELECTRONICS TECHNOLOGY CO.,LTD

Client Address: 101, 201, PLANT 1, NO.307, GUANLAN GUIHUA ROAD, GUIXIANG COMMUNITY, GUANLAN

SUB-DISTRICT, LONGHUA DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

Sample Name : LCP plastic black color

Model No.: LCP Plastic

Client Ref. Info.: Used for USB series, HDMI series, RJ series, 1394 series, MICRO series, MINI

series, DISPLAYPORT series, VGA series, DVI series, TYPE-C series, JACK

series

The above sample(s) and information were provided by the client.

SGS Job No. : CP22-057100 - GZ

Date of Sample Received: 20 Oct 2022

Testing Period: 20 Oct 2022 - 26 Oct 2022

Test Requested: Selected test(s) as requested by the client.

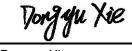
Test Method(s): Please refer to next page(s).

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

Result Summary:

Test Requested	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU-	PASS
Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls	
(PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate	
(DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl	
phthalate (DIBP)	

Signed for and on behalf of SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Dongyu Xie Approved Signatory



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Test Report No. CANEC2222380708 Date: 26 Oct 2022 Page 2 of 6

Test Result(s):

Test Part Description:

Specimen No. SGS Sample ID Description SN1 CAN22-223807.008 Black plastic

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

Test Method: With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>008</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	6
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1000	mg/kg	8	ND
Sum of PBBs	1000	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	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report	No. CANEC22223807	No. CANEC2222380708			Page 3 of 6	
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>008</u>		
Pentabromodiphenyl ether	-	mg/kg	5	ND		
Hexabromodiphenyl ether	-	mg/kg	5	ND		
Heptabromodiphenyl ether	-	mg/kg	5	ND		
Octabromodiphenyl ether	-	mg/kg	5	ND		
Nonabromodiphenyl ether	-	mg/kg	5	ND		
Decabromodiphenyl ether	-	mg/kg	5	ND		
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND		
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND		
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND		
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND		

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.



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No. CANEC2222380708

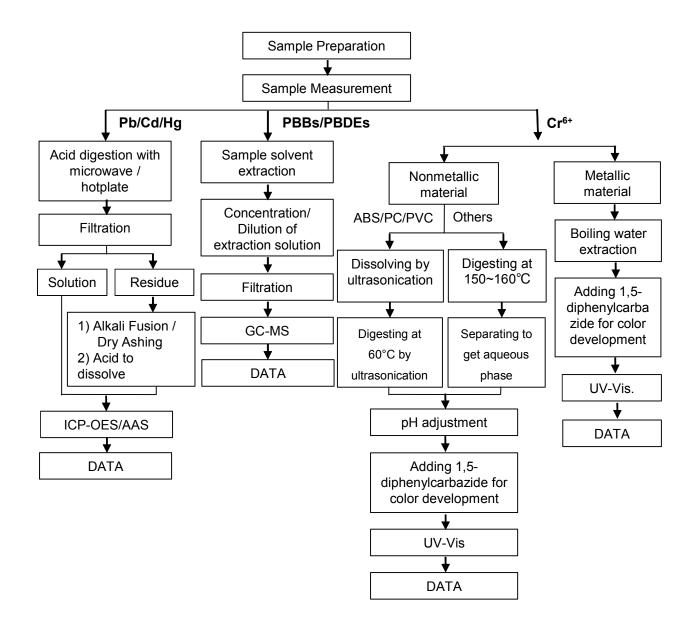
Date: 26 Oct 2022

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ATTACHMENTS

Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

1) 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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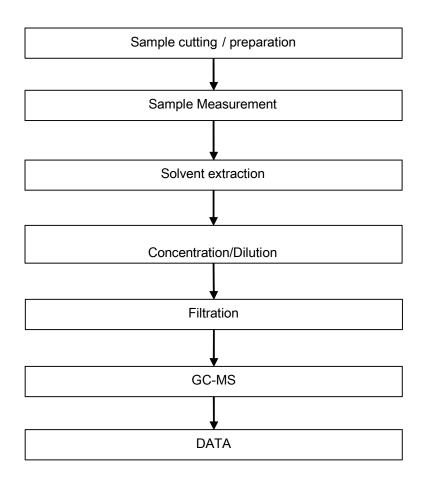
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Date: 26 Oct 2022

ATTACHMENTS

Phthalates Testing Flow Chart





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No. CANEC2222380708

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Sample photo:



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Test Report No. CANEC2218227001 Date: 30 Aug 2022 Page 1 of 8

Client Name: SHENZHEN CITY TONGHUA INDUSTRY CO.,LTD

Client Address: TONGHUA MANSIN TONGLE XINBU VILLANG TOWN SHENZHEN CITY CHINA

Sample Name: Nickel(Ni)

The above sample(s) and information were provided by the client.

SGS Job No. : CP22-047169 - SZ

Date of Sample Received: 25 Aug 2022

Testing Period: 25 Aug 2022 - 30 Aug 2022

Test Requested: Selected test(s) as requested by the client.

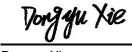
Test Method(s): Please refer to next page(s).

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

Result Summary:

Test Requested	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU-Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	PASS
Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives	See Results

Signed for and on behalf of SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



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Test Report No. CANEC2218227001 Date: 30 Aug 2022 Page 2 of 8

Test Result(s):

Test Part Description:

Specimen No. SGS Sample ID Description

> SN1 CAN22-182270.001 Silver-gray plated metal

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC Test Method: 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	49
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Sum of PBBs	1000	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	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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No. CANEC22182270	No. CANEC2218227001			Page 3 of 8
<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
-	mg/kg	5	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
	Limit 1000 1000	Limit Unit - mg/kg 1000 mg/kg 1000 mg/kg	Limit Unit MDL - mg/kg 5 1000 mg/kg 50 1000 mg/kg 50 1000 mg/kg 50 1000 mg/kg 50	Limit Unit MDL 001 - mg/kg 5 ND 1000 mg/kg 5 ND 1000 mg/kg 50 ND 1000 mg/kg 50 ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
 - c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives

Test Method: With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS.

Test Item(s)	CAS NO.	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Perfluorooctanoic acid (PFOA) and its salts+	335-67-1	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) ^	1763-23-1	mg/kg	0.010	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	mg/kg	0.010	ND
N-methylperfluoro-1-octanesulfonamide(MeFOSA)	31506-32-8	mg/kg	0.010	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	0.010	ND
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol(MeFOSE)	24448-09-7	mg/kg	0.010	ND
2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol(EtFOSE)	1691-99-2	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	mg/kg	-	ND

Notes:



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(1) + PFOA and its salts including PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) and APFO (CAS No.: 3825-26-1); (2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH4 (CAS No.: 29081-56-9), PFOS-NH(OH)₂ (CAS No.: 70225-14-8), PFOS-N(C₂H₅)₄ (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.



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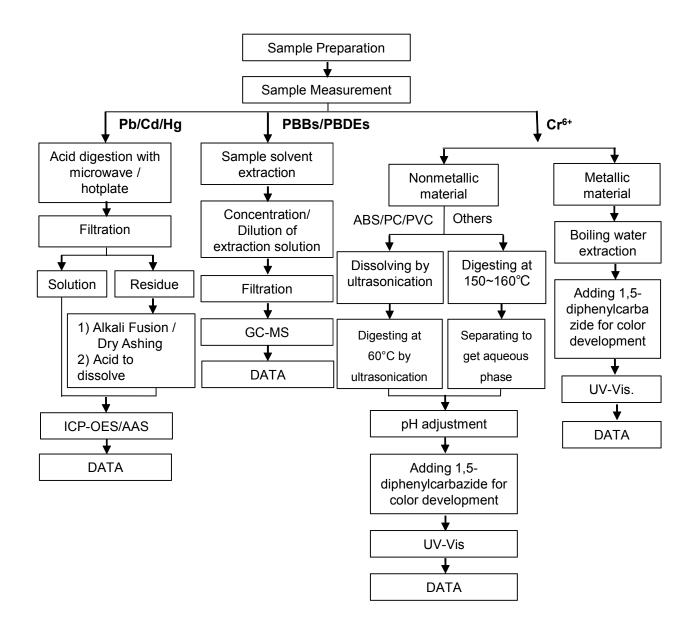
Date: 30 Aug 2022

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Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

1) 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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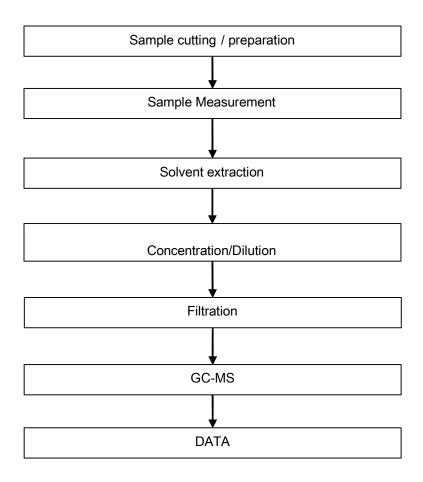
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Phthalates Testing Flow Chart





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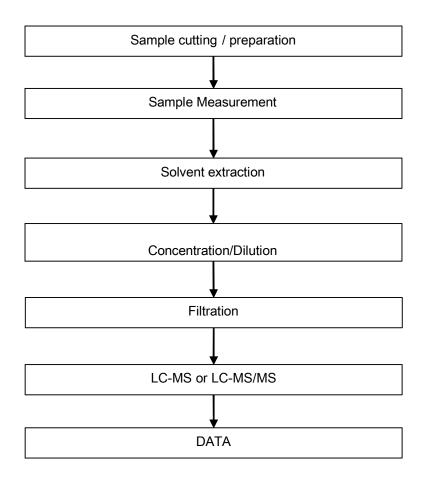
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PFOA / PFOS Testing Flow Chart





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Sample photo:



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Test Report No. CANEC2218227003 Date: 30 Aug 2022 Page 1 of 8

Client Name: SHENZHEN CITY TONGHUA INDUSTRY CO.,LTD

Client Address: TONGHUA MANSIN TONGLE XINBU VILLANG TOWN SHENZHEN CITY CHINA

Sample Name : Bright Tin(SN)

The above sample(s) and information were provided by the client.

SGS Job No. : CP22-047169 - SZ

Date of Sample Received: 25 Aug 2022

Testing Period: 25 Aug 2022 - 30 Aug 2022

Test Requested: Selected test(s) as requested by the client.

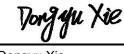
Test Method(s): Please refer to next page(s).

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

Result Summary:

Test Requested	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU-Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	PASS
Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives	See Results

Signed for and on behalf of SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Dongyu Xie Approved Signatory





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Test Report No. CANEC2218227003 Date: 30 Aug 2022 Page 2 of 8

Test Result(s):

Test Part Description:

Specimen No. SGS Sample ID Description

> SN1 CAN22-182270.003 Silver-gray plated metal

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC Test Method: 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>003</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	44
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Sum of PBBs	1000	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	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report	No. CANEC2218227003		Date: 3	0 Aug 2022	Page 3 of 8
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>003</u>	
Pentabromodiphenyl ether	-	mg/kg	5	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND	
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND	
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND	
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND	

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
 - c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives

Test Method: With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS.

Test Item(s)	CAS NO.	<u>Unit</u>	<u>MDL</u>	003
Perfluorooctanoic acid (PFOA) and its salts+	335-67-1	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) ^	1763-23-1	mg/kg	0.010	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	mg/kg	0.010	ND
N-methylperfluoro-1-octanesulfonamide(MeFOSA)	31506-32-8	mg/kg	0.010	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	0.010	ND
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol(MeFOSE)	24448-09-7	mg/kg	0.010	ND
2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol(EtFOSE)	1691-99-2	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	mg/kg	-	ND

Notes:



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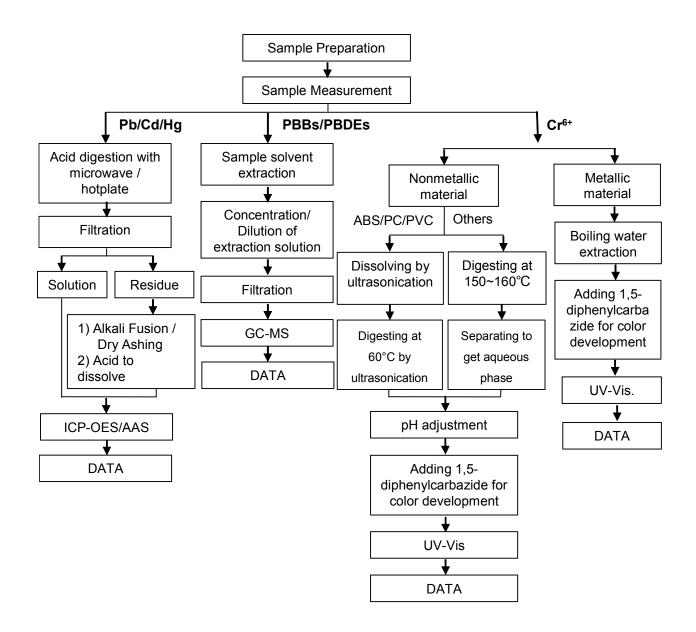
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Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

1) 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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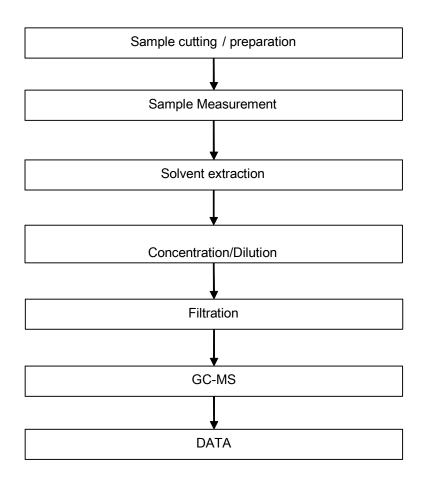
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Date: 30 Aug 2022

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Phthalates Testing Flow Chart





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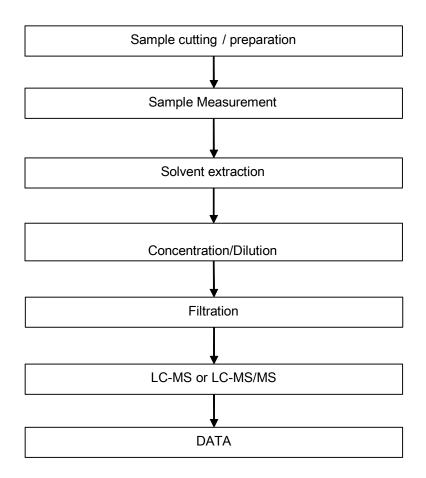
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PFOA / PFOS Testing Flow Chart





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Sample photo:



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Client Name: SHENZHEN CITY TONGHUA INDUSTRY CO.,LTD

Client Address: TONGHUA MANSIN TONGLE XINBU VILLANG TOWN SHENZHEN CITY CHINA

Sample Name : Gold (AU)

The above sample(s) and information were provided by the client.

SGS Job No. : CP22-047169 - SZ

Date of Sample Received: 25 Aug 2022

Testing Period: 25 Aug 2022 - 30 Aug 2022

Test Requested: Selected test(s) as requested by the client.

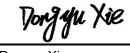
Test Method(s): Please refer to next page(s).

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

Result Summary:

Test Requested	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU-Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	PASS
Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives	See Results

Signed for and on behalf of SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Dongyu Xie Approved Signatory





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Test Result(s):

Test Part Description:

Specimen No. SGS Sample ID Description

SN1 CAN22-182270.002 Gold plated metal

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC Test Method: 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	50
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Sum of PBBs	1000	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	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
 - c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives

Test Method: With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS.

Test Item(s)	CAS NO.	<u>Unit</u>	<u>MDL</u>	002
Perfluorooctanoic acid (PFOA) and its salts+	335-67-1	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) ^	1763-23-1	mg/kg	0.010	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	mg/kg	0.010	ND
N-methylperfluoro-1-octanesulfonamide(MeFOSA)	31506-32-8	mg/kg	0.010	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	0.010	ND
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol(MeFOSE)	24448-09-7	mg/kg	0.010	ND
2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol(EtFOSE)	1691-99-2	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	mg/kg	-	ND

Notes:



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(1) + PFOA and its salts including PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) and APFO (CAS No.: 3825-26-1); (2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH₄ (CAS No.: 29081-56-9), PFOS-NH(OH)₂ (CAS No.: 70225-14-8), PFOS-N(C_2H_5)₄ (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.



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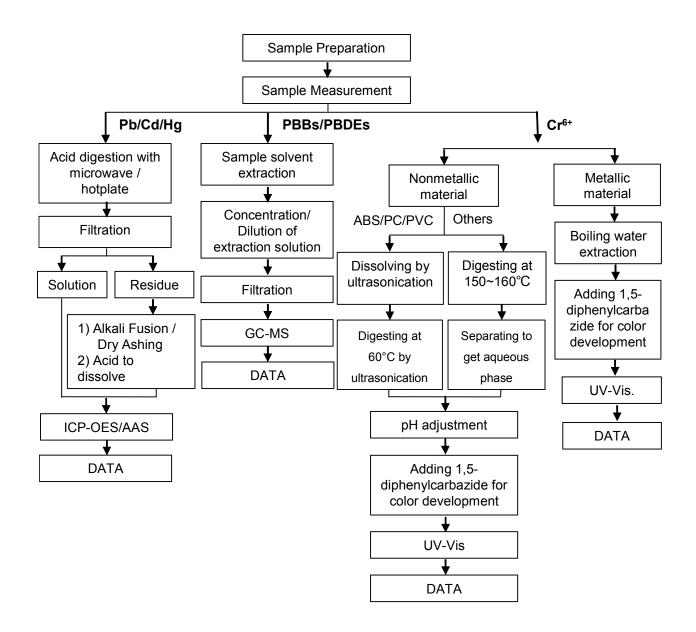
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Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

1) 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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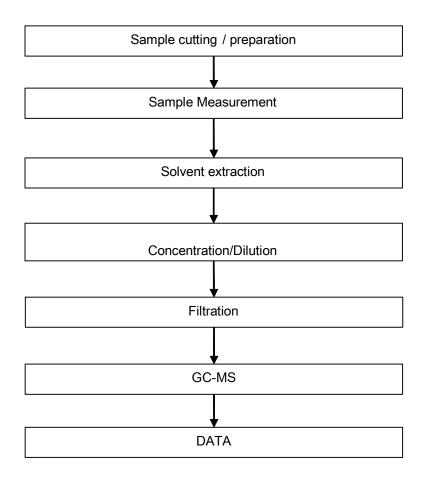
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Phthalates Testing Flow Chart





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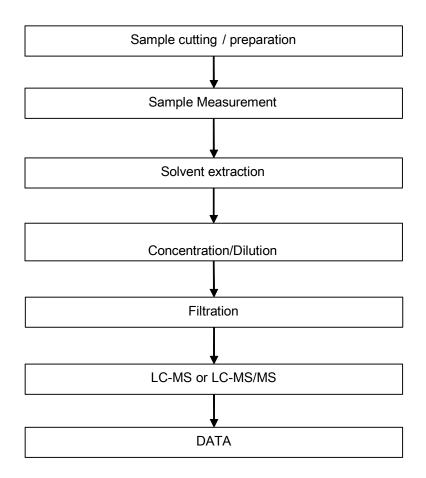
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PFOA / PFOS Testing Flow Chart





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