

承认书

Approval Sheet

客户(Customer): /

客户料号 (Cus . P/N): /

华联威料号 (HLW P/N): U573-531B-G61038

品名规格 (PronameSpec): USB TYPE C 16P SMT 四脚插防水母座

送样日期 (Delivery Date):2021/12/25

承认日期 (Acknowledge Date):2021/12/25

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										
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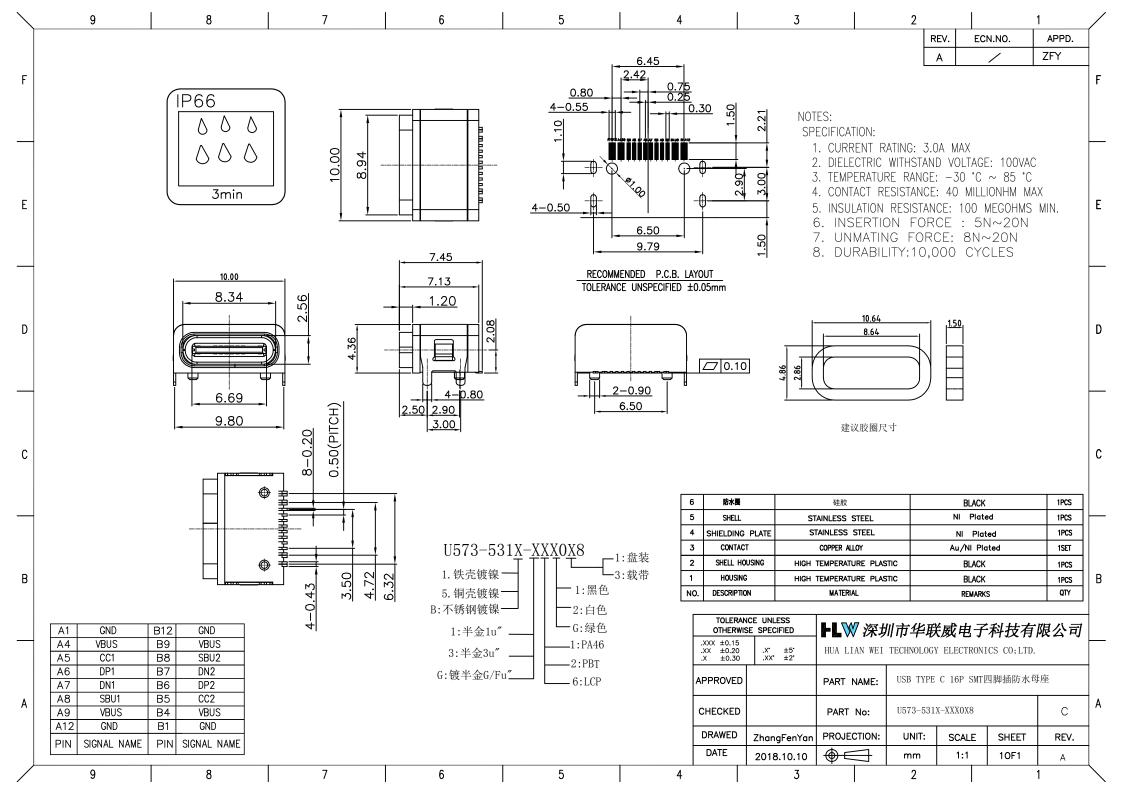


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FLWCOND® 深圳市华联威电子科技有限公司 HUA LIAN WEI TECHNOLOGY ELECTRONICS CO., LTD

USB 3.1 TYPE-C系列产品SPEC

版本版次: C 制定日期 20200707 适用范围 通用

- Scope (范围) 1.
- 1.1 Contents(内容)

This specification covers the performance, tests and quality requirements for the Electronics USB 3.1 TYPE-C Connector.(此份产品规格适用于USB 3.1 TYPE-C连接器的产品功能,测试方法及质量要求)

- Requirements (要求):
- 2.1 Rating(额定条件)
- Voltage rating(额定电压):30V AC A.
- B. Current rating(额定电流):1.5A
- C. Operation Temperature Range(工作温度范围):-30℃ to +80℃
- Test Condition(测试条件): 3.
- 3.1 Temperature range(温度范围):-15℃ to +35℃
- 3.2 Humidity range (湿度范围):25% to 85%
- Test Methods and Requirements:(测试方法及要求) 4.

4.1 Examination of product (产品外观)

		p. codoc () HH7 () 21)	
4. 1. 1	Examination of Product 产品外观	Visual 目视	No peeling off the plating deformation of the base or damage. 不得有电镀层剥落, 塑料变形或破损
4.	2. Electrical Per	formance(电气性能)	
2.	接触阻抗	(EIA-364-06B) 适合USB 3.1 TYPE-C嵌合;开放电压20mv以下;短路 电流100ma的状态下测定。 Mate applicable USB 3.1 TYPE-C and measure by dry circuit, 20mv MAX, 100mA. 40mΩMAX	40mΩ MAX
	Dielectric Withstanding	(EIA-364-20C) Unmated connectors, apply 100V AC (RMS.) for 1 minute	 No Breakdown or flashover Leakage current:0.5mA Max

between adjacent terminals of ground. 4. Voltage 2. (耐电压) 2

1. 不能有损坏或跳火花

没有配对的连接器在相邻的端子或接地之间通上100V 2. 漏电流<0.5mA 的交流电压1分钟

4. nsulation 2. Resistance 3 绝缘阻抗

(EIA-364-21C)

Unmated connectors, apply 500V DC for 1 minute

between adjacent terminals of ground.

100M Ω min (unmated)

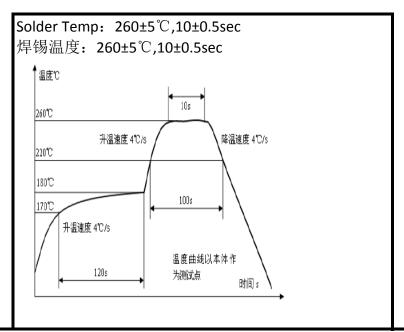
没有配对的连接器在相邻的端子或接地之间通上500V 没有配对需大于100 MΩ 的直流电压1分钟

4.3Mechanical Performance(机械性能)

4.	Insertion/Wit	(EIA-364-13)	
	hdrawal	Insertion and withdrawal speed:	插入力 Insertion
1	Force	25mm/minute.	0.50kgf/MIN,2.0kgf/MAX
	插入力/拔出	插入和拔出的速度为25mm/分	拔出力 Withdrawal
	力		0.80kgf/MIN,2.0kgf/MAX
			After 10000 cycles
			0.6kgf/MIN,2.0kgf/MAX
4.	Durability	(EIA-364-09)	10000 cycles
3.	寿命测试	适合USB 3.1 TYPE-C;用每分钟12.5mm的速度,平行	
2		的插入,拔出。	
		Insert and extract applicable USB 3.1 TYPE-C at the speed	
		rate of 12.5 mm/minute.	
	Humidity-		
	Temperature		
3	cycle		
	温湿度循环		
1	Vibration	(EIA-364-28条件3)	Appearance: No damage
	振动	Amplitude:1.52mm P-P or 147m/s^2 {15G}	外观:无损坏
4	1/12-2/3	Sweep time: 50-2000-50Hz in 20 minutes.	Contact Resistance 接触阻抗
ľ		Duration: 12 times in each (total of 36 times) X, Y, Z,	Contact: Change from initial
		axes.	Value:30mΩ Max.
		Electrical load DC 100mA current shall be flowed during	端子: 从初始值开始变化量小
		the test.(ANSI/EIA-364-28 Condition III)	于30mΩ
		在直流100毫安通电状态下测试,在X,Y,Z垂直3方向	
		上, 频率50-2000-50赫兹(加速度往复20分钟), 全) No. 1
		振幅1.52mm P-P或147 m/s^2 {15G},每轴12回计36回	间断性:不超过1微秒
4.	Physical shock	(EIA-364-27条件A)	Appearance: No damage
	冲击性	Pulse width: 11msec	外观: 无损坏
4		Waveform: Half-sine	Contact Resistance 接触阻抗
		490m/s²(50G)3 strokes in each X, Y, Z axes.	Contact: Change from initial
		(ANSI/EIA-364-27 condition A)	Value 40mΩ Max
		周期: 11msec	端子: 从初始值开始变化量小
		冲击波形:正弦半波490m/s²(50G)3循环在X, Y, Z	于40mΩ
		轴	Discontinuity: 1μ sec Max.
			间断性:不超过1微秒
4.	4 Environmenta	l Performance	
_			

4.	Thermal shock test 冷热冲击	EIA-364-32C条件1) 10 cycles of: a)-55±3℃ for 30 minutes b) +85±3℃ for 30 minutes 10个循环, a)-55±3℃ 30 分钟 b) +85±3℃ 30 分钟	Appearance: No Damage. 外观:没有损坏 Contact Resistance 接触阻抗 Contact: Change from initial Value 40mΩ Max 端子:从初始值开始变化量小 于40mΩ
	Solder ability 焊锡性	(EIA-364-52) To be sipped in the solder bath 245±5℃ Coverage for 3 seconds. 将焊锡脚浸在245±5℃的锡炉中<3秒	The inspected area of each lead must have 90% solder coverage minimum
	Humidity 恒温恒湿	(EIA-364-31B) (A) Mate connectors together and perform the test as follows 配对的连接器测试条件 Temperature: +25℃ to +85℃(温度: +25℃到+85℃) Relative Humidity: 90% to 95%(相对湿度: 90%到95%) Duration:4 cycles(96 hours) (持续时间: 4个循环共96小时) Upon completion of the test, specimens shall be conditioned ambient room conditions for 24 hours, after which the specified measurements shall be performed. 试验完成后,样品放置于室温条件中24小时后再进行测试	Appearance: No Damage 外观,没有损坏 Contact Resistance 接触阻抗 Contact: Change from initial Value 30mΩ Max 端子: 从初始值开始变化量小 于30mΩ
	Salt Spray 盐水喷雾	EIA-364-26B) Temperature: 35±2℃ 温度: 35±2℃ Concentration for salt: 5% 盐水浓度: 5% (1)Duration: 24H 持续时间: 24小时 Condition(条件): Contact plated gold more than 15u″ (include 15 u″), and the material of shell for copper alloy, or stainless. 端子镀金厚度大于等于15 u″且壳体材质是铜合金或是不锈钢 (2) Duration: 12H 持续时间: 12小时 Condition(条件): Contact plated gold less than 15 u″, and/or the material of shell for steel 端子镀金厚度小于15u″且/或壳体材质是铁材	No detrimental corrosion(Terminal solder tail unrequested) 产品无氧化,锈蚀(端子焊脚 镀锡处不作要求)

4.	Cold resistance (Unmated) 冷阻抗	(EIA-364-17B) Unmated connectors and expose to -25±3℃ for168 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 没配对的连接器放置于-25±3℃温度中168小时,当完成实验后,样品放置一般环境中1到2小时后,在进行测试	Appearance: No Damage. 外观:没有损坏 Contact Resistance 接触阻抗 Contact: Change from initial Value 30mΩ Max Shell Part: Change from initial Value 50mΩ Max 端子:从初始值开始变化量小 于30mΩ 外壳:从初始值开始变化量小
4.	Heat resistance (Unmated) 热阻抗	(EIA-364-17B) Mated connectors and expose to 85±2℃ for168 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 配对的连接器放置于85±2℃温度中168小时,当完成实验后,样品放置一般环境中1到2小时后,在进行测试	Appearance: No Damage. 外观:没有损坏 Contact Resistance 接触阻抗 Contact: Change from initial Value 30mΩ Max Shell Part: Change from initial Value 50mΩ Max 端子:从初始值开始变化量小 于30mΩ 外壳:从初始值开始变化量小 于50mΩ
	Thermal Aging 高温老化	(EIA-364-31B,Condition 4,Method A) Unmated connectors and expose to +85±2℃ for 250 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 没配对的连接器放置于+85±2℃温度中250小时,当完 成实验后,样品放置一般环境中1到2小时后,在进行 测试	Appearance: No Damage. 外观:没有损坏 Contact Resistance 接触阻抗 Contact: Change from initial Value 40mΩ Max 端子:从初始值开始变化量小 于40m
4. 4. 8	Resistance to Soldering Heat	for wave soldering: mil-std-202f,method 210 A,test condition B 波峰焊: mil-std-202f, method 210 A, 试验条件B Pre-heat:80℃,60 Seconds 预热:80℃,60秒 Temperature:260±5℃ 温度:260±5℃ Immersion duration:10±1 sec. 浸泡时间:10±1秒。for manual soldering:手动焊接: mil-std-202f,method 210 A,test condition A Pre-heat:No预热:没有 Temperature:350±10℃温度:350±10℃	No physical damage shall occur. 不可有损坏 Reflow welding is not applicable to PBT 回流焊不适用于PBT



Note 1: Shall meet visual requirements, show no physical damage, and meet requirement of additional tests as specified in the test sequence in Figures 2

说明1: 测试要求不能有物理损坏,测试依据表格二的顺序进行

3.Product Qualification And Requalification Test:产品测试顺序表 Figure 2

Test or Test Group														
Examination	А	В	С	D	Е	F	G	Н	I	J	K	L	М	N
					_	Γest Se	equen	ce			-			
4.1.1.Examinatio n of Product 产	1,9	1,3	1,5	1	1,5	1,5	1,5	1,3	1,5	1,5	1,5	1,5	1,5	1
4.2.1.Contact Resistance 接触	2,8		2,4		2,4	2,4	2,4		2,4	2,4	2,4	2,4	2,4	
4.2.2.Dielectric Withstanding	3,7													
4.2.3.Insulation Resistance 绝缘	4,6													
4.3.1.Insertion/ Withdrawal force		2												
4.3.2.Durability 寿命测试			3											
4.3.3.Vibration 振动性					3									
4.3.4.Physical shock 冲击性						3								
4.4.1.Thermal shock test 冷热							3							
4.4.2.Solderabilit y 焊锡性								2						
4.4.3.Humidity 恒温恒湿	5								3					
4.4.4.Salt Spray 盐水喷雾										3				
4.4.5.Cold resistance 冷阻											3 第 5	页,=	+6页	

4.4.6.Heat resistance 热阻												3		
4.4.7.Thermal Aging 高温老化													3	
4.4.8.IR-reflow 回流焊测试														2
NO. of Test samples(Min.) 测	5	5	5	5	5	5	5	5	5	5	5	5	5	5

NOTE 2: (a) Numbers indicate sequence in which tests are performed.

(b) Discontinuities shall not take place in this test group, during tests.

说明 2: (a)测试依照矩阵要求数量进行。

(b)在测试中,群组测试不能间断

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

	* H 446	1100 TVDE 0 100 014T III)745). N 1547									
	產品名稱 Part Name	USB TYPE C 16P SMT 四 脚插防水母座	測試日期 Date of Testing	2021.12.24- 2021.12.25	報告編	號 Repo	or t NO.					
	產品型號 Part Name	U573-531B-G61038	樣品數量 Quantity	5PCS		環境 Mea nvironme		1	emp:18 f R.H.:49			
→•電	性測試 ELEC	TRICAL TEST										
						測試記	錄 Testir	ng Result		定 dge		
亨號 NO.	測試項目 Testing Item			規格 SPEC	1	2	3	4	5	Pass	Fail	
1	Contact resis tance	Test current:100mA max	DIGITAL MICRO— OHMMETER	40 m Ω Max	14.77 m Ω	15.42 m Ω	15.86 m Ω	16.37 m Ω	17.53 m Ω	Р		
2	In sula tion resis tance	Test voltage:500VDC Operation stated:1min	ULTRA HIGH RESISTANCE METER	100 m Ω Min	Pass	Pass	Pass	Pass	Pass	Р		
3	Dielec tric withstand voltage	Test voltage:100VAC Cut—off current:0.5mA Operation stated:1 min	BREAKDOWN TESTER	No discharge or flashover occur	Pass	Pass	Pass	Pass	Pass	Р		
二. 機	械特性測試	MECHANICAL TEST				•		•				
					測試記錄 Testin			ng Result	判定 Judge			
亨 號 NO.	測試項目 Testing Item	測試條件 Tes ting Con di tions	測試設備 Testing Equipment	規格 SPEC	1	2	3	4	5	Pass	Fail	
1	Durability test	Ra te:200cycles/hour Total: 10000 cycles	LIFE TESTER FOR CONNECTOR	No physical damage	Pass	Pass	Pass	Pass	Pass	Р		
2	Mating Force	5N-20Newtons maximun at a maximum rare of 12.5mm per minute	Insertion force testing machine	No physical damage	Pass	Pass	Pass	Pass	Pass	Р		
3	Un—Mating Force	8N-20N NewtNewtonso ns m minimuminimum at a maximum rare of 12.5mm per minute	Insertion force testing machine	No physical damage	Pass	Pass	Pass	Pass	Pass	Р		
三.環	境特性測試।	ENVIRONMENTAL TEST								ı		
亨號 NO.	測試項目 Testing Item	測試條件 Tes ting Con di tions	測試設備 Testing Equipment	規格 SPEC		測試記	錄 Testir	ng Result		判定 Judge		
		. 33 ting 35h di tions			1	2	3	4	5	Pass	Fail	
1	Humidi ty— Tempera ture cycle	Temperature: 40±2°C Dura tion :168H	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	Р		
2	Heat test	Temperature: 70±2°C Dura tion :168H	OVEN	No physical damage	Pass	Pass	Pass	Pass	Pass	Р		

3	Cold test	Temperature: -25 ±3°C Dura tion :168H	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
4	Tempera ture cycling test	Temperature: 70—25 C Duration:5 cycle	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
四.物	四.物理測試 PHYSICAL TEST										
序	序 測試項目 Testing Item	測試條件 Testing Con di tions	測試設備	規格 SPEC	I AUGUSTUS LESUNG RESULT					1	定 dge
NO.	resumg item	resumg con an dons	Testing Equipment	OI LO	1	2	3	4	5	Pass	Fail
1	Salt spray test	Temperature: 35±2°C Concentration:5±1 % Duration:12H	SALT SPRAY TESTER	No Oxidation	Pass	Pass	Pass	Pass	Pass	Р	
2	Solder ability test	Temperature: 260 土 5°CDura tio n:10 ±1	OVEN	NO physical damage	Pass	Pass	Pass	Pass	Pass	Р	
3	Solder ability test Solder ability test Temperature: 260 ±10 C Dura tion :10 ±1 sec		CONTROLLED CONSTANT-TEMP SOLDER POT	Soldering area <u>=</u> 95%	Pass	Pass	Pass	Pass	Pass	Р	
判定 Result □ 不合格(REJECT)											

核准(Approver): 欠必锋

測試(Tester): 但芬

FLWCONN®

核准: 欠必锋

深圳市华联威电子科技有限公司

檢驗報告

■ 自1	午饭駅 口入庫	ケスタック しょうかん しょうかん しょうしょう かいしょう かいしょう かいしょう かいしょう かいかい かいしょう かいかい かいしょう はいまい しょう はいまい しょう はいまい しょう かいしょう はいまい しょう はいまい はいまい はいまい はいまい はいまい はいまい はいまい はいま	出負檢驗 口各退檢驗 口退料檢驗 口具他							2021年	-12月25日	版-火:A1	
料號	U573-531B-0	G61038	制令	單號		/	送檢	單位	L	二程部	首件	製作者	裝配
1	USB TYPE C 16F	PSMT四脚	,,,,	11.11.E		,	批	量		1	送村	僉時間	1
品名	插防水母	座	各尸	代號	1		數	量	5	PCS	確詞	忍時間	1
	抽樣標準			■單導	欠 []雙次		抽棒	羊数	AQL	CRI:0	MAJ:0.40	MIN:0.65
	MIL-STD-105H	E(II)	■正常 □加嚴 □源				或量	(5P	CS)	ACC/REJ	0	/	/
不	不良数: CRI		/)	M	AJ (/)	MI	N (/)	不良	早率(%)	/
NO	檢驗項目	檢測		檢	驗記	錄		品管	判定	CDI	NAAT	MDI	備注
NO.	單位:MM/G	儀器	1	2	3	4	5	AC	RE	CRI	MAJ	MIN	
	10.00±0.20	D	10.05	10.09	107	10.06	10.02	√					
	8.34±0.20	D	8.35	8.37	8.32	8.34	8.36	√					
	2.56±0.20	D	2.58	2.54	2.53	2.51	2.59	√					
	6.69±0.20	D	6.70	6.72	6.74	6.76	6.69	√					
	9.80±0.20	D	9.87	9.85	9.82	9.84	9.86	√					
	0.43±0.20	D	0.47	0.46	0.42	0.45	0.48	√					
	0.20±0.20	D	0.26	0.28	0.27	0.23	0.24	√					
尺	4.36±0.20	D	4.38	4.35	4.32	4.36	4.35	√					
	6.32±0.20	D	6.35	6.37	6.34	6.32	6.38	√					
寸	7.45±0.20	D	7.48	7.42	7.44	7.46	7.43	√					
7111	6.50±0.20	D	6.54	6.53	6.58	6.55	6.57	√					
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量													
ね除る		1国44~~	□ <td>▲ 品給:坦名</td> <td>新、、 「</td> <td></td> <td>切聿//</td> <td></td> <td>美豆.</td> <td>口其它</td> <td></td> <td></td> <td></td>	▲ 品給:坦名	新 、、 「		切聿//		美豆.	口其它			
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审核: 刘联英

检验员: 但芬

FLWCOND® 深圳市华联威电子科技有限公司

电镀报告表

品名: USB TYPE C 16P SMT四脚插防水母座		版次:A.0
电镀规格:Ni40u", Sn40u", Au G/Fu"	日期:2021/10/10	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	60. 5u"	OK	2021/10/10	14:15:03
2	40u″MIN	58. 3u"	OK	2021/10/10	14:15:05
3	40u″MIN	67. 5u"	OK	2021/10/10	14:15:07
4	40u″MIN	62. 4u"	OK	2021/10/10	14:15:09

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	45. 3u"	OK	2021/10/10	14:20:12
2	40u"MIN	52. 7u"	OK	2021/10/10	14:20:14
3	40u"MIN	58. 9u"	OK	2021/10/10	14:20:16
4	40u"MIN	54. 3u"	OK	2021/10/10	14:20:18

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	0.57u"	OK	2021/10/10	14:25:06
2	0.5u"MIN	0.53u"	OK	2021/10/10	14:25:08
3	0.5u"MIN	0.56u"	OK	2021/10/10	14:25:10
4	0.5u"MIN	0.52u"	OK	2021/10/10	14:25:12

核准: 欠必锋

审核: 刘联英

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: USB TYPE C 16P SMT四脚插防水母座 版次:A.0 电镀规格:Ni:40u"min 日期:2021/9/23 页次:1/1

厂商:金和源

测试设备:CMI X-射线膜厚测试仪

1、表层电镀测试(Ni)

数据	测试标准	实测值	判定	测试日期	测试时间
1	40u"min	62. 1u″	OK	2021/9/23	11:25:22
2	40u"min	55. 9u″	OK	2021/9/23	11:25:24
3	40u"min	58. 7u″	OK	2021/9/23	11:25:26
4	40u"min	53. 5u″	OK	2021/9/23	11:25:28

核准: 欠必锋 审核: 刘联英 检验员: 但芬

FLWCONN®

深圳市华联威电子科技有限公司

盐水喷雾实验报告

	血八次分	ン 3m 1k 口							
试验方法	盐水喷雾腐蚀试验法	参考资料	MIL-STD-1344						
METHOD	NEUTRL SALT SPRAY CORROSION TEST	REF	MIL SID	1011					
客户	/	试验起始日期	2021年 12月24日	20:00 时起					
合)	7	DATE	2021年12月 25日	08:00 时止					
样品名称	USB TYPE C 16P SMT四脚插防水 母座	试验数量	5PCS						
P/N	U573-531B-G61038	QTY							
试验条件	(TEST CONDDITION)								
1、盐水溶解	1、盐水溶解(SALT SOLUTION:浓度50±10g/L,PH值6.5−7.2.								
2、试验室温	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	4、 压力桶温度 (TEMP.OF SAR SUPPLIERY): 47±1℃.								
5、 试验室机	目对湿度(R.H IN THE CHAMBER)85%.								
6、 压缩空 ^左	氏压力(COMPRESSED AIR PRESSURE): 1	$.00\pm0.01$ Kg/cm	2.						
7、 样品放置	置位置(SPECIMEN SUPPORTED ANGLE):	尼龙绳吊挂70°	-90°.						
8、 喷雾收集	美量(COLLECT RATE OF SALT SOL'N)1	$-2\text{mL}/(8 \text{ cm}^2\text{hr})$.							
9、盐雾测试	时间: 12小时 (H)	. ,							
/ 1/ -/ 1	DFUSGD METHOD)	7F 전 FF 15 15 1	16 /-						
	人20倍放大镜观察、无蓝、绿色腐蚀物之		•	ecimen at					
	cation no blue or green corrosi 试验后现象	on products	are acceptable) 判定						
样品序号	PHENOMENON AFTER TEST		COMMEN'	Γ					
1	无蓝、绿色腐蚀物之现象		OK						
2	无蓝、绿色腐蚀物之现象	Ŕ	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	<u> </u>	7	OK						

核准:欠必锋 审核: 刘联英 试验员:但芬

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



钜鼎銅材廠檢驗報告單

公司名稱 Customer	20 10 10 10 10 10 10 10 10 10 10 10 10 10	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	標准					寸	狀態		銅卷編號	
Article		Stand	ard No		Dime	ension	Ter	nper	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

材质证明书(2020/A) MATERIAL CERTIFICATE

生产	厂家	SHNZHEN CITY XINQIA METAL PRODUCTS CO. LTD 生产编号						B201	91101	开立日期 Issue Date	2019.11、5	证明书编号 Certificate No	20191105-0			
钢种	名称			SUS	304	1\2H				订单编号 Order No	J	IS	依据规范 By Standard			
项目 Item	钢卷 Coi	编号 I No	Thic	(mm) kness		(mm) idth	长 Ler	度 ngth	数量 Quant	重量(K Weight(成品表	面加工			
1 2 3 4 5 6			0	.3	29	96	CC	DIL	1	1400						
	С	Si	化学点 Mn	战份Che ₽	mical C	Cr	tion (%) Mo	N	标准 Spec	硬度 Hardness	降伏强度 (N/mm²) Yield stress	引张强度 (N/mm²) Tensile Stress	伸长率(%) Elongation	弯曲试验 Bend Test	
标准 Spec	0.080 max	0.750 max	2.000 max	0.045 max	0.030 max	18.00 20.00	8.00 10.50			试片编号 Specimen	270-290HV	865 min	1059 min	-		
1 2 3 4 5 6	0.042	0.320	1.180	0.031	0.006	18.03	8.01			20140328-01	270	497	870	东莞	OK	

可能与此表中所列出的数据有所不同.

Data shown are typical, For reference only, and should not be construed as maximum or minimum values for specification or for final design data. On any particular piece of material may vary from those shown herein.

Only discrepancy pls contact of within 3 days

技术部经理 Manager



Test Report No. CANEC2119174208 Date: 22 Oct 2021 Page 1 of 6

SHENZHEN HUALIANWEI ELECTRONICS TECHNOLOGY CO.,LTD

101, 201, PLANT 1, NO.307, GUANLAN GUIHUA ROAD, GUIXIANG COMMUNITY, GUANLAN SUB-DISTRICT, LONGHUA DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

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

SGS Job No. : CP21-055214 - GZ

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

Date of Sample Received: 18 Oct 2021

Testing Period : 18 Oct 2021 - 22 Oct 2021

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 of Lead,

Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs),

Polybrominated diphenyl ethers (PBDEs) and Phthalates such as

 $Bis(2-ethylhexyl) \ phthalate \ (DEHP) \ , \ Butyl \ benzyl \ phthalate \ (BBP), \ Dibutyl \ phthalate \ (DBP) \ , \ and \ Diisobutyl \ phthalate \ (DIBP) \ comply \ with \ the \ limits \ as \ set \ by$

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Allie Chen

Allie Chen

Approved Signatory





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Test Report No. CANEC2119174208 Date: 22 Oct 2021 Page 2 of 6

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description SN₁ CAN21-191742.008 Black plastic

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, 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>008</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	6
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	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
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND



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Test Report	No. CANEC21191742	208	Date: 2	22 Oct 2021	Page 3 of 6
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>008</u>	
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)	1,000	mg/kg	50	ND	
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND	
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND	
Diisobutyl Phthalates (DIBP)	1,000	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 https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:12586 37,25
- (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.



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No. CANEC2119174208

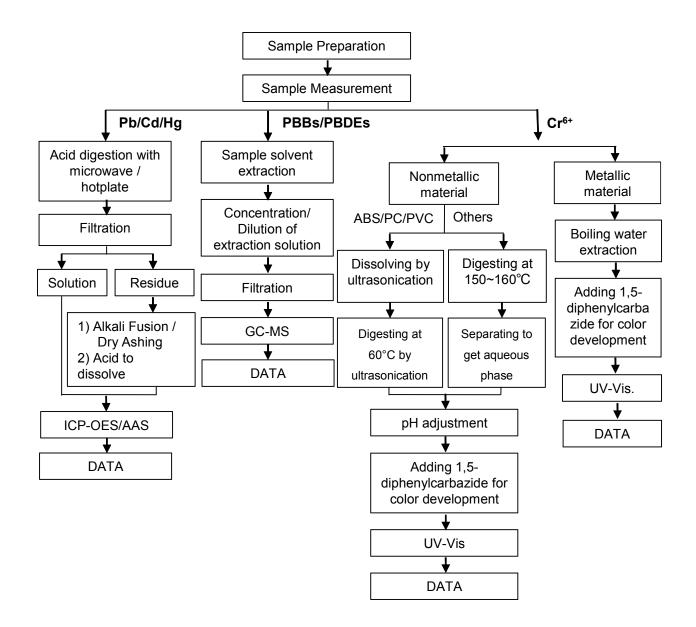
Date: 22 Oct 2021

Page 4 of 6

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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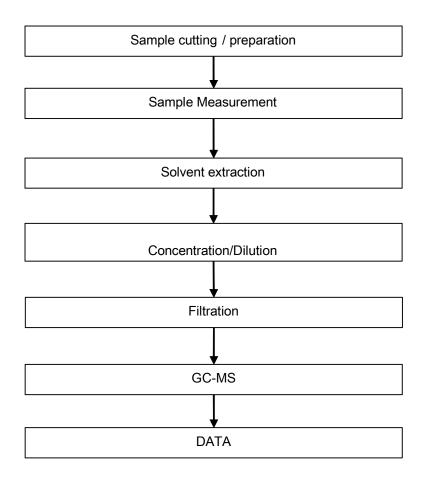
No. CANEC2119174208

Date: 22 Oct 2021

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ATTACHMENTS

Phthalates Testing Flow Chart





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No. CANEC2119174208

Page 6 of 6

Date: 22 Oct 2021

Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***



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Test Report No. CANEC2119174205 Date: 22 Oct 2021 Page 1 of 4

SHENZHEN HUALIANWEI ELECTRONICS TECHNOLOGY CO.,LTD

101, 201, PLANT 1, NO.307, GUANLAN GUIHUA ROAD, GUIXIANG COMMUNITY, GUANLAN SUB-DISTRICT, LONGHUA DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as: SUS304 hardware

SGS Job No. : CP21-055214 - GZ

Model No.: SUS304

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

Date of Sample Received: 18 Oct 2021

Testing Period: 18 Oct 2021 - 22 Oct 2021

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 of Lead,

Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS

Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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

Allie Chen

Allie Chen
Approved Signatory





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Test Report No. CANEC2119174205 Date: 22 Oct 2021 Page 2 of 4

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description CAN21-191742.005 SN₁ Silver-grey metal

Remarks:

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

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

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	μg/cm²	0.10	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

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- (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.



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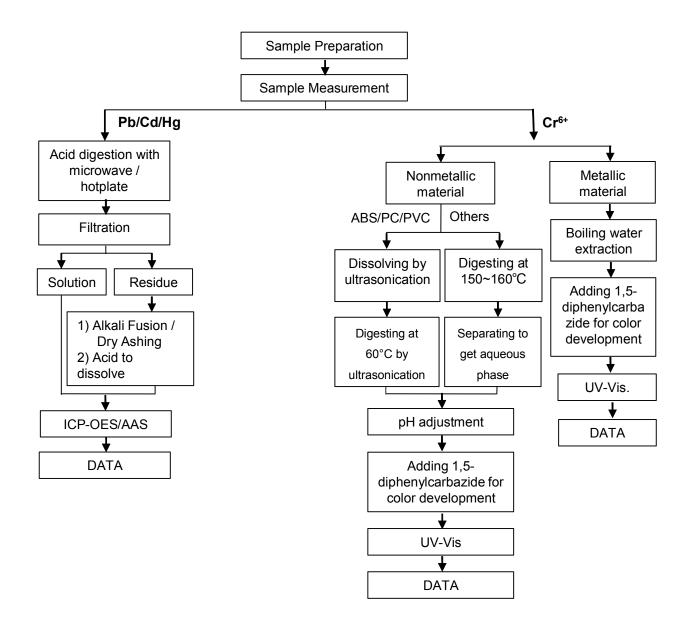
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Pb/Cd/Hg/Cr6+ Testing Flow Chart

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





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Date: 22 Oct 2021

Sample photo:



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Test Report No. CANEC2117633801 Date: 27 Sep 2021 Page 1 of 8

SHENZHEN CITY TONGHUA INDUSTRY CO.,LTD
TONGHUA MANSIN TONGLE XINBU VILLANG TOWN SHENZHEN CITY CHINA

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

SGS Job No. : CP21-051017 - SZ

Date of Sample Received: 18 Sep 2021

Testing Period: 18 Sep 2021 - 27 Sep 2021

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 of Lead,

Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs),

Polybrominated diphenyl ethers (PBDEs) and Phthalates such as

Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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

Allie Chen

Allie Chen Approved Signatory





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Test Report Page 2 of 8 No. CANEC2117633801 Date: 27 Sep 2021

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description SN₁ CAN21-176338.001 Gold plated 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 (EU) 2015/863 amending Annex II to Directive 2011/65/EU

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)	1,000	mg/kg	2	73
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	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
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND



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No. CANEC2117633801		Date: 27 Sep 2021		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	
1000	mg/kg	50	ND	
1000	mg/kg	50	ND	
1000	mg/kg	50	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 https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:12586 37.25
- (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



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Test Report No. CANEC2117633801 Date: 27 Sep 2021 Page 4 of 8

Notes:

(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)



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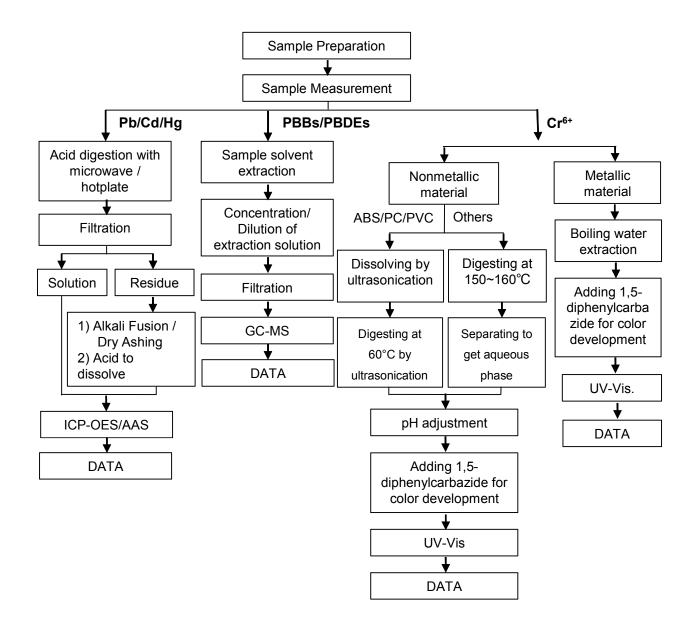
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Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

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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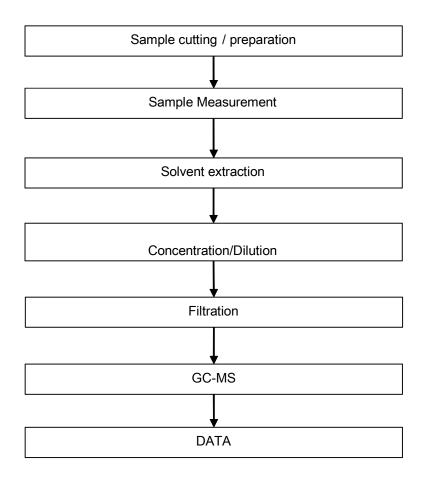
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ATTACHMENTS

Phthalates Testing Flow Chart





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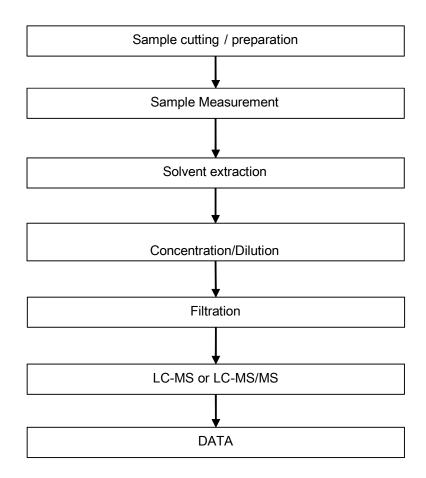
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ATTACHMENTS

PFOA / PFOS Testing Flow Chart





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Date: 27 Sep 2021

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Test Report No. CANEC2117633802 Date: 27 Sep 2021 Page 1 of 8

SHENZHEN CITY TONGHUA INDUSTRY CO.,LTD
TONGHUA MANSIN TONGLE XINBU VILLANG TOWN SHENZHEN CITY CHINA

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

SGS Job No. : CP21-051017 - SZ

Date of Sample Received: 18 Sep 2021

Testing Period: 18 Sep 2021 - 27 Sep 2021

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 of Lead,

Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs),

Polybrominated diphenyl ethers (PBDEs) and Phthalates such as

Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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

Allie Chen

Allie Chen Approved Signatory





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Test Report No. CANEC2117633802 Date: 27 Sep 2021 Page 2 of 8

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

SN₁ CAN21-176338.002 Silver-gray plated 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 (EU) 2015/863 amending Annex II to Directive 2011/65/EU

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.

Cadmium (Cd) 100 mg/kg 2 ND Lead (Pb) 1,000 mg/kg 2 29 Mercury (Hg) 1,000 mg/kg 2 ND Hexavalent Chromium (Cr(VI))▼ - μg/cm² 0.10 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	Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Mercury (Hg) 1,000 mg/kg 2 ND Hexavalent Chromium (Cr(VI))▼ - μg/cm² 0.10 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	Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼-μg/cm²0.10NDSum of PBBs1,000mg/kg-NDMonobromobiphenyl-mg/kg5NDDibromobiphenyl-mg/kg5NDTribromobiphenyl-mg/kg5NDTetrabromobiphenyl-mg/kg5ND	Lead (Pb)	1,000	mg/kg	2	29
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	Mercury (Hg)	1,000	mg/kg	2	ND
Monobromobiphenyl-mg/kg5NDDibromobiphenyl-mg/kg5NDTribromobiphenyl-mg/kg5NDTetrabromobiphenyl-mg/kg5ND	Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Dibromobiphenyl - mg/kg 5 ND Tribromobiphenyl - mg/kg 5 ND Tetrabromobiphenyl - mg/kg 5 ND	Sum of PBBs	1,000	mg/kg	-	ND
Tribromobiphenyl - mg/kg 5 ND Tetrabromobiphenyl - mg/kg 5 ND	Monobromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl - mg/kg 5 ND	Dibromobiphenyl	-	mg/kg	5	ND
	Tribromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl - mg/kg 5 ND	Tetrabromobiphenyl	-	mg/kg	5	ND
	Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl - mg/kg 5 ND	Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl - mg/kg 5 ND	Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl - mg/kg 5 ND	Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl - mg/kg 5 ND	Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl - mg/kg 5 ND	Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs 1,000 mg/kg - ND	Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether - mg/kg 5 ND	Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether - mg/kg 5 ND	Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether - mg/kg 5 ND	Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether - mg/kg 5 ND	Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether - mg/kg 5 ND	Pentabromodiphenyl ether	-	mg/kg	5	ND



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Test Report	No. CANEC21176338	02	Date: 2	27 Sep 2021	Page 3 of 8
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>	
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 https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:12586 37.25
- (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>002</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



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No. CANEC2117633802

Date: 27 Sep 2021

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Notes:

(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)



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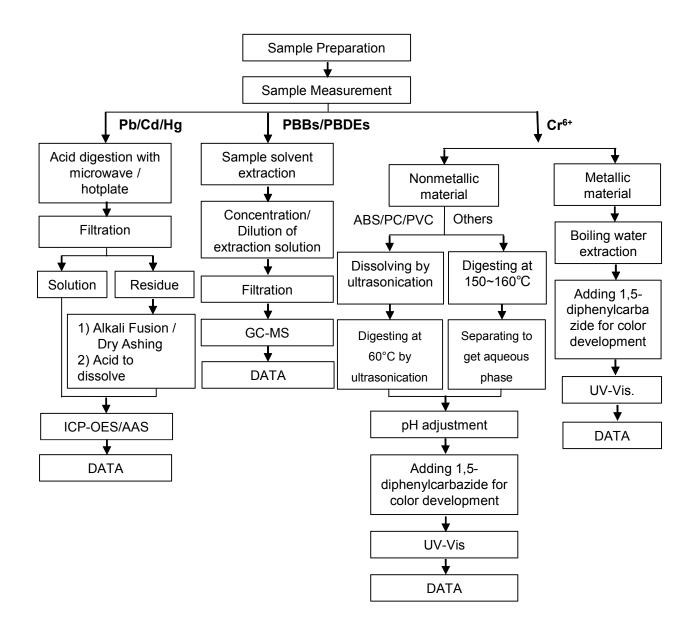
No. CANEC2117633802

Date: 27 Sep 2021 Page 5 of 8

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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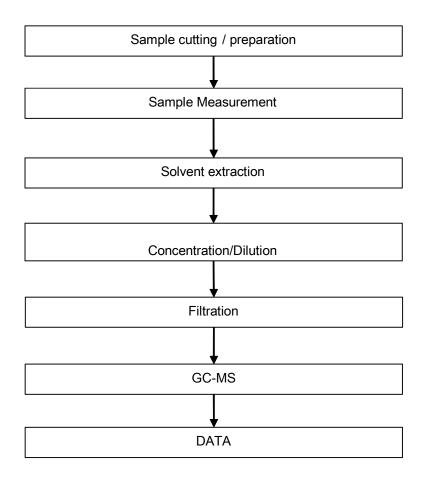
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Date: 27 Sep 2021

ATTACHMENTS

Phthalates Testing Flow Chart





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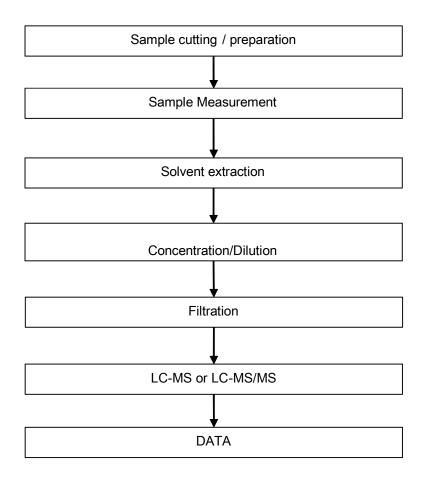
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ATTACHMENTS

PFOA / PFOS Testing Flow Chart





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No. CANEC2117633802

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Date: 27 Sep 2021

Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***



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Test Report No. CANEC2117633803 Date: 27 Sep 2021 Page 1 of 8

SHENZHEN CITY TONGHUA INDUSTRY CO.,LTD
TONGHUA MANSIN TONGLE XINBU VILLANG TOWN SHENZHEN CITY CHINA

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

SGS Job No. : CP21-051017 - SZ

Date of Sample Received: 18 Sep 2021

Testing Period: 18 Sep 2021 - 27 Sep 2021

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 of Lead,

Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs),

Polybrominated diphenyl ethers (PBDEs) and Phthalates such as

Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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

Allie Chen

Allie Chen
Approved Signatory





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Test Report No. CANEC2117633803 Date: 27 Sep 2021 Page 2 of 8

Test Results:

Test Part Description:

Specimen No. SGS Sample ID Description

> SN₁ CAN21-176338.003 Silver-gray plated 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 (EU) 2015/863 amending Annex II to Directive 2011/65/EU

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)	1,000	mg/kg	2	37
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	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
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND



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Member of the SGS Group (SGS SA)



No. CANEC21176338	03	Date: 2	27 Sep 2021	Page 3 of 8
<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>003</u>	
-	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	- mg/kg - mg/kg - mg/kg - mg/kg - mg/kg 1000 mg/kg 1000 mg/kg 1000 mg/kg	Limit Unit MDL - mg/kg 5 - mg/kg 5 - mg/kg 5 - mg/kg 5 1000 mg/kg 50 1000 mg/kg 50 1000 mg/kg 50	Limit Unit MDL 003 - 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

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:12586 37.25
- (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>003</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



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Notes:

(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)



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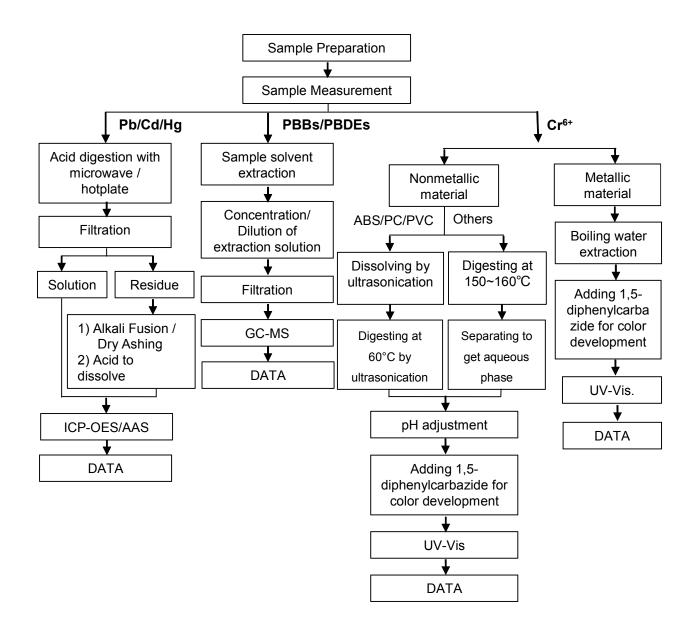
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Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

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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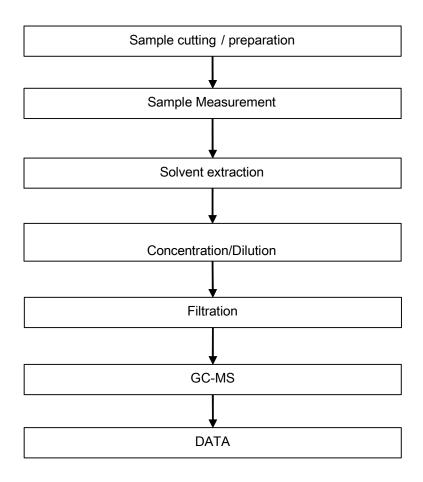


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Phthalates Testing Flow Chart





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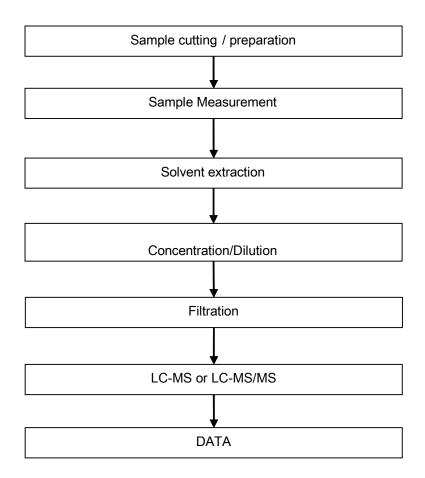
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PFOA / PFOS Testing Flow Chart





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Sample photo:



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Test Report



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Page 1 of 5

报告抬头公司名称 东莞市顺航金属制品有限公司

Company Name

DONGGUAN SHUN HANG METAL PRODUCTS CO. LTD.

shown on Report

地 址 东莞市沙田镇稔洲村永茂小组

Address YONGMAO GROUP, RENZHOU VILLAGE, SHATIAN TOWN, DONGGUAN

CITY

以下测试之样品及样品信息由申请者提供并确认

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

the applicant

样品名称 SUS304+镍镀层

Sample Name SUS304+Nickel plating

材料名称 SUS304
Material SUS304
样品接收日期 2020.11.11
Sample Received Date Nov. 11, 2020

样品检测日期 2020.11.11-2020.11.14

Testing Period Nov. 11, 2020 to Nov. 14, 2020

检测要求 根据客户要求,对所提交样品中的铅(Pb),镉(Cd),汞(Hg),六价

铬(Cr(VI))进行测试。

Test Requested As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent

Chromium(Cr(VI)) in the submitted sample(s).

检测依据/检测结果 请参见下页。

Test Method/Test Result(s) Please refer to the following page(s).





Centre Testing International Group Co.,Ltd. Shunde Branch

审 核 Reviewed by

日 期

Date

Dir/2

2020.11.14

No. R340238123

广东省佛山市顺德区容桂容奇大道东8号之二永盈大厦

Yongying Building, Section 2, No.8, East of Rongqi Avenue, Ronggui, Shunde District, Foshan, Guangdong, China



Test Report

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结论 Conclusion

测试样品 Tested Sample	依据标准/指令 According to standard/directive	结果 Result
提交样品 Submitted Sample		符合
	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

符合表示检测结果满足欧盟RoHS指令2011/65/EU及其修订指令(EU) 2015/863要求的限值。 PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.







Test Report

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检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead(Pb)	参考IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
镉 Cadmium(Cd)	参考IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
汞 Mercury(Hg)	参考IEC 62321-4:2013+AMD1:2017 CSV Refer to IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium(Cr(VI))	IEC 62321-7-1:2015	UV-Vis

检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
铅 Lead(Pb)	N.D.	2 mg/kg	1000 mg/kg
镉 Cadmium(Cd)	N.D.	2 mg/kg	100 mg/kg
汞 Mercury(Hg)	N.D.	2 mg/kg	1000 mg/kg
六价铬 Hexavalent Chromium(Cr(VI))	N.D. ▼	0.10 μg/cm ² (LOQ)	1000 mg/kg

样品/部位描述

银色镀层

Sample/Part Description

Silvery plating

备注:

对于检测铅,镉,汞之样品已完全溶解。

- -N.D. = 未检出(小于方法检出限或定量限)
- -mg/kg = ppm = 百万分之一
- -1000 mg/kg = 0.1%
- -LOQ = 定量限, 六价铬的定量限为0.10 μg/cm²
- -▼六价铬浓度小于0.10 μg/cm², 样品未检出六价铬。

Remark:

The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

- -MDL = Method Detection Limit
- -N.D. = Not Detected (<MDL or LOQ)
- -mg/kg = ppm = parts per million
- -1000 mg/kg = 0.1%
- -LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm²
- $^{-}$ The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10 µg/cm². The coating is considered a non-Cr(VI) based coating.



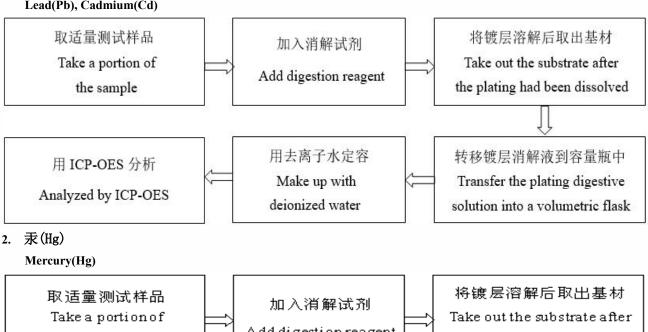
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检测流程 Test Process

1. 铅(Pb), 镉(Cd)

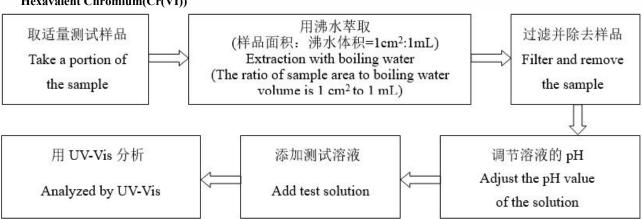
Lead(Pb), Cadmium(Cd)





3. 六价铬(Cr(VI))

Hexavalent Chromium(Cr(VI))





检测报告 Test Report

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样品图片 Photo(s) of the sample(s)



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- 3. 本报告检测结果仅对受测样品负责;
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