

# 承认书

Approval Sheet

客户(Customer): /

客户料号 (Cus . P/N): /

华联威料号 (HLW P/N): U218-0621-G21017

品名规格 (PronameSpec): USB AM 沉板 SMT 脚宽 12.6 黑铁

送样日期 (Delivery Date):2021/11/16

承认日期 (Acknowledge Date):2021/11/16

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							
江梅	欠必峰	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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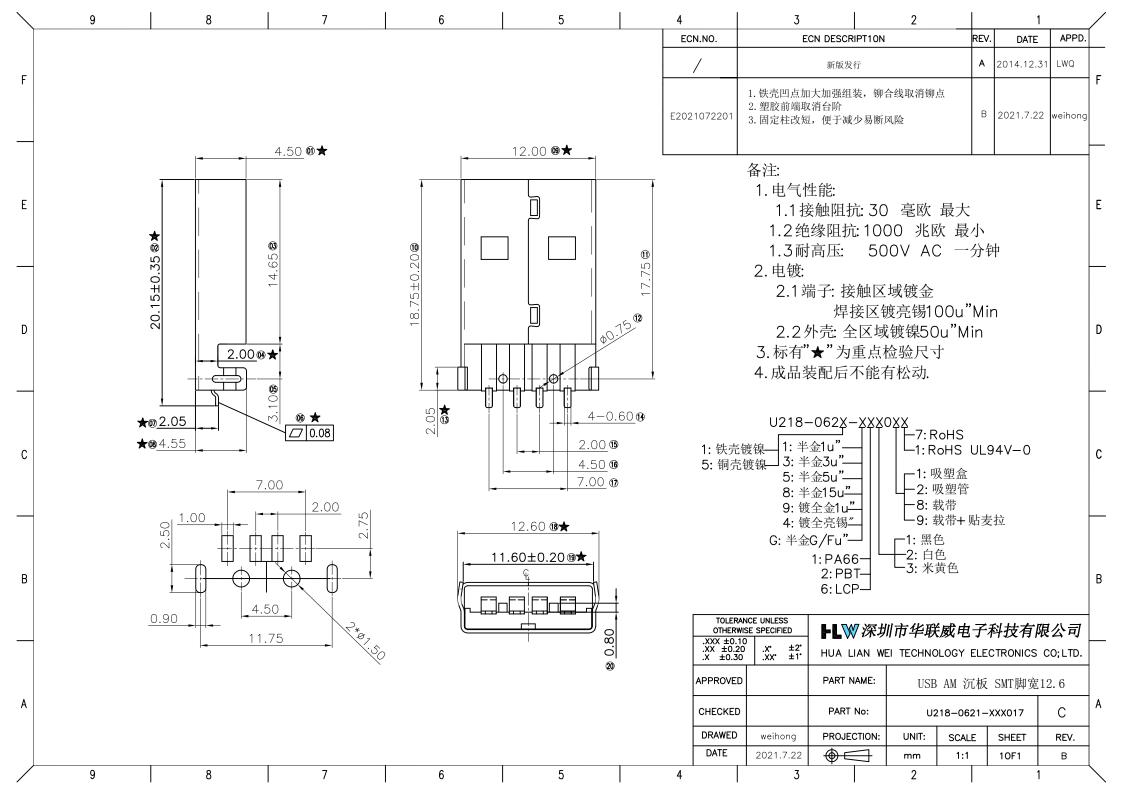


## **FLWCONN**®

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# ►LW 深圳市华联威电子科技有限公司 USB2.0系列產品SPEC

	TEST ITEM	REQUIREMENT	PROCEDURE							
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.							
2	Operating Temperature	0°C to 50 °C								
3	Storage Temperature	-20°C to 60 °C								
	ELECTRICAL REQUIREMENT									
4	Rating Voltage	30VAC max	on any signal pin with respect to the shield							
5	Rating Current	1.5 A per contact	55°C, maximum ambient 85°C, maximum temperature change							
6	Contact Resistance	$30~\text{m}\Omega$ maximum when measured at $20~\text{mV}$ maximum open circuit at $100~\text{mA}$ . Mated test contacts must be in a connector housing.	EIA 364-23 The object of this test is to detail a standard method to measure the electrical resistance across a pair of mated contacts such that the insulating films, if present, will not be broken or asperity melting will not occur.							
7	Dielectric withstanding Voltage	The dielectric must withstand 500 V AC for one minute at sea level.	EIA 364-20 The object of this test procedure is to detail a test method to prove that a USB connector can operate safely at its rated voltage and withstand momentary over potentials due to switching, surges, and/or other similarphenomena.							
8	Insulation Resistance	1,000Μ $\Omega$ minimum.	EIA 364-21 The object of this test procedure is to detail a standard method to assess the insulation resistance of USB connectors. This test procedure is used to determine the resistance offered by the insulation materials and the various seals of a connector to a DC potential tending to produce a leakage of current through or on the surface of these members.							
9	Temperature Rising	30°C Max. Under loaded rating current	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.							
		Mechanical Requirement								
10	Connector Mating Force	35 Newtons maximum at a maximum rate of 12.5 mm (0.492") per minute.	The object of this test is to detail a standard method for determining the mechanical forces required for inserting a USB connector. EIA 364-13							



# ►L 深圳市华联威电子科技有限公司 USB2.0系列產品SPEC

	TEST ITEM	REQUIREMENT	PROCEDURE
11	Connector Unmating Force	10 Newtons minimum at a maximum rate of 12.5 mm(0.492") per minute.	The object of this test is to detail a standard method for determining the mechanical forces required for extracting a USB connector. EIA 364-13
12	Durability	1,500 insertion/extraction cycles at a maximum rate of 200 cycles per hour.	The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting a USB connector to the conditioning action of insertion and extraction, simulating the expected life of the connectors. Durability cycling with a gauge is intended only to produce mechanical stress. Durability performed with mating components is intended to produce both mechanical and wear stress. EIA 364-09
13	Vibration	No discontinuities of 1 $\mu$ s or longer duration when mated USB connectors are subjected to 5.35 Gs RMS. 15 minutes in each of three mutually perpendicular planes.	Test Condition V Test Letter A This test procedure is applicable to USB connectors that may, in service, be subjected to conditions involving vibration. Whether a USB connector has to function during vibration or merely to survive conditions of vibration should be clearly stated by the detailed product specification. In either case, the relevant specification should always prescribe the acceptable performance tolerances. EIA 364-28
14	Mechanical Shock	No discontinuities of 1 $\mu$ s or longer duration when mated USB connectors are subjected to 11 ms duration 30 Gs half-sine shock pulses. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks.	Test Condition H The object of this test procedure is to detail a standard method to assess the ability of a USB connector to withstand specified severity of mechanical shock. EIA 364-27
15	Solder ability	USB contact solder tails must pass 95% coverage after one hour steam aging as specified in Category 2.	1)Temperature of fused solder: 245±5°C. 2)Dipping time:10+1s EIA 364-52
		Environmental Requirements	
16	Resistance to Solder Heat	Forming resin shall not be distorted, and terminations shall not be separated.	1) Depth of dipping termination: the distance between the mounting surface and solder surface shall be 1 mm to 2mm. 2) Temperature: 245±5°C. 3) Dipping time: 10±1s Socket EIA 364-56
17	Thermal Shock	10 cycles - 55 °C and +85 °C. The USB connectors under test must be mated.	Test Condition I The object of this test is to determine the resistance of a USB connector to exposure at extremes of high and low temperatures and to the shock of alternate exposures to these extremes, simulating the worst case conditions for storage, transportation, and application.  EIA 364-32



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	TEST ITEM		RE	QUIREN	MENT		PROCEDURE					
18	Steady State Humidity	USB con	s minimur	n (seven c	complete c	ycles). The red in	Test Condition A Method III The object test procedure is to detail a standard test for the evaluation of the properties of mate in USB connectors as they are influence effects of high humidity and heat. EIA				t method rials used ed by the	
19	Temperature Life (Heat Aging)	the most Specifica	Must meet the minimum requirements specified by the most current version of Chapter 6 of the USB specification and must be free of cosmetic and/or nechanical imperfections that will prevent normal se.					e USB and/or lest procedure is to detail a standard method assess the ability of a USB connector to withstand				
20	Salt Spray	Visual Inspection-No physical damageLLCR-50 m $\Omega$ max per contact Mated connector expose to 5% salt concentration for 12 hours at temperature 3 °C. After the test specimens shall be washed running water and dried naturally EIA 364						shed with				
			Product	Qualifica	ation and l	Requalificati	on test					
						Test G	roup					
Tes	st or Examination	A	В	С	D	Е	F	G	Н	I	J	
						Test Seque	nce (a)					
Exam	ination of Product	1, 7	1, 9	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 3	1, 3	
Conta	ct Resistance		2, 8	2, 5	2, 4	2, 4	2, 4	2, 4				
Dielec	tric withstanding	3, 6										
[nsula	tion Resistance	2, 5										
Гетр	erature Rising								2			
Matin	g Force		3, 7									
Unma	ting Force		4, 6									
Durab	oility		5									
Vibra	tion			3								
Mech	anical Shock			4								
Solde	rability										2	
Resist	ance to Soldering									2		
Γhern	nal Shock				3							
Iumic	lity Temperature	4				3						
Temperature Life							3					
Salt S	pray							3				
備注    無客戶指定增加測試項目外,依照此標准進行產品可靠性評估。												

審核: 黄国华 制定: 赵晶



## 深圳市华联威电子科技有限公司

## SHENZHENHUALIANWEIELECTRONICS CO., LTD.

## 測試報告

## **TEST REPORT**

	產品名稱 Part Name	USB AM沉板SMT,外壳脚PBT黑色	測試日期 Date of Testing	2021.11.15		報告編號 port N	た NO.	202	111150	l	
	產品型號 Part Name	U218-0621-G21017	樣品數量 Quantity	5PCS		則試環境 ing Envir			度Temp: 蒸度R.H.		
一.電	性測試 ELECTRIC	CAL TEST									
						測試記録	綠Testing	g Result	t	判定Judge	
序 號 NO.	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC	1	2	3	4	5	Pass	Fail
1	Contact resistance	Test current:100mA max	DIGITAL MICRO- OHMMETER	30 m Ω Max	18.36 m Ω	17.55 m Ω	18.29 mΩ	16.72 m Ω	16.18 mΩ	Р	
2	Insulation resistance	Test voltage:500VDC Operation stated:1min	ULTRA HIGH RESISTANCE METER	RESISTANCE Min		Pass	Pass	Pass	Pass	Р	
3	Dielectric withstand voltage	Test voltage:500VAC 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 MECH	HANICAL TEST									
序	测量存品	2015年14年14年	`Bul = + = D. /#	規格 SPEC	測試記錄Testing			g Result	判定Judge		
號 NO.	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment		1	2	3	4	5	Pass	Fail
1	Durability test	Rate:200cycles/hour Total: 1500cycles	LIFE TESTER FOR CONNECTOR	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
2	Mating Force	35 Newtons maximum at a maximum rare of 12.5mm(0.492") per minute	Insertion force testing machine	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
3	Un-Mating Force	10 Newtons minimum at a maximum rare of 12.5mm(0.492") per minute	Insertion force testing machine	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
三.環	境特性測試 ENVI	RONMENTAL TEST									
序號	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC		測試記録	象Testing	g Result	判定Judge		
NO.					1	2	3	4	5	Pass	Fail
1	Humidity- Temperature cycle	Temperature: 40±2°C Humidity: 90~95% Duration:168H	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
2	Heat test	Temperature: 70±2°C Duration:168H	OVEN	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	

3	Cold test	Temperature: -25±3°C Duration:168H	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
4	Temperature cycling test	PROGRAM CONTROLLED 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										
序號	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC	測試記錄Testing Result 判5					判定、	Judge
NO.					1	2	3	4	5	Pass	Fail
1	Salt spray test	Temperature: 35±2°C Concentration:5±1 %Duration:72H	SALT SPRAY TESTER	No Oxidation	Pass	Pass	Pass	Pass	Pass	Р	
2	Resistance to soldering heat test	Temperature: 245 ±5°CDuration:10 ±1sec	OVEN	No physical damage	Pass	Pass	Pass	Pass	Pass	Р	
3	Solder ability test	Temperature: 245 ±5°CDuration:10±1 sec	CONTROLLED CONSTANT-TEMP SOLDER POT	Soldering area <i>≷</i> 95%	Pass	Pass	Pass	Pass	Pass	Р	
	判 定 Result ■合格 (ACCEPT) □ 不合格 (REJECT)										

審核(Approver): 欠必峰

測試(Tester): 曾希

# ▶■₩深圳市华联威电子科技有限公司 檢驗報告

■首件檢験	魚 口入庫檢驗 口	出貨檢	驗 口名	字退檢	驗口	退料模	験 □	1其他		2021年	F <b>11</b> 月	16日 版	次:A1
料號	U218-0621-G21	017	制令	單號		/		僉單位		工程部	首	牛製作者	裝配
品名	USB AM 沉板SMT脚的	宽12.6	客戶個	弋號	,	/	批	量		/		<b>鐱時間</b>	/
	黑铁						數	量	,	5PCS		忍時間	/
	抽樣標準			單次	7 [	」雙次		抽样		AQL		MAJ:0.40	MIN:0.65
M	IIL-STD-105E(II)		1	常	□加膚	<b>量</b>	減量	( 5PC	CS)	ACC/REJ	0	/	/
不良数:		CRI (	/	)	MAJ	( /	)	MIN	1 (	/ )	不良	具率(%)	/
NO.	檢驗項目	檢測		檢	驗 記	錄		品管判	判定	CRI	MAJ	MIN	備注
NO.	單位:MM/G	儀器	1	2	3	4	5	AC	RE	CKI	WIAJ	IVIIIN	
	4.50±0.20	D	4.55	4.53	4.56	4.55	4.53	√					
	20.15±0.35	D	20.16	20.18	20.15	20.18	20.14	<b>√</b>					
	4.55±0.20	D	4.58	4.59	4.60	4.58	4.57	<b>√</b>					
	12.00±0.20	D	12.03	12.05	12.04	12.03	12.04	√					
尺	18.75±0.20	D	18.78	18.76	18.75	18.73	18.76	√					
	17.75±0.20	D	17.78	17.80	17.82	17.80	17.79	<b>√</b>					
寸	12.60±0.20	D	12.64	12.67	12.65	12.67	12.65	<b>√</b>					
測	11.60±0.20	D	11.47	11.50	11.46	11.45	11.47	<b>√</b>					
W.4													
量													
檢驗依據:	<<工程圖紙>>	□<<	檢驗規算	節>>	□<<7	承認書	>> [	1樣品		其它			
檢測儀器:	A游標卡尺 B千分尺	C厚薄	儀 D投影	ジ鏡 E	放大鏡	F顯微	鏡 G鍇	易爐 Hi	番拔 たんしん	力器 I間位	Z尺 J	其它	
品保判定:	品保判定: ■				□退	貨Reje	ect	□特須	€Wa	aive [		<b>§</b> Sort	
	核 准		汪志根		審	核	文	刂联英		檢驗		但	芬
保存期限:	<sub>三年</sub> PP				保存	牌:	品保部	)		INSPI	3Y	QR-M-00	)3



## ▶ ▶ ▶ 深圳市华联威电子科技有限公司

## 电镀报告表

品名: USB AM 沉板 (端子) 版次:A.0 电镀规格:Ni40u",Sn40u",Au G/Fu" 日期:2021-08-21 页次:1/1

厂商:同华电镀厂

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	58. 2u"	OK	2021/8/21	13:35:12
2	40u"MIN	60. 7u"	OK	2021/8/21	13:35:14
3	40u"MIN	55. 4u"	OK	2021/8/21	13:35:16
4	40u"MIN	61. 5u"	OK	2021/8/21	13:35:18

#### 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	63. 3u"	OK	2021/8/21	14:10:23
2	40u"MIN	70. 4u"	OK	2021/8/21	14:10:25
3	40u"MIN	56. 7u"	OK	2021/8/21	14:10:27
4	40u″MIN	65. 1u″	OK	2021/8/21	14:10:29

#### 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	2021/8/21	14:18:20
2	0.5u"MIN	0. 58u"	OK	2021/8/21	14:18:22
3	0.5u"MIN	0. 57u"	OK	2021/8/21	14:18:24
4	0.5u"MIN	0.56u"	OK	2021/8/21	14:18:26

核准: 汪志根 审核: 刘联英 检验员: 但芬



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## 电镀报告表

品名: USB AM 沉板脚宽12.6外壳 版次:A.0 电镀规格:Cu:40u"Ni:50u"MIN 日期:2021/8/12 页次:1/1

厂商:金和源

测试设备:CMI X-射线膜厚测试仪

#### 1、底层电镀测试(Cu)

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	2021/8/12	19:55:05
2	40u"min	48. 5u"	OK	2021/8/12	19:55:57
3	40u"min	44. 2u"	OK	2021/8/12	19:56:48
4	40u"min	45. 6u″	OK	2021/8/12	19:57:31

#### 2、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	50u"min	57. 3u″	OK	2021/8/12	19:58:12
2	50u"min	55. 6u"	OK	2021/8/12	19:59:04
3	50u″min	56. 2u"	OK	2021/8/12	20:01:44
4	50u"min	58. 3u"	OK	2021/8/12	20:02:36

核准: 汪志根 审核: 刘联英 检验员: 但芬



## 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	2021年11月15日 20:00 时起			
谷尸	/	DATE	2021年11月16日 08:00 时止			
样品名称	USB AM 沉板脚宽12.6黑铁	试验数量	5PCS			
P/N	U218-0621-G21017	QTY				

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
件加力与	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:汪志根 审核:刘联英 试验员:但芬

## 东莞市强能金属有限公司

产品质量证明书

		la la	公差	(mm)	壬胄 /1)	日期
牌号	状态	规格	厚度	宽度	重量 (kg)	[ ] <del>} } ]</del>
C2680 (H65)	EII	0. 25*305	±0.01	+0/-0.1	kg .	2011-7-16
	元素	CU%	P%	Pb%	Fe%	Zn%
化学 成份	标准	63. 5-68	0. 01	0.03 X	<b>荒市</b> 州	余量
77.0	实际值	64. 4	0. 0024	0.0006	0.0137	余量
成品	项目	抗拉强度 Mpa	延伸率	硬度值。 HV	学中国 (Amg)	品粒度 mm
性能	实际值	560		175	111	
执行标注:	GB/T2	059-2000	检验员:	欧明端	质管部经理	覃中文

备注: 货到用户:请顾客在七天内提出供货质量异议我厂负责产品质量三包,超出七天后顾客反映供货质量异议,我厂概不负责.

## 产品质量证明书 INSPECTION CERTIFICATE

江苏省南京市中华门外新建 邮编 210039 Xinjian, Zhonghuamen 210039 Nanjin, Jiangsu, China TEL (025)86365266

创造单元, 上海梅山锡岭即公右陷八司

	订货单位 CUSTOMER																				RODU		冷	轧钢带			-191				
	收货单位 PURCHASER																					号 R'S NO	6	000	107		IE :		BGT	ML1703	11400003
	标 难		Q/BQB	408 S		D FB																单编号 DRDER N	40			7/67				6	9
	SPECIFICATION		ri.a-	rw.A-	F.A																E OF	期 ISSUE	2	017/03	/14	200				Inti	ertek
																			- 28		F可证 ENSE		13				合作 CONTR	引号 ACT NO.		1.780	000487
F	個卷/捆包号	件	炉			格 及 重 IAL DESC		N			3	化学			MICAL				1 %		Ť		文仲战 G.L-L	∯ TENSI 2	LE TES	Τ	硬度 *D 弯 HARD 杯			644	
3	COIL/PACK NO.	数	号 HEAT	厚度 THICK		长度 LENGTH	张数	重量 MASS	С	St	Mn	P	5	AIt	70.00							屈服 Y.S.	抗校 T.S.	伸长 EL			BEND	NESS	奖	倍	
٥.		QTY	NO.	201200	mm	SALT/RANGES	SHEETS	(kg)	x10 <sup>2</sup>	x10	-	x10	_	_	x10	x10	x10	x10	x10	x10	x10	_	Pa	%	值	值	TEST	HR30T	mm	MPa	
1	10707183401	1	544780	0.30	1000	COIL		9360	4	0	16	12	5	36								217	335	41 45							
-	10707186901	1	544648 544648	0.30	200	COIL		9340 8940		0	16	14	9	33								204	337	45			1				
4	10707190001	1	544648	0.30	1000	COIL		7310	,	0	16	14	9	33								249	368	39			1				
5	10707190002	1	544648	0.30		COIL		7370	4	0	16	14	9	33								249	368	39			1				
6	10707192701	1	544648	0.30	11.50	COIL		9600	4	0	16	14	9	33								213	339	34.5			1				
7	10707192702	1	544648	0.30	1000	COIL		8900	4	0	16	14	9	33								213	339	34.5							

	备	往
F	REMA	ARKS

注 释 NOTES

会验者

SURVEYOR TO

Y.S. - YIELD STRENGTH \*01:ERICHSEN

T.S.= TENSILE STRENGTH EL= ELONGATION G.L.= GAUGE LENGTH L1= 5.65SQRT(F0)

L2= 50MM

L3-80MM

L4-200MM

L5=11.3SQRT(F0)

本产品已按上述要求进行制造和检验、其结果符合要求、特此证明。

WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.

质量负责人 QUALITY MANAGER

## 材质证明

兹有我司邦奇塑料科技有限公司为贵司所提供的产品不防火增加级原料 PBT 不防火加纤 20%黑色,由以下物质组成:

物品名称: PBT 不防火加纤黑色 20%

组成物质: PBT 环保树脂 60-70%

玻纤 20-25%

增韧剂 7-9%

润滑剂 0.1%

抗氧剂 0.1%

偶联剂 0.5%

其它 0.3%

黑色母 1-2%

## 建议成型:

- 1. 烘干温度 120-140℃
- 2. 烘干时间 2-4 小时
- 3. 成型温度 240-260℃

特此证明!

东莞市邦奇塑料科技有限公司



**Test Report** No. CANEC2119174215 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: PBT black plastic

SGS Job No. : CP21-055214 - GZ

Model No. : PBT black 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. CANEC2119174215 Date: 22 Oct 2021 Page 2 of 6

Test Results:

#### **Test Part Description:**

Specimen No. SGS Sample ID Description SN<sub>1</sub> CAN21-191742.015 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>015</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	20
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	15	Date: 2	22 Oct 2021	Page 3 of 6
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>015</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. CANEC2119174215

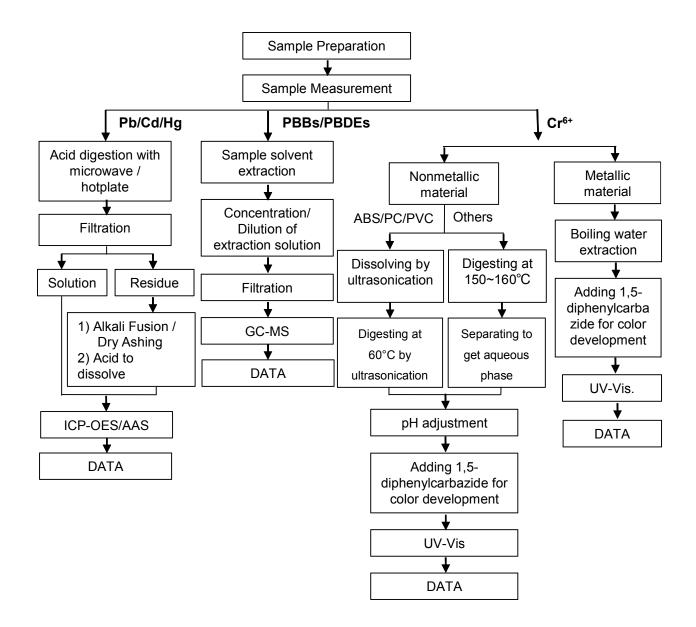
Date: 22 Oct 2021

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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. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).





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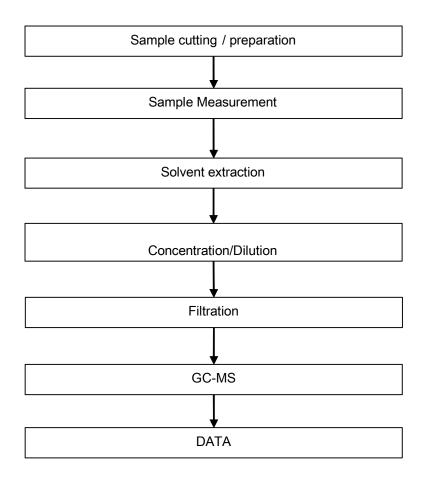
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Date: 22 Oct 2021

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#### **ATTACHMENTS**

#### **Phthalates Testing Flow Chart**





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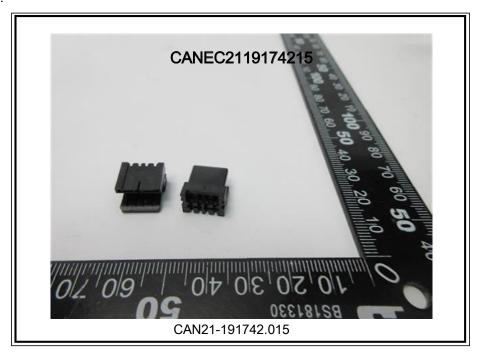


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Date: 22 Oct 2021

Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*



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**Test Report** No. CANEC2119174201 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: C2680 Terminal

SGS Job No. : CP21-055214 - GZ

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

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. CANEC2119174201 Date: 22 Oct 2021 Page 2 of 4

Test Results:

#### Test Part Description:

Specimen No. SGS Sample ID Description

> CAN21-191742.001 SN<sub>1</sub> Silver-grey/brassy 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>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	44
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

https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP\_ORG\_ID,FSP\_LANG\_ID:12586

- (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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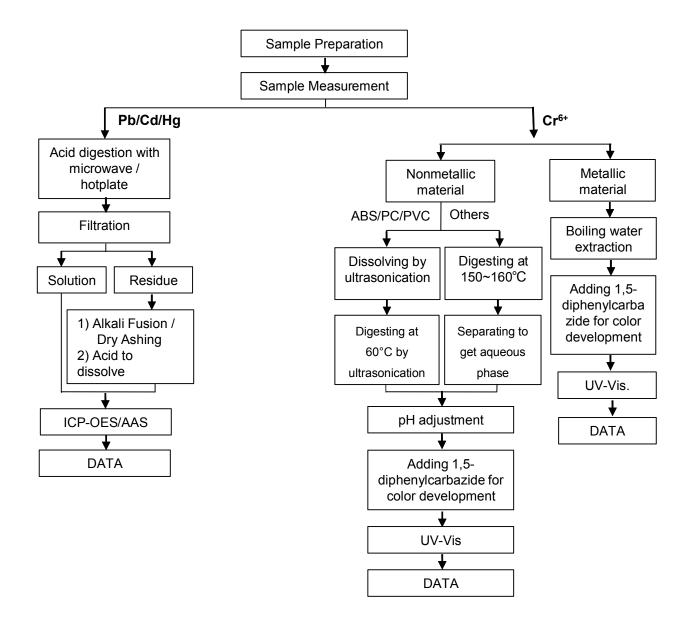
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Page 3 of 4

#### **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. CANEC2119174201

Page 4 of 4

Date: 22 Oct 2021

Sample photo:



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Test Report No. CANEC2119174206 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: Nickel plating of iron

shell

CP21-055214 - GZ SGS Job No.:

Model No.: Iron shell 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

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).

Based on the performed tests on submitted sample(s), the results of Lead, Conclusion:

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** Date: 22 Oct 2021 No. CANEC2119174206 Page 2 of 4

Test Results:

#### Test Part Description:

Specimen No. SGS Sample ID Description

CAN21-191742.006 SN<sub>1</sub> Silver-grey plated 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>006</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

https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP\_ORG\_ID,FSP\_LANG\_ID:12586

- (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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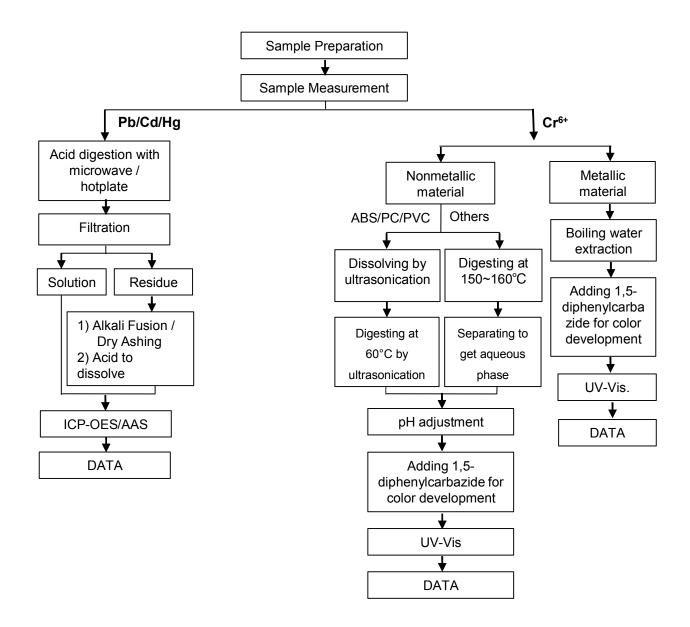
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#### **ATTACHMENTS**

#### Pb/Cd/Hg/Cr6+ Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded).





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Date: 22 Oct 2021

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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 SN<sub>1</sub> 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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Test Report	No. CANEC21176338	01	Date: 2	27 Sep 2021	Page 3 of 8
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</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>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** Date: 27 Sep 2021 Page 4 of 8 No. CANEC2117633801

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)<sub>2</sub> (CAS No.: 70225-14-8), PFOS-N(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub> (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)



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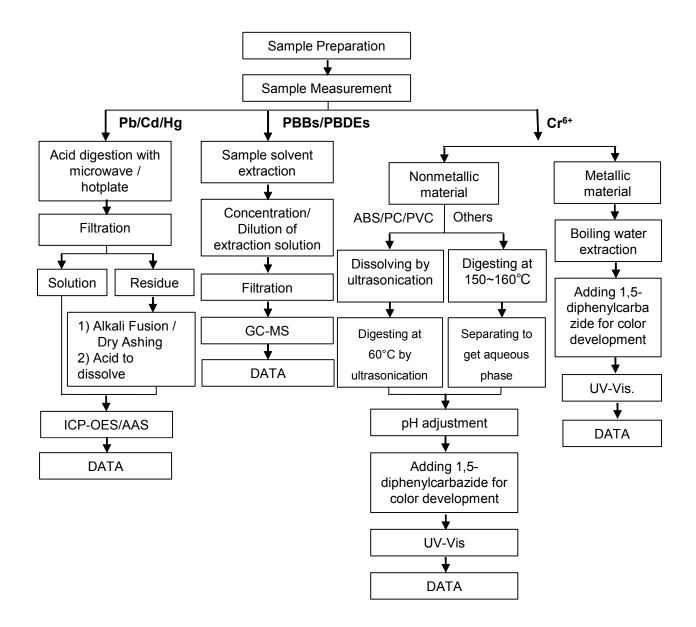
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#### **ATTACHMENTS**

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

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).





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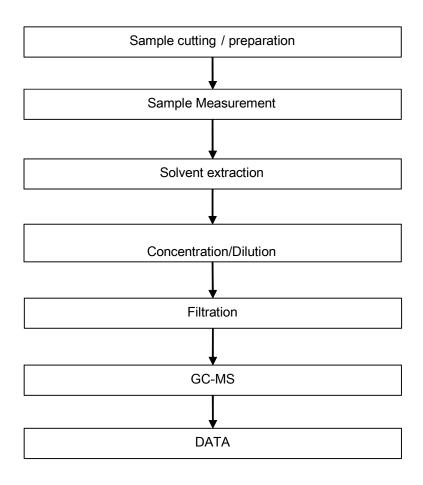


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#### **ATTACHMENTS**

#### **Phthalates Testing Flow Chart**





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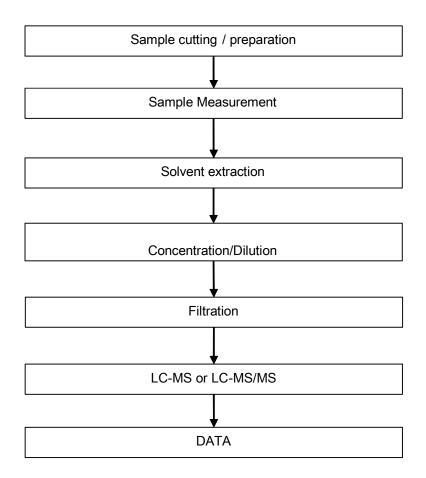
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#### PFOA / PFOS Testing Flow Chart





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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

> SN<sub>1</sub> 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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Test Report	No. CANEC2117633803		Date: 27 Sep 2021		Page 3 of 8
Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>003</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>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-NH<sub>4</sub> (CAS No.: 29081-56-9), PFOS-NH(OH)<sub>2</sub> (CAS No.: 70225-14-8), PFOS-N( $C_2H_5$ )<sub>4</sub> (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)



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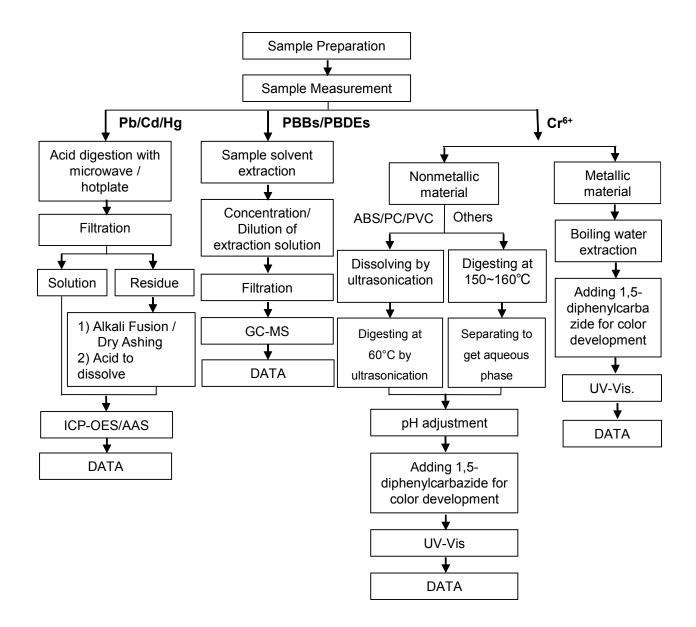
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## Pb/Cd/Hg/Cr6+/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).





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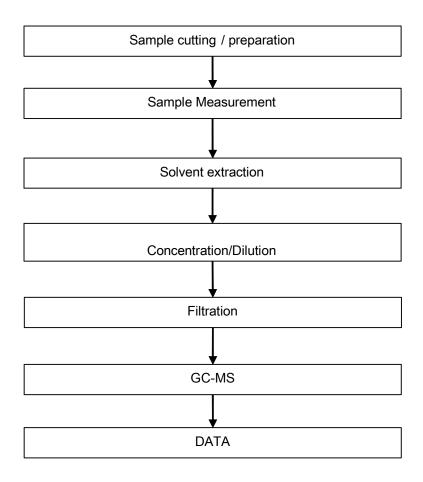


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## **Phthalates Testing Flow Chart**





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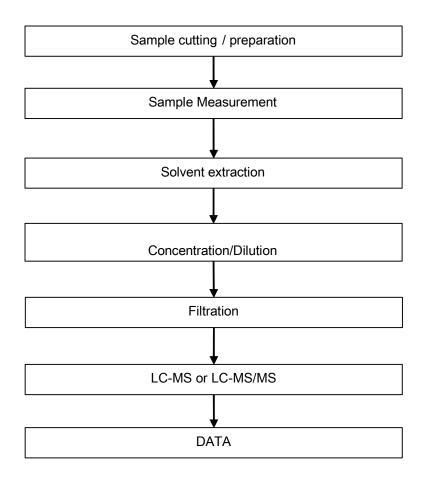
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## PFOA / PFOS Testing Flow Chart





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**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

> SN<sub>1</sub> 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           Sum of PBBs         1,000         mg/kg         -         ND           Monobromobiphenyl         -         mg/kg         5         ND           Dibromobiphenyl         -         mg/kg         5         ND           Tetrabromobiphenyl         -         mg/kg         5         ND           Pentabromobiphenyl         -         mg/kg         5         ND           Hexabromobiphenyl         -         mg/kg         5         ND           Octabromobiphenyl         -         mg/kg         5         ND           Nonabromobiphenyl         -         mg/kg         5         ND           Sum of PBDEs         1,000         mg/kg         5         ND           Monobromodiphenyl ether         -         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           Hexabromobiphenyl         -         mg/kg         5         ND           Heptabromobiphenyl         -         mg/kg         5         ND           Octabromobiphenyl         -         mg/kg         5         ND           Nonabromobiphenyl         -         mg/kg         5         ND           Sum of PBDEs         1,000         mg/kg         5         ND           Monobromodiphenyl ether         -         mg/kg         5         ND           Dibromodiphenyl ether         -         mg/kg         5         ND           Tribromodiphenyl ether         -         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/kg5NDPentabromobiphenyl-mg/kg5NDHexabromobiphenyl-mg/kg5NDHeptabromobiphenyl-mg/kg5NDOctabromobiphenyl-mg/kg5NDNonabromobiphenyl-mg/kg5NDDecabromobiphenyl-mg/kg5NDSum of PBDEs1,000mg/kg-NDMonobromodiphenyl ether-mg/kg5NDDibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-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           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         5         ND           Monobromodiphenyl ether         -         mg/kg         5         ND           Dibromodiphenyl ether         -         mg/kg         5         ND           Tribromodiphenyl ether         -         mg/kg         5         ND <tr< td=""><td>Mercury (Hg)</td><td>1,000</td><td>mg/kg</td><td>2</td><td>ND</td></tr<>	Mercury (Hg)	1,000	mg/kg	2	ND
Monobromobiphenyl-mg/kg5NDDibromobiphenyl-mg/kg5NDTribromobiphenyl-mg/kg5NDTetrabromobiphenyl-mg/kg5NDPentabromobiphenyl-mg/kg5NDHexabromobiphenyl-mg/kg5NDHeptabromobiphenyl-mg/kg5NDOctabromobiphenyl-mg/kg5NDNonabromobiphenyl-mg/kg5NDDecabromobiphenyl-mg/kg5NDSum of PBDEs1,000mg/kg-NDMonobromodiphenyl ether-mg/kg5NDDibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-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 Pentabromobiphenyl - mg/kg 5 ND Hexabromobiphenyl - mg/kg 5 ND Heptabromobiphenyl - mg/kg 5 ND Heptabromobiphenyl - 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 Monobromodiphenyl ether - mg/kg 5 ND Dibromodiphenyl ether - mg/kg 5 ND Tribromodiphenyl ether - mg/kg 5 ND	Sum of PBBs	1,000	mg/kg	-	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 Nonabromobiphenyl - mg/kg 5 ND Decabromobiphenyl - mg/kg 5 ND Decabromobiphenyl - mg/kg 5 ND Sum of PBDEs 1,000 mg/kg - ND Monobromodiphenyl ether - mg/kg 5 ND Tribromodiphenyl ether - mg/kg 5 ND Tribromodiphenyl ether - mg/kg 5 ND Tetrabromodiphenyl ether - mg/kg 5 ND	Monobromobiphenyl	-	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 Nonabromobiphenyl - mg/kg 5 ND Decabromobiphenyl - 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 Tetrabromodiphenyl ether - mg/kg 5 ND	Dibromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl-mg/kg5NDHexabromobiphenyl-mg/kg5NDHeptabromobiphenyl-mg/kg5NDOctabromobiphenyl-mg/kg5NDNonabromobiphenyl-mg/kg5NDDecabromobiphenyl-mg/kg5NDSum of PBDEs1,000mg/kg-NDMonobromodiphenyl ether-mg/kg5NDDibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-mg/kg5ND	Tribromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl-mg/kg5NDHeptabromobiphenyl-mg/kg5NDOctabromobiphenyl-mg/kg5NDNonabromobiphenyl-mg/kg5NDDecabromobiphenyl-mg/kg5NDSum of PBDEs1,000mg/kg-NDMonobromodiphenyl ether-mg/kg5NDDibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-mg/kg5ND	Tetrabromobiphenyl	-	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 Tetrabromodiphenyl ether - mg/kg 5 ND	Pentabromobiphenyl	-	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 Tetrabromodiphenyl ether - mg/kg 5 ND	Hexabromobiphenyl	-	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	Heptabromobiphenyl	-	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	Octabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs1,000mg/kg-NDMonobromodiphenyl ether-mg/kg5NDDibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-mg/kg5ND	Nonabromobiphenyl	-	mg/kg	5	ND
Monobromodiphenyl ether-mg/kg5NDDibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-mg/kg5ND	Decabromobiphenyl	-	mg/kg	5	ND
Dibromodiphenyl ether-mg/kg5NDTribromodiphenyl ether-mg/kg5NDTetrabromodiphenyl ether-mg/kg5ND	Sum of PBDEs	1,000	mg/kg	-	ND
Tribromodiphenyl ether - mg/kg 5 ND  Tetrabromodiphenyl ether - mg/kg 5 ND	Monobromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether - mg/kg 5 ND	Dibromodiphenyl ether	-	mg/kg	5	ND
3.3	Tribromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether - mg/kg 5 ND	Tetrabromodiphenyl 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)<sub>2</sub> (CAS No.: 70225-14-8), PFOS-N(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub> (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)



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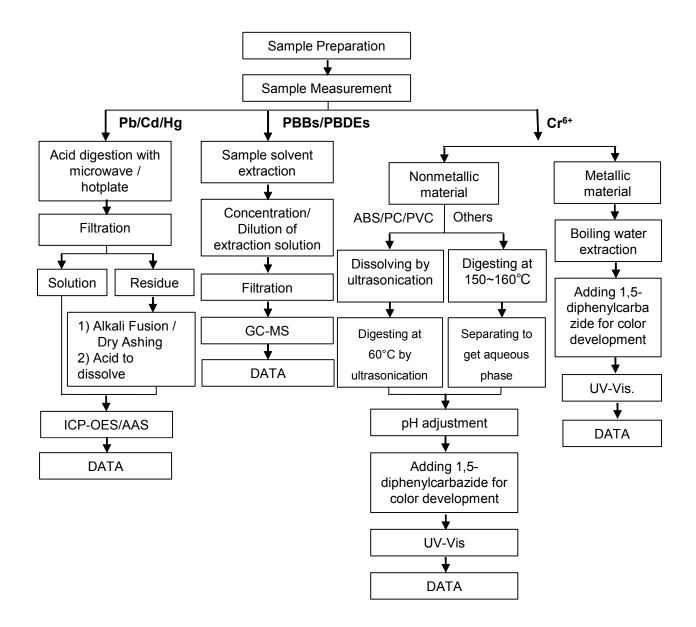
No. CANEC2117633802

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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. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).





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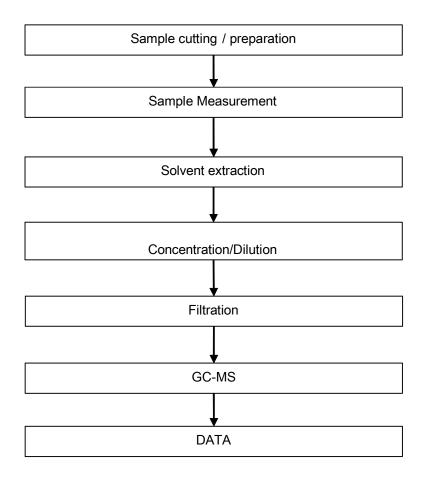
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Date: 27 Sep 2021

#### **ATTACHMENTS**

## **Phthalates Testing Flow Chart**





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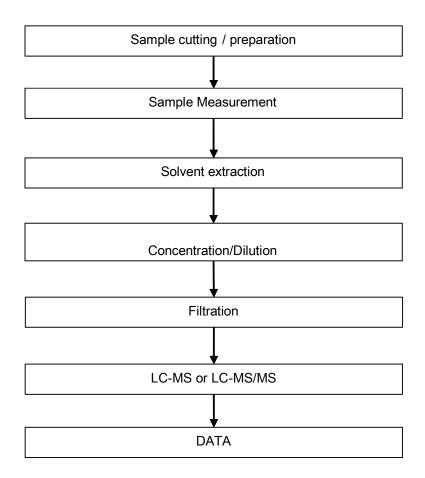
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## PFOA / PFOS Testing Flow Chart





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