



WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

DONGGUAN AEON TECH CO.,LTD.(CHINA)

SPECIFICATION FOR APPROVAL

CUSTOMER: 光寶

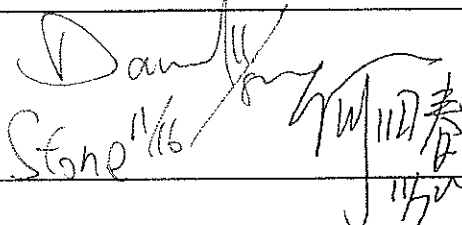
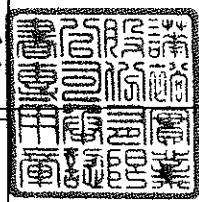
PART NAME: RF Antenna Assembly

PART NO.: 301000405Y7

REVISION:

W. Y. P/NO.: C759-510078-A(SRF20221654)

REV.: X2

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :		

WHA YU GROUP

WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

譚裕實業股份有限公司 (此零件生產廠區)

Address: No. 326, Sec. 2, Kung Tao 5 Road, Hsin Chu City, Taiwan, R.O.C.

Tel:+886-3-5714225(REP.)

Fax:+ 886-3-5713853 · + 886-3-5723600

DONGGUAN AEON TECH CO.,LTD.(CHINA)

東莞台霖電子通訊有限公司 (此零件生產廠區)

Address:Hupan Industrial District,Tai Ling Shan Town,Dong Guan City,Guangdong,China

Tel:+86-769-85655858

Fax:+86-769-85655258

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RF Antenna Assembly

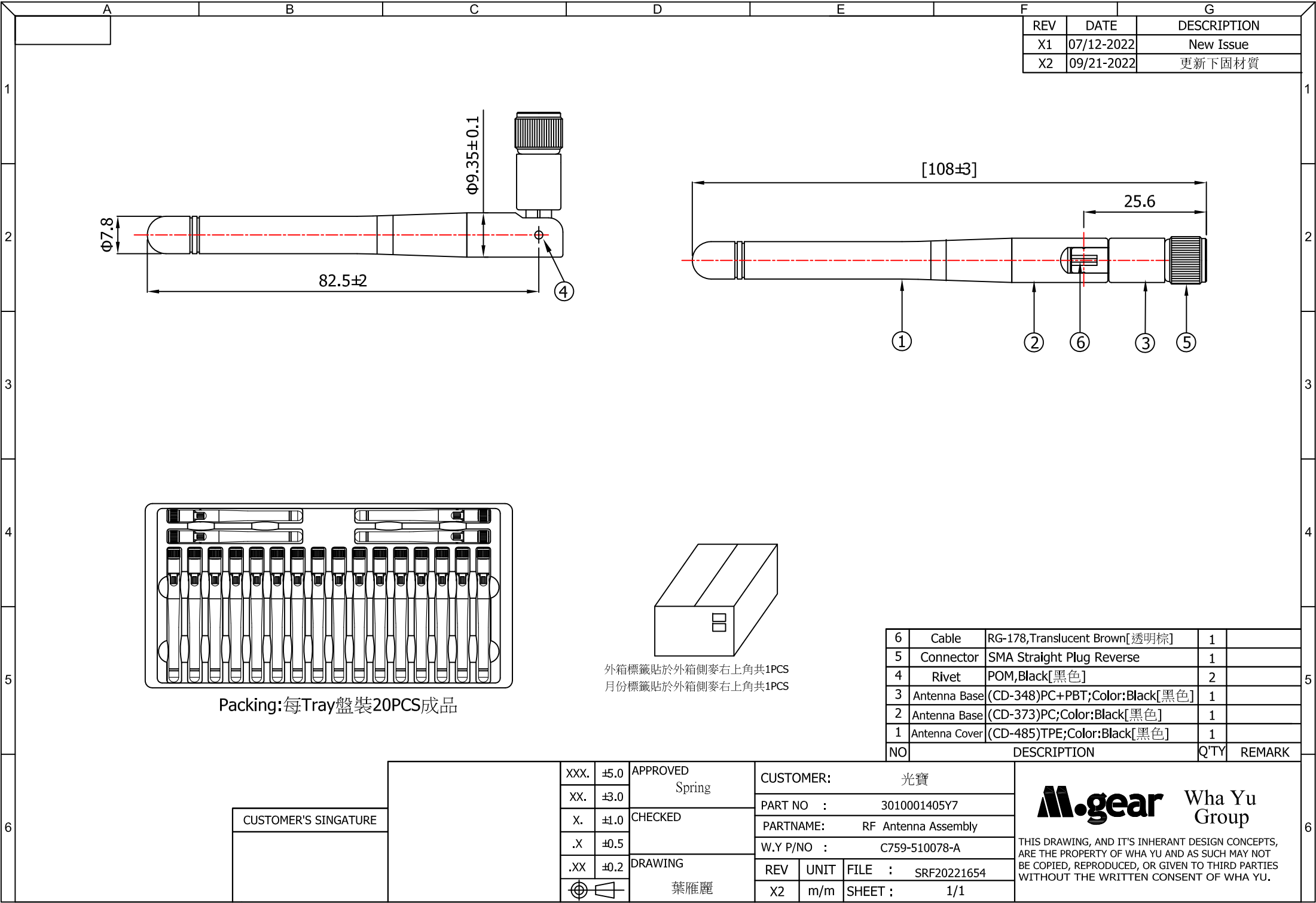
Specification

1. Electrical Properties : Without housing

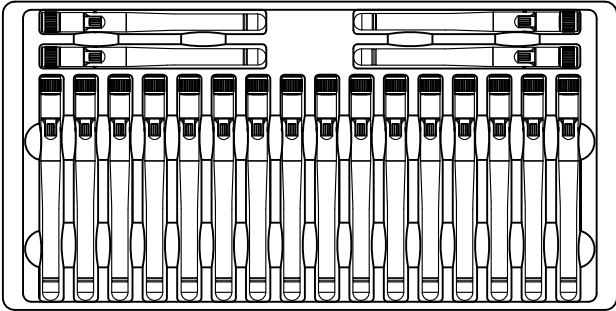
- 1.1 Frequency Range..... 2.4 ~ 2.5 , 5.15~5.85 GHz
- 1.2 Impedance 50Ω Nominal
- 1.3 VSWR 1.92 :1Max.
- 1.4 Return Loss..... 10 dB Min.
- 1.5 Radiation Omni-directional
- 1.6 Peak Gain..... 1.95dBi Max.@2.4 ~ 2.5GHz
3.64dBi Max.@5.15 ~ 5.85 GHz
- 1.7 Cable Loss..... N/A
- 1.8 Polarization..... Linear
- 1.9 Cable..... RG-178 Cable
- 1.10 Connector..... SMA Straight Plug/Reverse
- 1.11 Core..... N/A

2. Physical Properties :

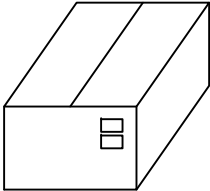
- 2.1 Operating Temp. -10°C ~ +60°C
- 2.2 Storage Temp. -10°C ~ +70°C



REV	DATE	DESCRIPTION
X1	07/12-2022	New Issue
X2	09/21-2022	更新下固材質



Packing:每Tray盤裝20PCS成品



外箱標籤貼於外箱側麥右上角共1PCS
月份標籤貼於外箱側麥右上角共1PCS

6	Cable	RG-178,Translucent Brown[透明棕]	1	
5	Connector	SMA Straight Plug Reverse	1	
4	Rivet	POM,Black[黑色]	2	
3	Antenna Base	(CD-348)PC+PBT;Color:Black[黑色]	1	
2	Antenna Base	(CD-373)PC;Color:Black[黑色]	1	
1	Antenna Cover	(CD-485)TPE;Color:Black[黑色]	1	
NO	DESCRIPTION		Q'TY	REMARK

CUSTOMER'S SINGATURE

XXX.	±5.0	APPROVED Spring
XX.	±3.0	
X.	±1.0	CHECKED
.X	±0.5	
.XX	±0.2	DRAWING
		
		葉雁麗

PART NO : 3010001405Y7		
PARTNAME: RF Antenna Assembly		
W.Y P/NO : C759-510078-A		
REV	UNIT	FILE : SRF20221654
X2	m/m	SHEET : 1/1



Wha Yu Group

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Dual Band small Dipole

Version: V 2.01

Released Date: 2022/06/23

Prepared By: Leo

Reviewed By: Stone

Contents

- Revised History
- Conclusion & Comments
- Specification
- Antenna Placement & Solution
- Test Setup for S-parameter Measurement
- Return Loss Results
- Test Setup for Radiation Pattern Measurement
- 2D Radiation Pattern Results
- Results Summary (return loss, isolation, peak gain, efficiency)

Revision History

Released Date	Version	Record
2022/06/23	2.01	Antenna Testing Report

Specification

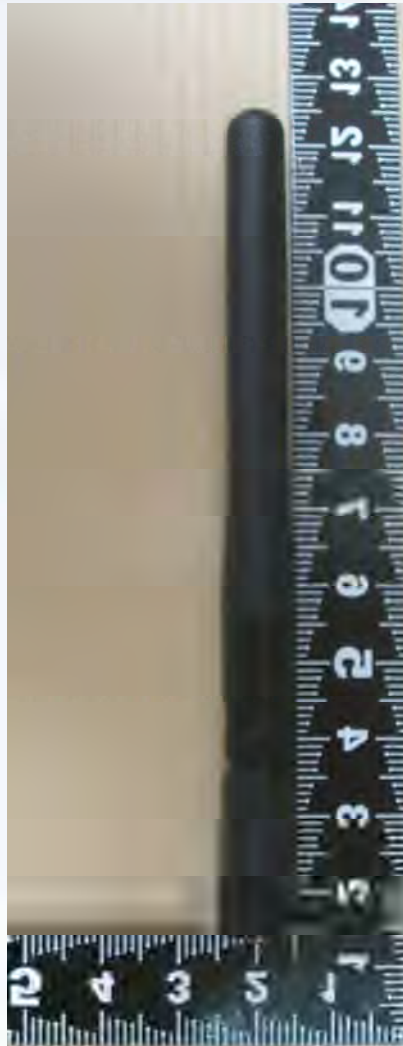
Requirements of Antenna Design

RF Function	Number of ANT	Frequency Band	Remark
2/5G	1	2400-2500 / 5150-5850 MHz	

Requirements of Measurement

Test Item	Specification	Remark
Return Loss	> 10dB	
Isolation	N/A	
Peak gain	N/A	
Efficiency	N/A	
Radiation pattern	N/A	

Antenna Placement & Solution



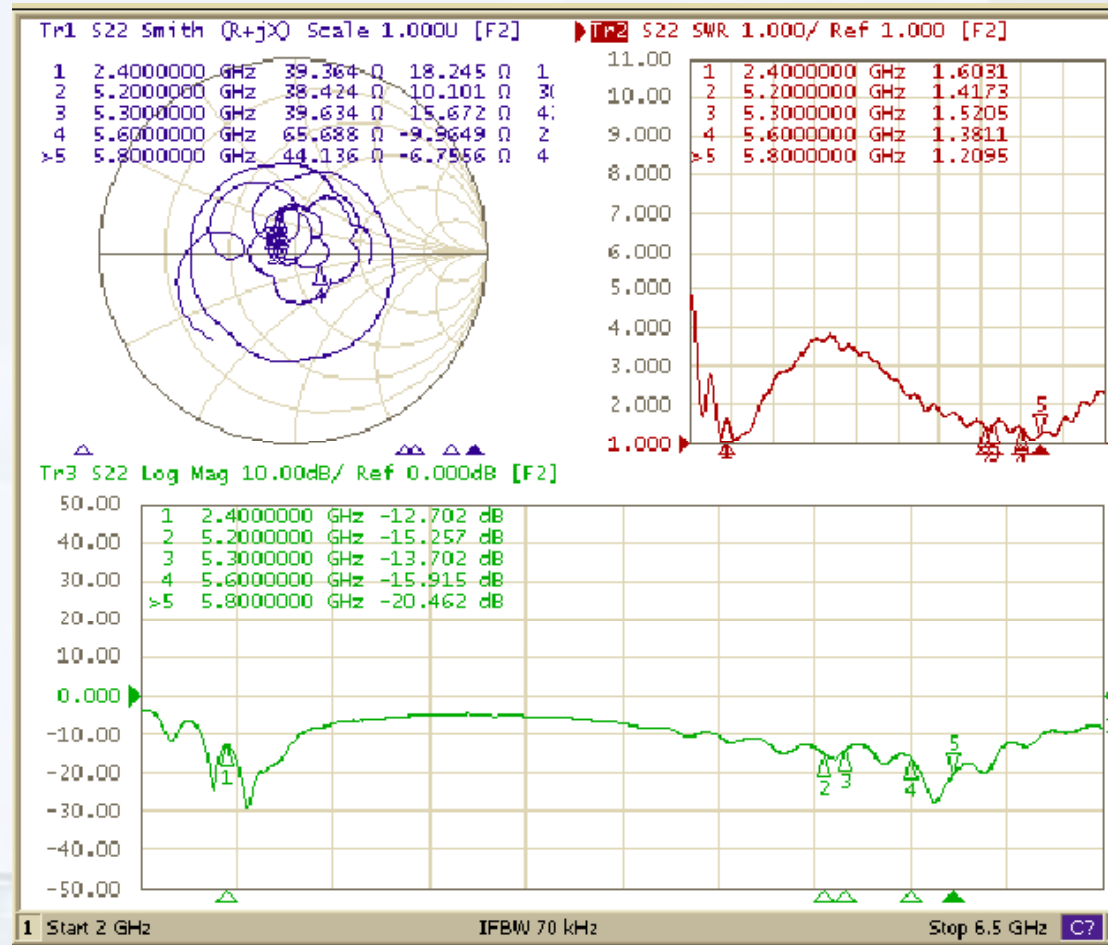
Test Setup for S-parameter Measurement



Equipment	Brand	Model	S/N
Network Analyzer	Keysight	E5071C	MY46107744

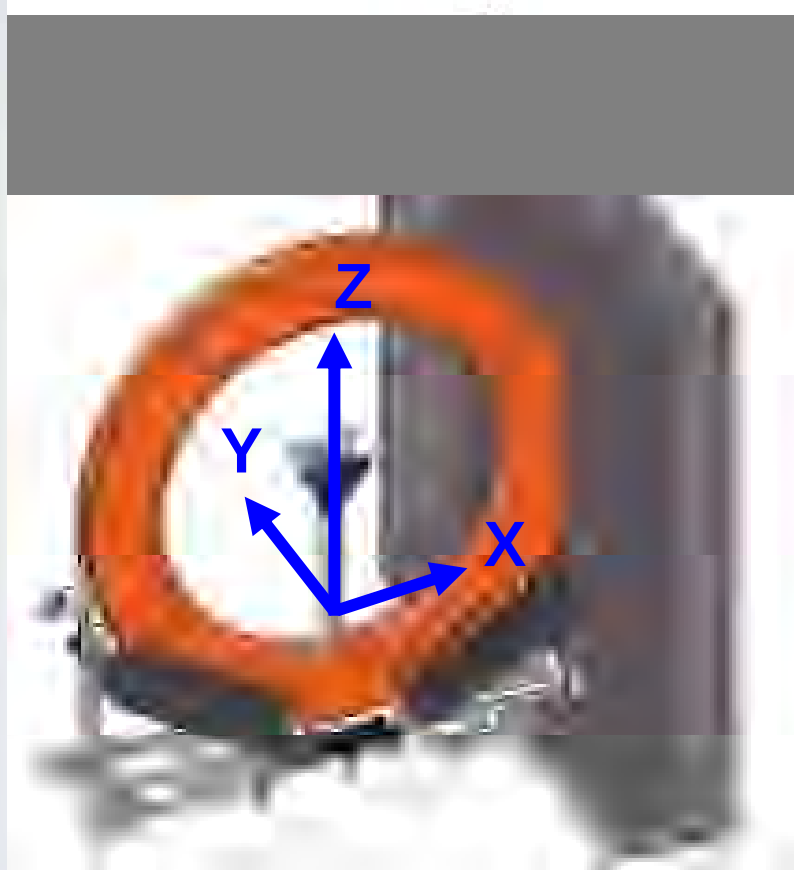
Return Loss Results

ANT (Criterion:>10dB)



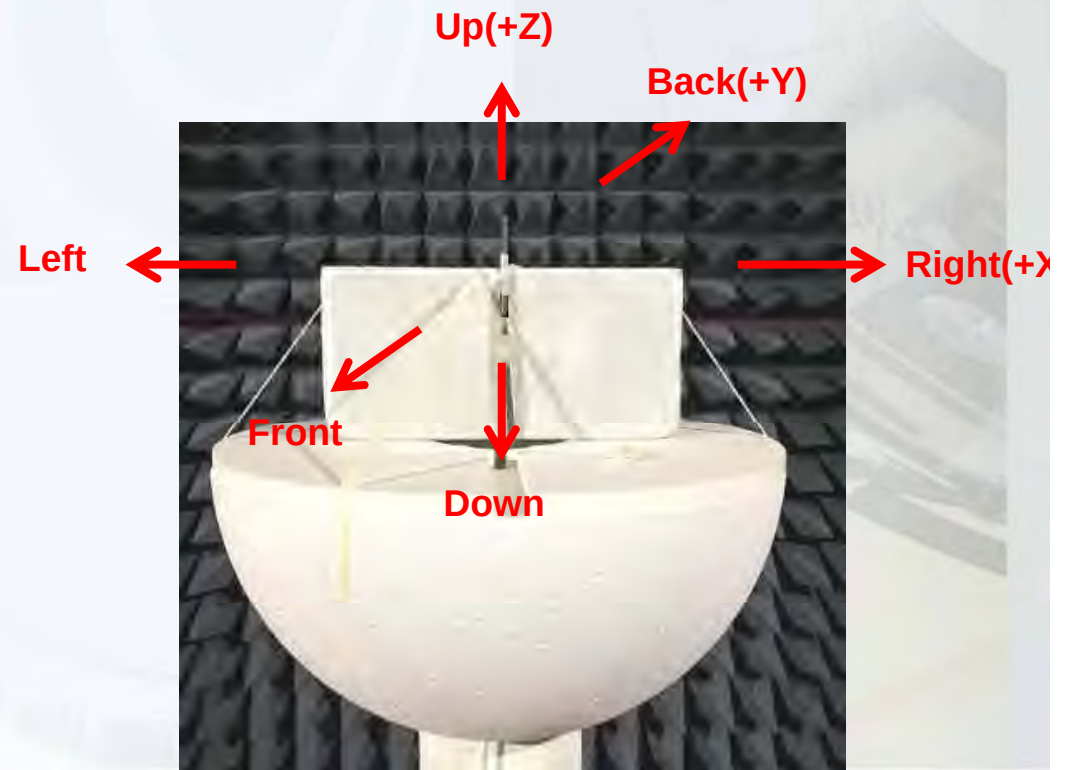
Test Setup for Radiation Pattern Measurement

Chamber Information



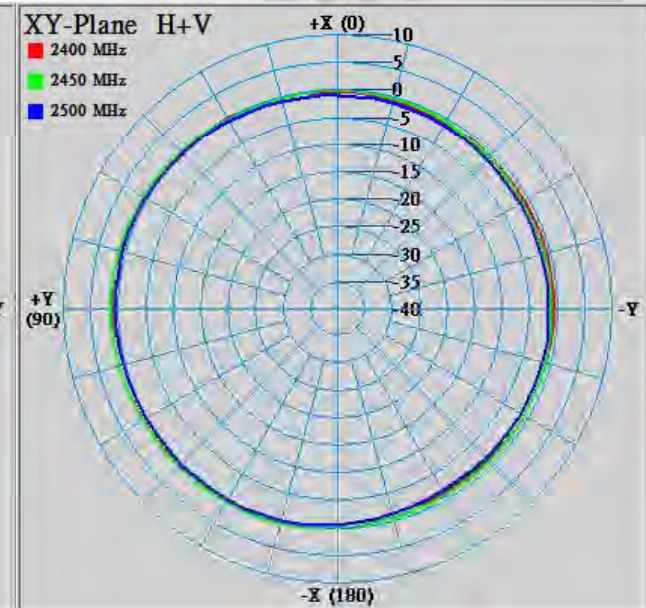
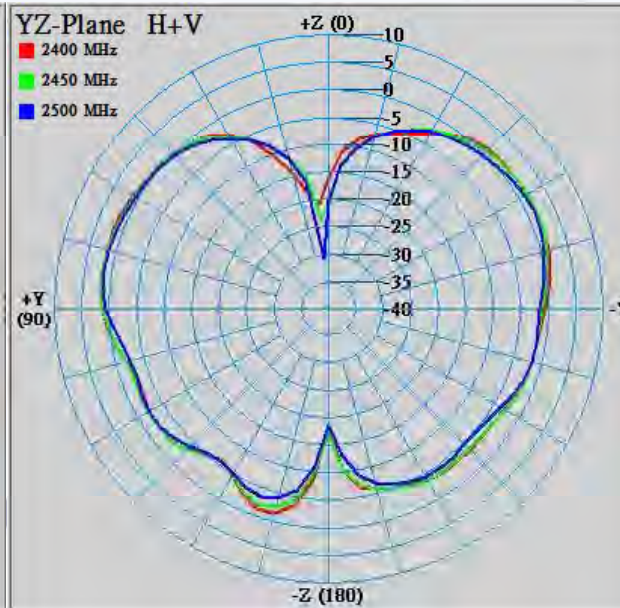
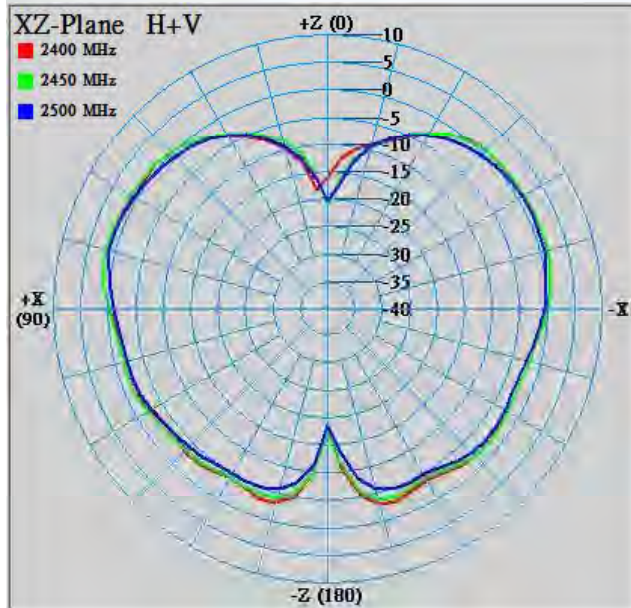
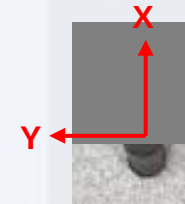
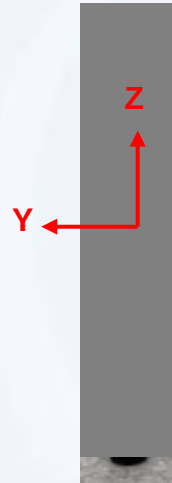
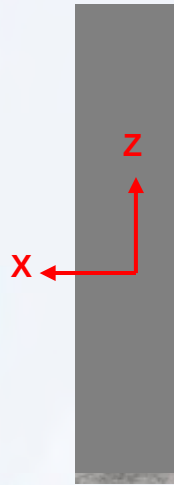
- SATIMO SG-24L Multi-Probe Antenna Measurement System

- Angle between probes: 15°
- Frequency range: 400 MHz – 8.5 GHz
- Chamber Room Size: 5m L x 5m W x 5m H



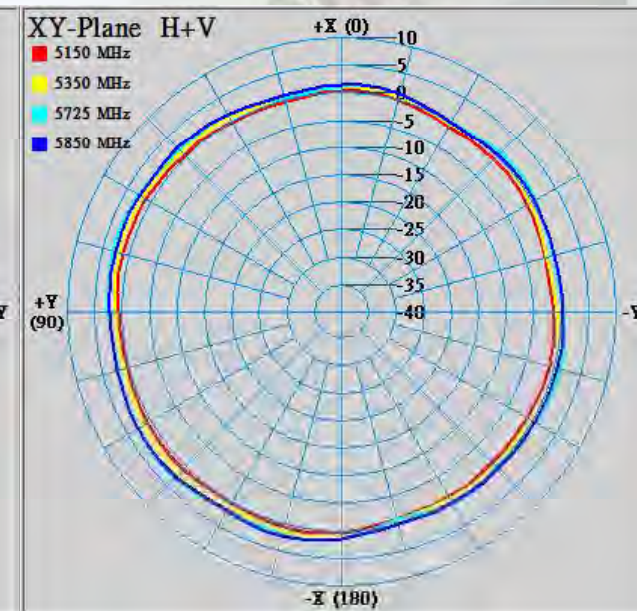
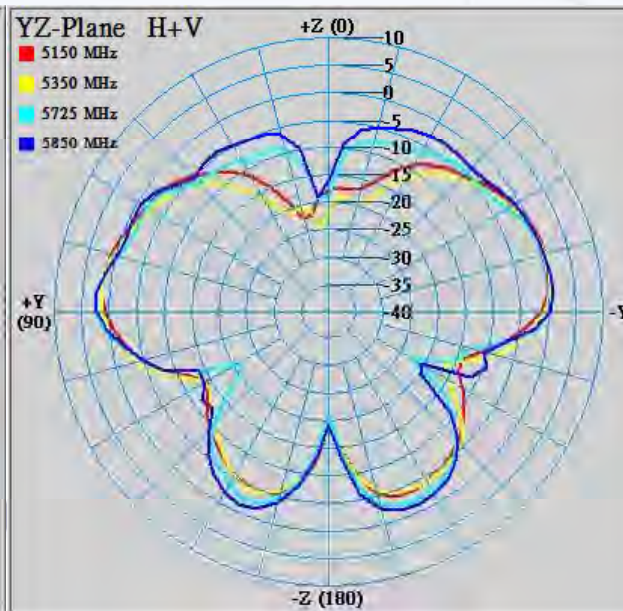
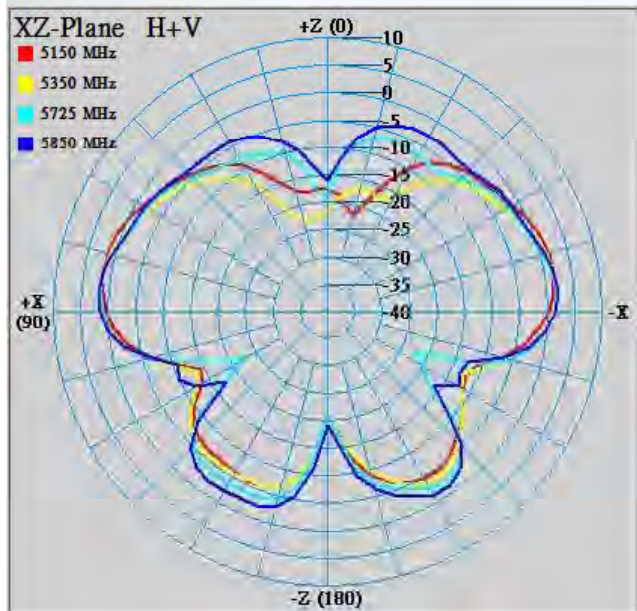
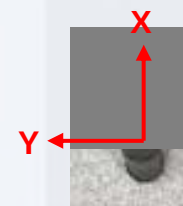
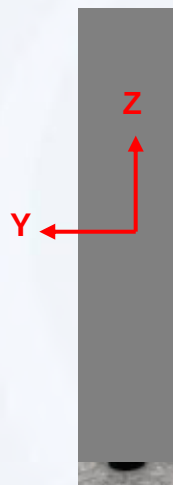
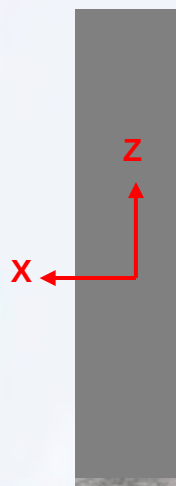
2D Radiation Pattern Results

2G



2D Radiation Pattern Results

5G



Results Summary

Return Loss (Criterion: >10dB)

Frequency (MHz)	ANT
2400 MHz	12
5200 MHz	15
5300 MHz	13
5600 MHz	15
5800 MHz	20

Results Summary

Peak gain & Efficiency – ANT

Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400 MHz	1.92	65
2450 MHz	1.95	66
2500 MHz	1.60	67
5150 MHz	2.37	71
5350 MHz	2.49	73
5725 MHz	3.64	69
5850 MHz	3.34	72



江阴凯博通信科技有限公司

JiangYin KaiBo Communication Technology CO.,LTD.

DATE : 2021-11-1

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规 格 书

Specification

系列 RG178 (50 Ω)
Series



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JiangYin KaiBo Communication Technology CO.,LTD.

DATE : 2021-11-1

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1. 结构图/Configuration



2. 结构/Construction:

项目/Item		详细资料/Details
①内导体 Inner conductor	材料/Material	镀银铜包钢/Silver plated copper clad steel
	构成(根/mm) /Composition (No. /mm)	7/0.102±0.005
	标称直径/NOM. O. D	0.306±0.02
②绝缘层 Insulation	材料/Material	聚全氟乙丙烯/FEP
	标称外径/NOM. O. D	0.865±0.03
	颜色/Color	Natural
③外导体 Outer conductor	材料/Material	镀银铜线 Cu-silver plated
	形式 Type	编织/Weaving
	构成/Composition	16/3/0.1±0.005
	标称直径/NOM. O. D	1.32±0.05
④护套层 Jacket	材料/Material	聚全氟乙丙烯/FEP
	标称外径/NOM. O. D	1.78±0.1
	颜色/Color	棕色/Brown

3. 性能特性 Performance characteristics

项目/Item	单位/Unit	详细资料/Details	
电容/Capacitance	pF/m	98	
特性阻抗/Conductor Resistance	Ω	50±3.0	
耐压强度/Dielectric Strength	A. C V/1min	1000	
最大工作频率/Max. oper. frequency	MHz	6000	
抗拉强度/Tensile strength	kgf/mm ²	1.76	
衰减/Attenuation	/	频率/Frequency	dB/1m
		1GHz	≤1.7
		2GHz	≤2.42
		3GHz	≤3.08
		4GHz	≤3.63
		5GHz	≤4.15
		6GHz	≤4.8
驻波比/Standing wave (0-6GHz)	/	≤1.3	



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4. 机械性能特性 Mechanical characteristics

项目 Item	单位 Unit	详细资料/Details
最小弯曲半径(一次) Min.bending radius static	mm	8
工作温度范围 Operating temperature	℃	-50to200

5. 使用提示 Use tips

存储环境 Storage environment	温度：30℃以下；湿度：20%~65%
最佳保存周期 The best save cycle	2 个月，2 个月以上锡效果变差, 但电性能不受影响，夏季高温高湿环境开剥后需尽快流转
加工温度 Processing temperature	250℃~260℃的情况下，可短时间承受；300℃以上会出现热分解现象
铁氟龙收缩 Teflon Shrink	绝缘层收缩 $\leq 0.2\text{mm}$ ；护套层收缩 $\leq 0.3\text{mm}$

6. 包装 Packing

标准单位包装长度为 500 米/盘, 每盘最多允许 3 个接头, 接头最短长度 10 米, 在搬运过程中不能损坏包装。

Standard unit for the 500m/reel length of packaging, each set up to allow 3 joints, the joint shortest length of 10m, The finished cable shall be packed not be damaged during transportation.

7. 其他 Other

特殊加工工艺，请与供方协商后使用。

Special processing technology, please use after consultation with the supplier.



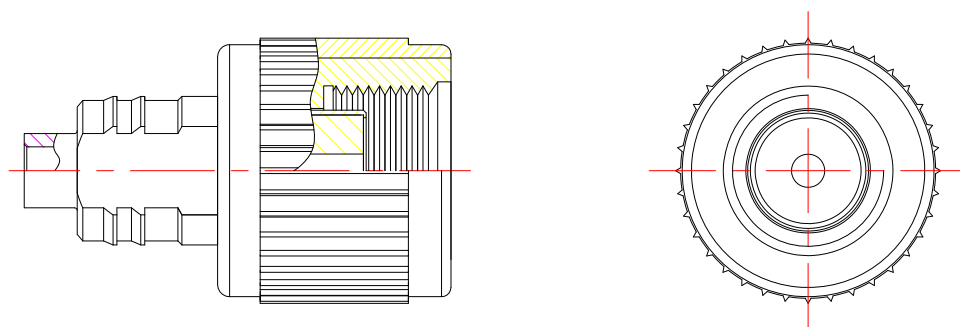
譚裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

Connector 材質證明書

譚裕料號 Whayu P/N	100-2001265-BZ	產品名稱 Product Name	SMA Straight Plug Reverse For RG-178
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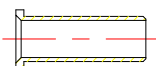
結構圖面



1.Assembly Body



2.Dielectric



3.Ferrule



4.Pin

材質成份

表面處理

1	Dielectric	Teflon	PTFE						N/A
2	Shell	Plastic	POM						Black
3	Body	Zinc Alloy	Zn	Fe	Al	Mg	Cu	Pb	Nickel Plated
4	Dielectric	Teflon	PTFE						N/A
5	Ferrule	Brass	Cu	Pb	Fe	Fe+Sn	Zn		Plated Nickel
6	Pin	Brass	Cu	Sn	P	Zn	Pb		Plated Gold
7	Screw	Brass	Cu	Pb	Fe	Fe+Sn	Zn		Plated Nickel

Remark :

請蓋公司章



SGS Test Report

Product : RF Antenna Assembly Contents

No	Description		Report No.	Page
1	RG-178 Cable	外被 色母 編織 絕緣 導體	A2210464003101001E HKTEC2202547219 SHAEC2127051115 NGBML2200124301 A2220020280101002	P.20~77
2	Connector	Zinc Alloy Brass POM Masterbatch PTFE Gold-Plated Ni-Plated	CANML2203955903 CANEC2212590809 SHAEC2127258003 A222001345610102E SHAEC22000767001 SZXEC2103405301 SZXEC2103405307	P.78~131
3	Antenna Base	PC Masterbatch	CANEC2202626909 A222001345610102E	P.132~138 P.96~111
4	Antenna Base	PC+PBT Masterbatch	SZXEC2201088901 A222001345610102E	P.139~144 P.96~111
5	Antenna Cover	TPEE Masterbatch	SHAEC2127941903 A222001345610102E	P.145~152 P.96~111
6	Rivet	POM Masterbatch	SHAEC2127258003 A222001345610102E	P.88~111
7	信號管&接地管	Brass Sn-Plated	CANEC2209432703 A2220323935101002E	P.153~168
8	H.S Tube	Heat Shrink Tube White ink	CANEC2202116603 SHAEC2203499105	P.169~184

Result for RoHS : PASS

检测报告

Test Report



报告编号 A2210464003101001E

Report No. A2210464003101001E

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报告抬头公司名称 金华永和氟化工有限公司

Company Name JINHUA YONGHE FLUOROCHEMICAL CO., LTD

shown on Report

地址 浙江省金华市经济技术开发区(金西片区)青莲路896号

Address QINGLIAN ROAD 896#, ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE (THE WEST), JINHUA, ZHEJIANG

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 聚全氟乙丙烯树脂

Sample Name FEP

材料名称 聚全氟乙丙烯树脂

Material FEP

样品接收日期 2021.11.08

Sample Received Date Nov. 8, 2021

样品检测日期 2021.11.08-2021.11.11

Testing Period Nov. 8, 2021 to Nov. 11, 2021

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)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)进行测试。

Test Requested

As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) 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).



钱佳丽

张琳

张琳

技术经理 Technical Manager

审 核

Reviewed by

日 期

Date

郭世荣

2021.11.11

No. R219921491

宁波高新区菁华路76号厂区东首第一、二层

1-2F, Eastern Factory, No.76, Jinghua Road, High-Tech Zone, Ningbo, Zhejiang, China

检测报告
Test Report

报告编号 A2210464003101001E
Report No. A2210464003101001E

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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	欧盟RoHS指令2011/65/EU及其修订指令(EU) 2015/863 RoHS Directive 2011/65/EU with amendment (EU) 2015/863	符合 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.

检测报告
Test Report

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Report No. A2210464003101001E
检测依据 Test Method

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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 62321-7-2:2017和/或IEC 62321-5:2013测试总铬含量 IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS

检测报告
Test Report

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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.	8 mg/kg	1000 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
多溴联苯 Polybrominated Biphenyls (PBBs)			
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)			
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg	

检测报告
Test Report

报告编号 A2210464003101001E
Report No. A2210464003101001E
检测结果 Test Result(s)

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)			
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

样品/部位描述 无色透明塑料颗粒
Sample/Part Description Colorless transparent plastic grains

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）
-mg/kg = ppm = 百万分之一
-1000 mg/kg = 0.1%

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-1000 mg/kg = 0.1%

检测报告 Test Report

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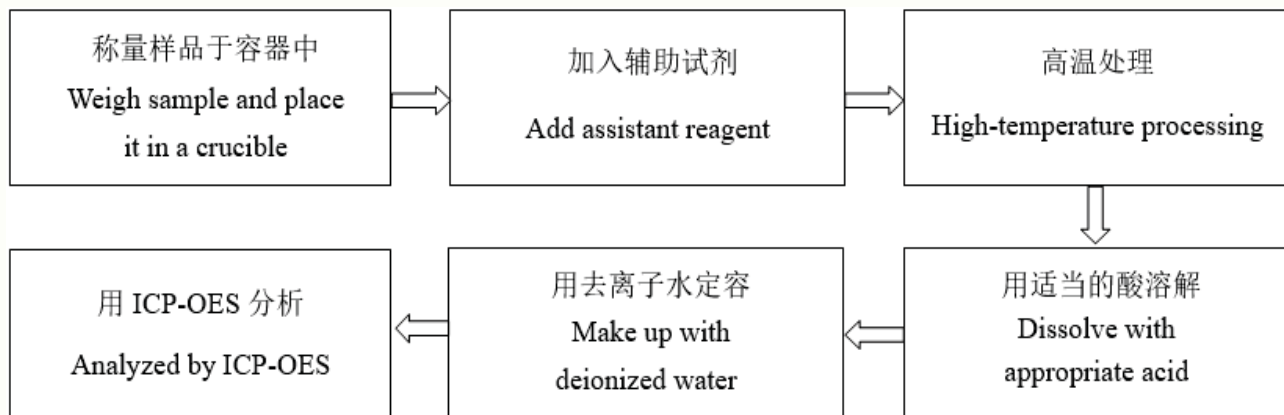
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检测流程 Test Process

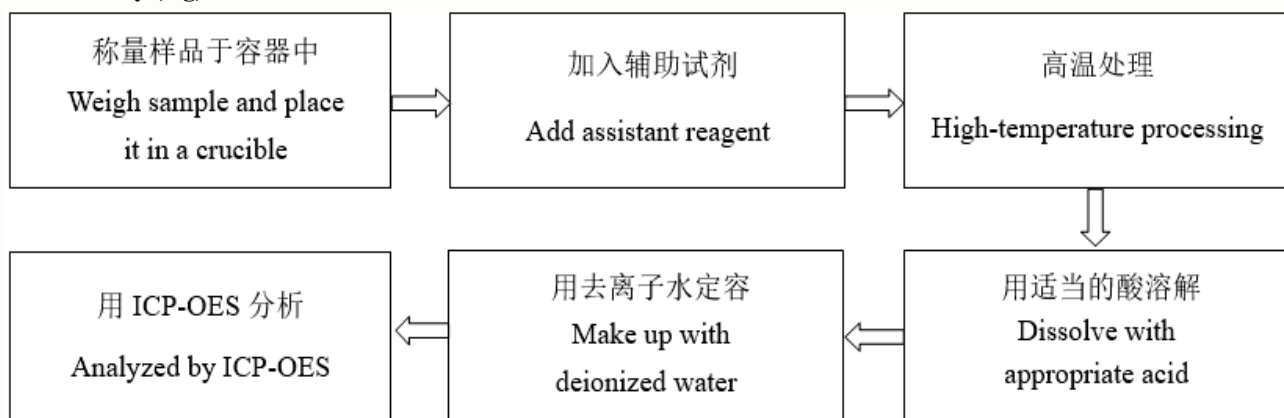
1. 铅(Pb), 镉(Cd), 铬(Cr)

Lead (Pb), Cadmium (Cd), Chromium (Cr)



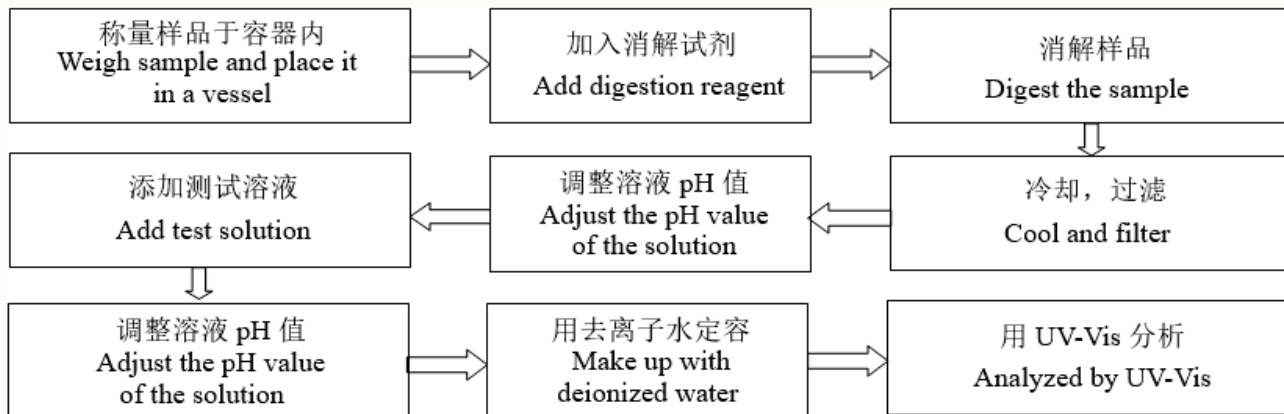
2. 汞(Hg)

Mercury (Hg)



3. 六价铬(Cr(VI))

Hexavalent Chromium (Cr(VI))



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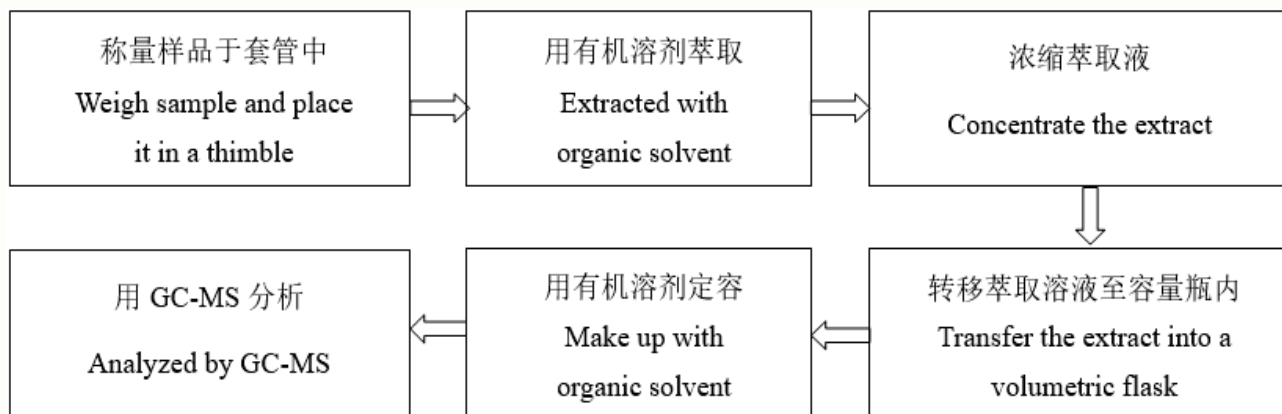
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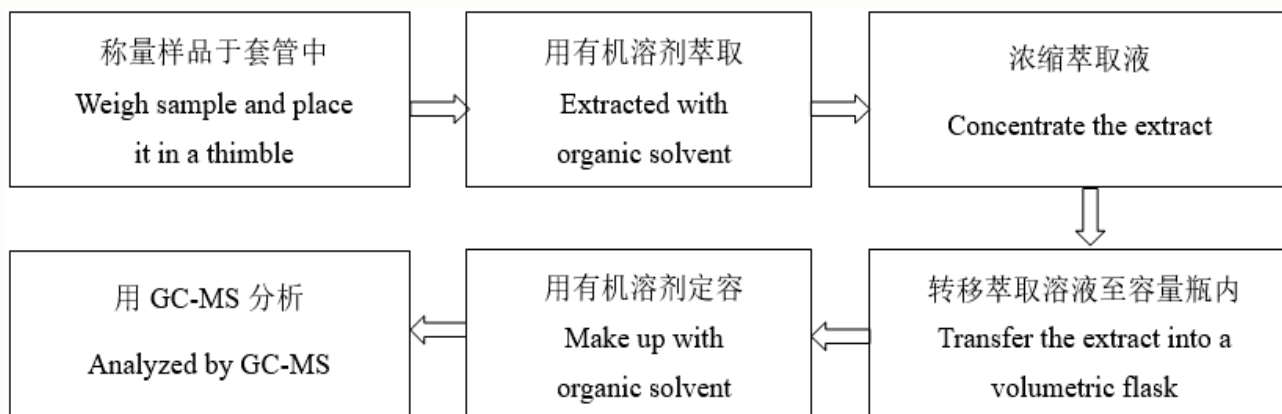
4. 多溴联苯 (PBBs), 多溴二苯醚 (PBDEs)

Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. 邻苯二甲酸酯 (DBP, BBP, DEHP, DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)

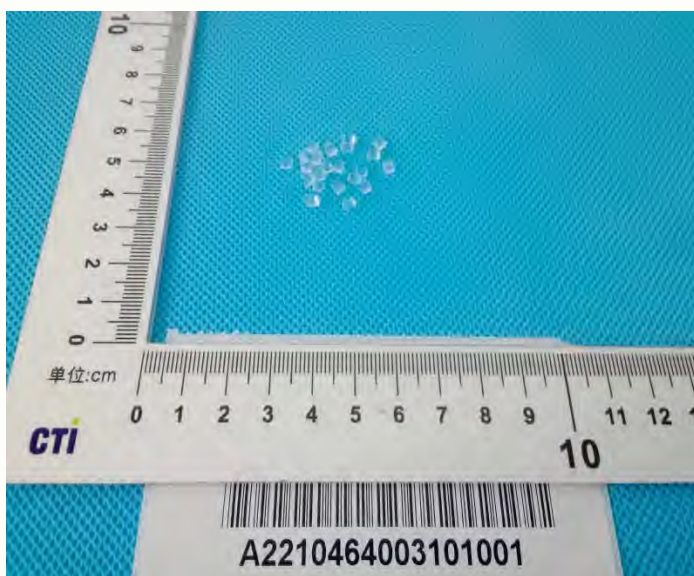


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样品图片 Photo(s) of the sample(s)



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This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. 报告抬头公司名称及地址、样品及样品信息由申请者提供, 申请者应对其真实性负责, CTI未核实其真实性;
The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. 本报告检测结果仅对受测样品负责;
The result(s) shown in this report refer(s) only to the sample(s) tested;
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In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

报告结束

*** End of report ***



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DAINICHISEIKA COLOR & CHEMICALS MFG. CO., LTD.

7-6, BAKUROCHO 1-CHOME, NIHONBASHI

CHUO-KU

TOKYO 103-8383

JAPAN

The following sample(s) was/were submitted and identified on behalf of the clients as : FCM STI 138K BROWN

SGS Job No. : 5039469 - HK

Lot No. : 16217221

Country of Destination : JAPAN

Date of Sample Received : 24 May 2022

Testing Period : 24 May 2022 - 10 Jun 2022

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 Cadmium, Lead, Mercury, 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.

Based on the performed tests on submitted samples, the test results do not exceed the limit as set by the requirement of European Regulation POPs (EU) 2019/1021—Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD).

Based on the performed tests on submitted sample(s), the test results do not exceed the limit as set by European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances, PFOS and its derivatives.

Signed for and on behalf of
SGS Hong Kong Limited.

Lam Ka Yung, Allen
Chemist

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	HKT22-025472.019	Dark brown plastic pellet

Remarks :

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

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

Test Method : With reference to IEC62321-4:2013+A1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, Hg analyzer, UV-Vis and GC-MS.
(Decision Rule: please refer to appendix 1: Category 1)

Test Item(s)	Limit	Unit	MDL	019
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))	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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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>019</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
Benzylbutyl Phthalate (BBP)	1,000	mg/kg	50	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalate (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

Halogen

Test Method : With reference to EN 14582:2016, analysis was performed by IC.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>019</u>
Fluorine (F)	-	mg/kg	50	230000
Chlorine (Cl)	-	mg/kg	50	ND
Bromine (Br)	-	mg/kg	50	ND
Iodine (I)	-	mg/kg	50	ND

Notes :

(1) The measurement report of the expanded uncertainty with confident level 95% by coverage factor k=2, is 20% for each analyte of Fluorine, Chlorine, Bromine and Iodine.

European Regulation POPs (EU) 2019/1021 – Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD)

Test Method : With reference to SGS inhouse method-CTS-SL-235-1, analysis was performed by GC-MS.
(Decision Rule: please refer to appendix 1: Category 1)

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<u>Test Item(s)</u>	<u>CAS NO</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>019</u>
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4 / 3194-55-6	100	mg/kg	10	ND

Conclusion
PASS

European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances, PFOS and its derivatives

Test Method : With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS and GC-MS. (Decision Rule: please refer to appendix 1: Category 1)

<u>Test Item(s)</u>	<u>CAS NO</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>019</u>
Perfluorooctanoic acid (PFOA) and its salts+	--	0.025	mg/kg	0.010	ND
PFOA-related substances	--	1	mg/kg	-	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTS)	39108-34-4	-	mg/kg	1	ND
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	-	mg/kg	1	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	-	mg/kg	1	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7	-	mg/kg	1	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	-	mg/kg	1	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	-	mg/kg	1	ND
Perfluoro-1-iodooctane (PFOI)	507-63-1	-	mg/kg	1	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	--	1,000	mg/kg	-	ND
Perfluorooctane sulfonates (PFOS)^	1763-23-1	-	mg/kg	1	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	-	mg/kg	1	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	-	mg/kg	1	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	1691-99-2	-	mg/kg	1	ND

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<u>Test Item(s)</u>	<u>CAS NO</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>019</u>
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol (MeFOSE)	24448-09-7	-	mg/kg	1	ND
Perfluorooctane sulfonamide (PFOSA)	754-91-6	-	mg/kg	1	ND

Conclusion

PASS

Notes :

- (1) + PFOA refer to 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 refer to its derivatives 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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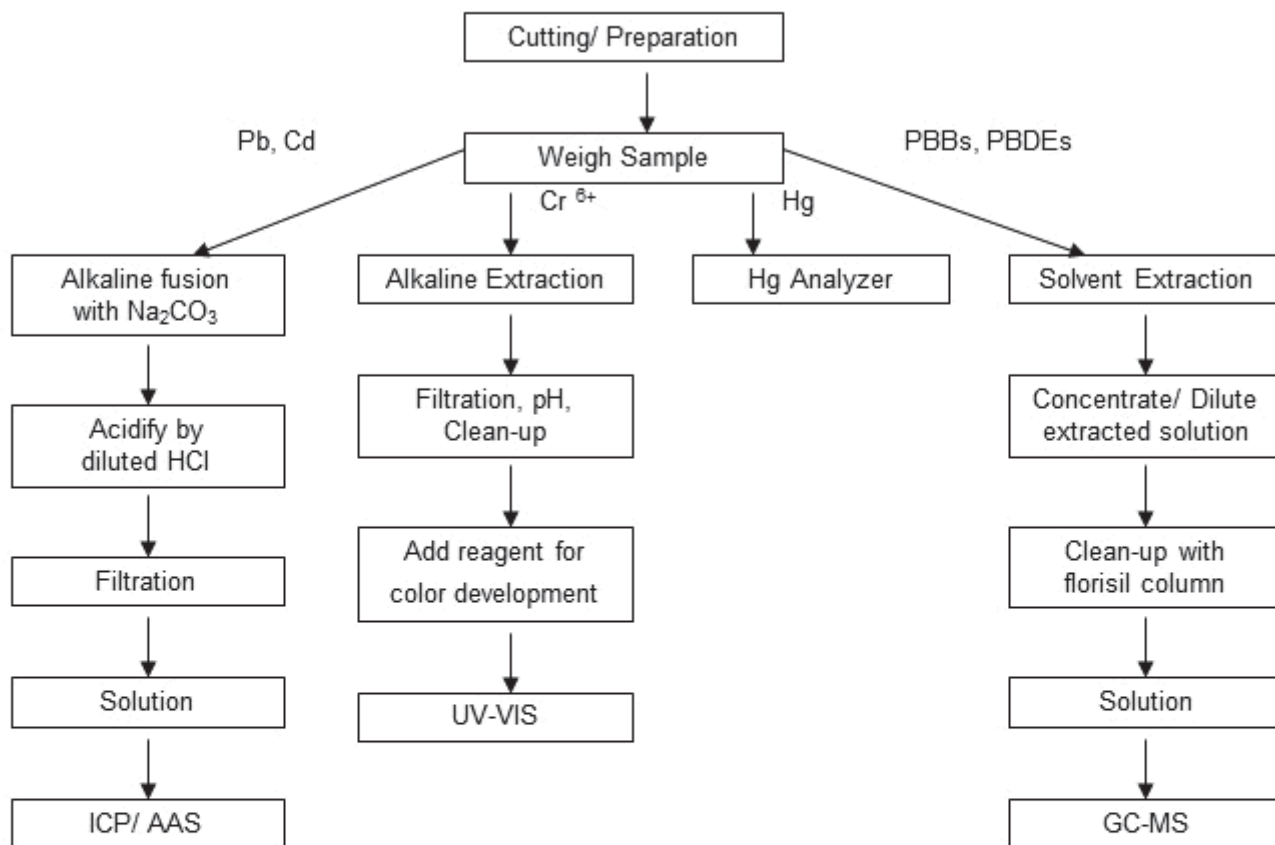
Appendix 1

Category	Decision Rule Statement
1	The decision rule for conformity reporting is based on the non-binary statement with guard band (is equal to the expanded measurement uncertainty with a 95% coverage probability, $w = U95$) in ILAC-G8:09/2019 Clause 4.2.3. A. "Pass - the measured value is within (or below / above) the acceptance limit, where the acceptance limit is below / above to the guard band." or "Pass - The measured values were observed in tolerance at the points tested. The specific false accept risk is up to 2.5%." B. "Conditional Pass - The measured values were observed in tolerance at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values exceeded / out of tolerance. When the measured result is close to the tolerance, the specific false accept risk is up to 50%." C. "Conditional Fail - One or more measured values were observed out of tolerance at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values were in tolerance. When the measured result is close to the tolerance, the specific false reject risk is up to 50%." D. "Fail - the measured value is out of (or below / above) the tolerance limit added / subtracted to the guard band." or "Fail - One or more measured values were observed out of tolerance at the points tested". The specific false reject risk is up to 2.5%.
2	The decision rule for conformity reporting is based on BS EN 1811:2011+A1:2015: Reference test method for release of nickel from all post assemblies which are inserted into pierced parts of the human body and articles intended to come into direct and prolonged contact with the skin in Section 9.2 interpretation of results.
3	The decision rule for conformity reporting is based on the general consideration of simple acceptance as stated in ISO/IEC Guide 98-3: "Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM 1995)", and more specifically for analytical measurements to the EURACHEM/CITAC Guide 2012 "Quantifying Uncertainty in Analytical Measurement".
4	The decision rule for conformity reporting is according to the IEC 62321-7-1 Edition 1.0 2015-09 Section 7: Table 1-(comparison to standard and interpretation of result)
5	The decision rule for conformity reporting is according to the IEC 62321-3-1 Edition 1.0 2013-06 Annex A.3 interpretation of result.
6	The decision rule for conformity reporting is according to the GB/T 26125-2011 Annex A to H
7	The decision rule for conformity reporting is according to the requested specification or standard (ASTM F963-17 section 4.3.5)
8	The decision rule for conformity reporting is according to the requested specification or standard (AS/NZS ISO 8124 Part 3 section 4.2)
Remark	If the decision rule is not feasible to be used and the uncertainty of the result is able to be provided, the uncertainty range of the result will be shown in the report. Otherwise, only result will be shown in the report.

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Flowchart:



Note : 1) The polymeric samples were dissolved totally by pre-conditioning method according to above flow chat for Cd and Pb contents analysis

Operator : Chiu Kan Yuen (Alkaline Fusion)
Alex Yip (Hg Analyzer)
Nick Liu (Hexavalent Chromium)
Kent Wan (PBBs and PBDEs)

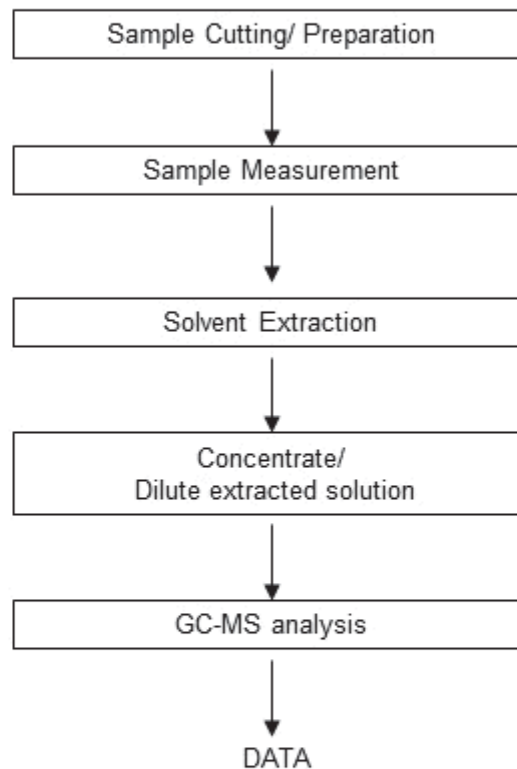
Section Chief : Chan Chun Kit (Dickson Chan)

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Flowchart for Phthalates measurement

Method: IEC 62321-8:2017



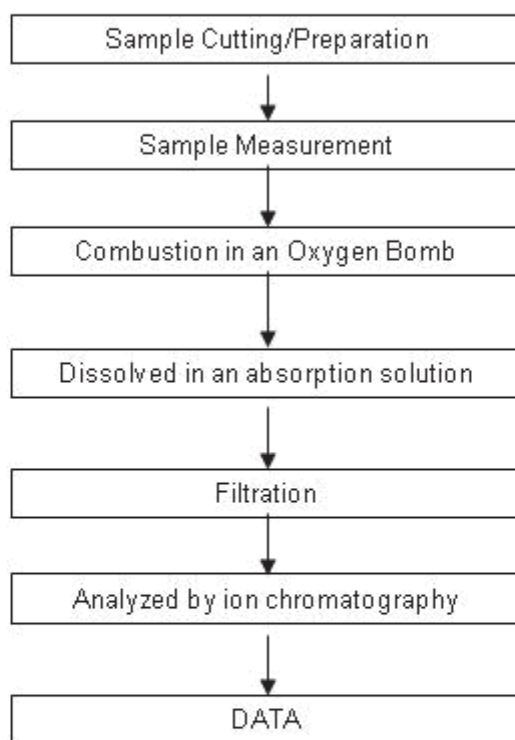
Tested by : Lumpy Lee
 Checked by : Edmund Kwan

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Flowchart for Halogen Free Test

Method: BS EN14582:2016



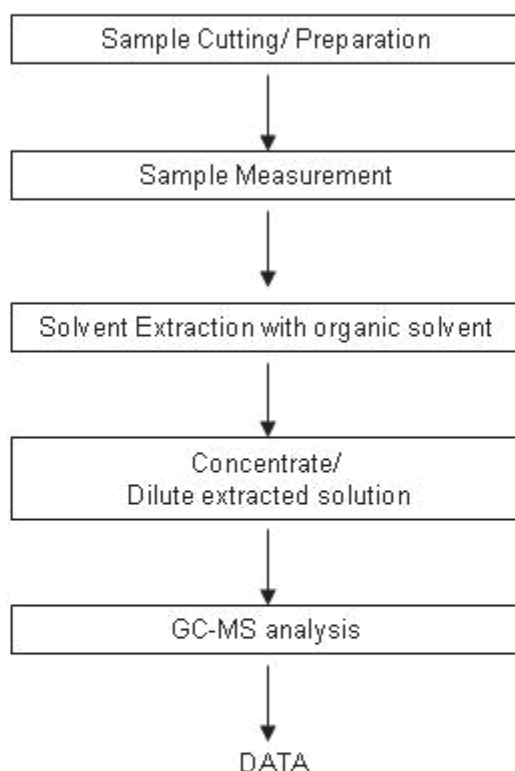
Operator: Tang Ying Sam
 Supervisor: Chan Chun Kit (Dickson)

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Flowchart for HBCDD measurement

Method: In-house Method



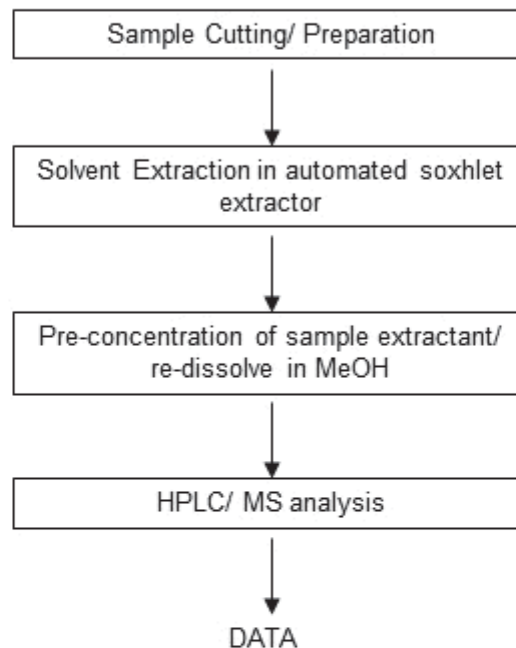
Tested by : Tang Sze Hon, Gary
 Checked by : Fok Chi Shan

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Flowchart for PFOS/ PFOA measurement

Method: CEN/TS15968:2010



Operator : Candy Luk
 Chief Supervisor : Yu Ka Lai

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Test Report

No. HKTEC2202547219

Date: 10 Jun 2022

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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No. SHAEC2127051115

Date: 16 Dec 2021

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Changzhou Hengfeng Special Conductor Co., Ltd.

No. 26, FengHuang Road, TianNing District, ChangZhou City, JiangSu Province

The following sample(s) was/were submitted and identified on behalf of the clients as : SILVER-COATED COPPER WIRE

SGS Job No. : SP21-037895 - SH

Date of Sample Received : 10 Dec 2021

Testing Period : 10 Dec 2021 - 16 Dec 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 Cadmium, Lead, Mercury, 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 (Shanghai) Co., Ltd.

Sue Sheng

Sue Sheng
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA21-270511.025	Silvery white plating
SN2	SHA21-270511.026	Copper metal wire
SN3	SHA21-270511.027	Silvery white metal wire

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	026
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND



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Test Item(s)	Limit	Unit	MDL	026
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl 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.
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:1258637,25
- (2) ▼ = 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.

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013 and IEC62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Unit	MDL	026
Cadmium (Cd)	100	mg/kg	10	ND
Lead (Pb)	1000	mg/kg	10	ND
Mercury (Hg)	1000	mg/kg	10	ND
Hexavalent Chromium (Cr(VI)) ▼	-	µg/cm ²	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.



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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:1258637,25

(2)▼ = 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.

Element(s)

Test Method : With reference to US EPA Method 3050B:1996, analysis was performed by ICP-OES.

Test Item(s)	Unit	MDL	027
Beryllium (Be)	mg/kg	5	ND
Antimony (Sb)	mg/kg	10	ND

Perfluorooctanesulfonate (PFOS) and its derivatives

Test Method : With reference to CEN/TS 15968:2010, analysis was performed by HPLC-MS.

Test Item(s)	CAS NO.	Unit	MDL	027
Perfluorooctane sulfonates (PFOS) and its derivatives	-	mg/kg	-	ND
PFOS [^]	1763-23-1	mg/kg	10	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	10	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	mg/kg	10	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	1691-99-2	mg/kg	10	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (MeFOSE)	24448-09-7	mg/kg	10	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	mg/kg	10	ND

Notes :

(1) ^ 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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Benzenamine,N-phenyl-,Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)

Test Method : With reference to EPA method 3550C:2007 & EPA method 8270D: 2014, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>027</u>
Benzenamine,N-phenyl-,Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)	68921-45-9	mg/kg	10	ND



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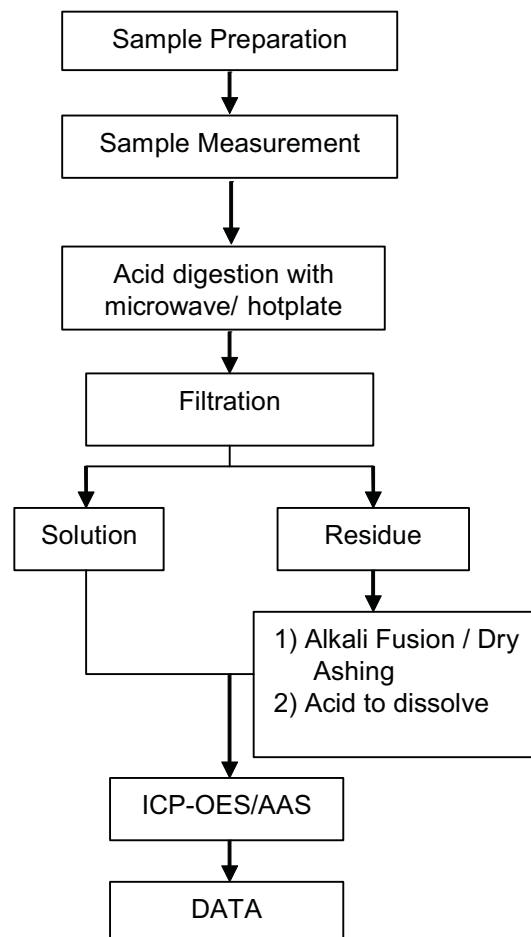
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

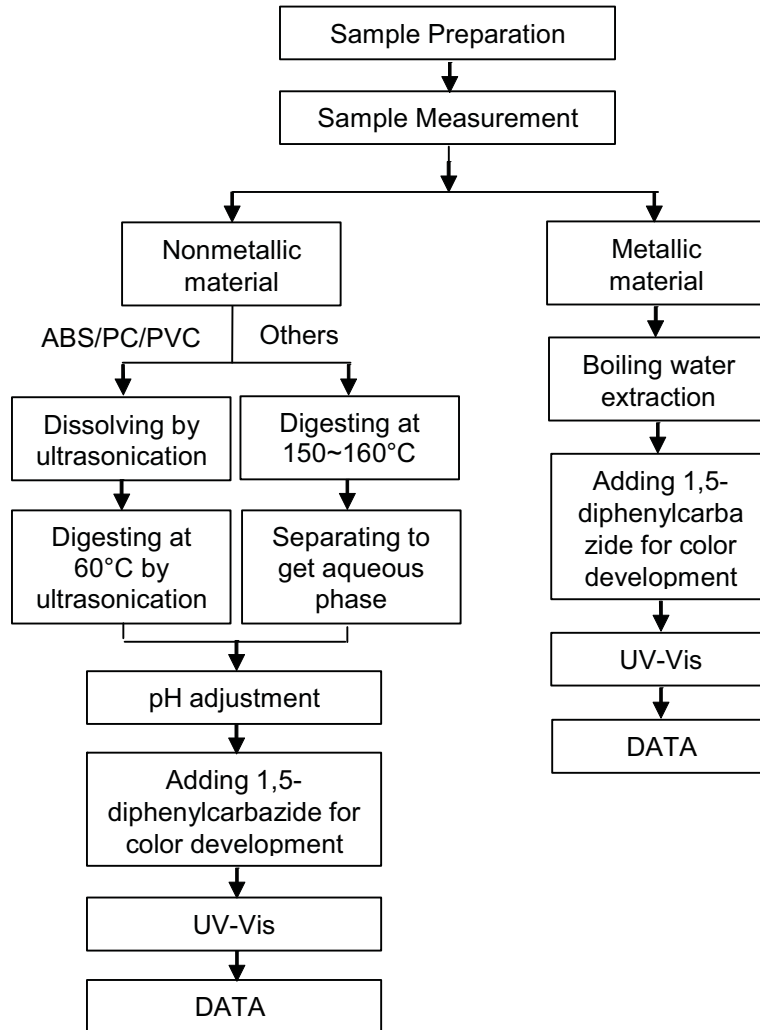


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart

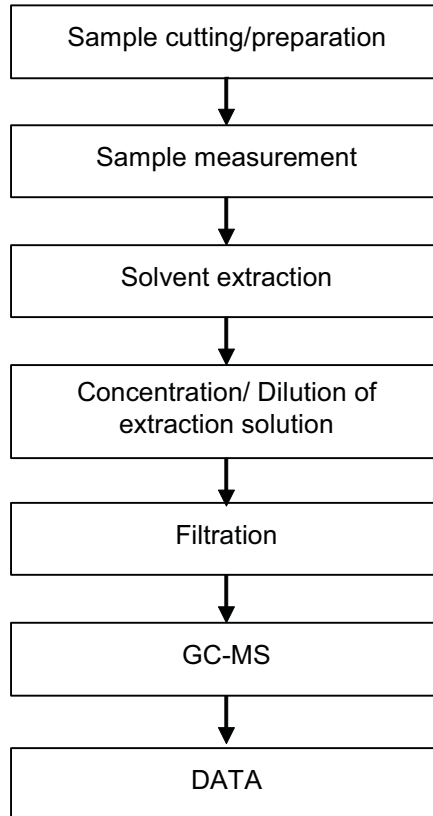


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PBBs/PBDEs Testing Flow Chart



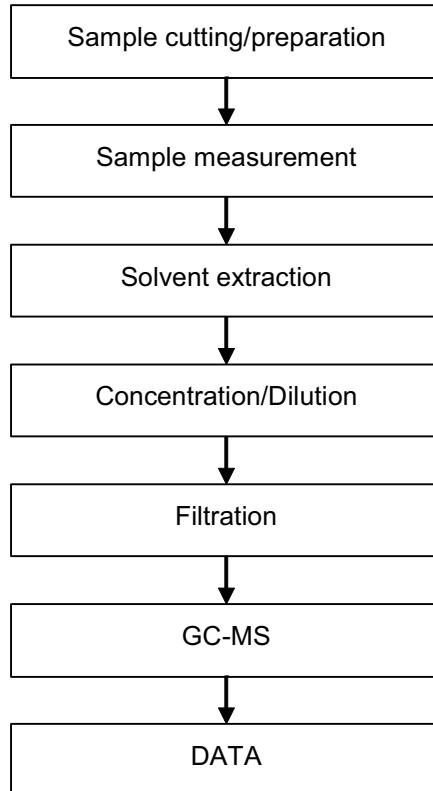
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Phthalates Testing Flow Chart



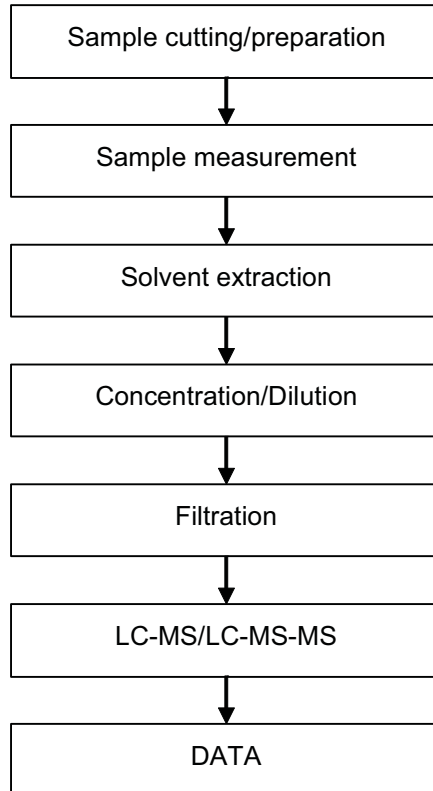
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PFASs/ PFOS/PFOA Testing Flow Chart



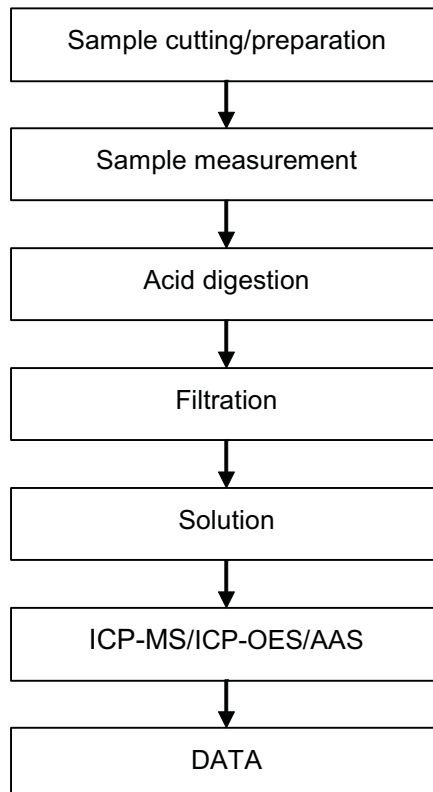
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Elements Testing Flow Chart



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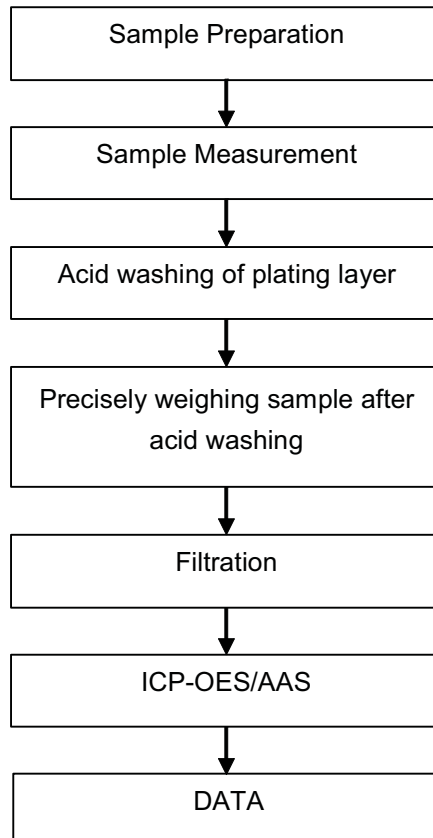
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Plating Pb/Cd/Hg Testing Flow Chart



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Sample photo:



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ZHEJIANG JUHUA CO.,LTD

JUHUA,KECHENG DISTRICT,QUZHOU CITY,ZHEJIANG PROVINCE,P.R.CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : FLUORINATED ETHYLENE-PROPYLENE COPOLYMER

SGS Job No. : NBIN2201000866PC - NB
Client Ref. Information : FJP-T1,FJP-T2,FJP-T3,FJP-810,FJP-820,FJP-830,FJP-610,FJP-620,FJP-630,FJP-640
Date of Sample Received : 21 Jan 2022
Testing Period : 21 Jan 2022 - 27 Jan 2022
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. Ningbo Branch

Iris Xiao

Iris Xiao
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	NGB22-001243.001	TRANSPARENT SOLID GRAINS

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND



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Test Item(s)	Limit	Unit	MDL	001
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl 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:1258637,25.

(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.

Element(s)

Test Method : With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

Test Item(s)	Unit	MDL	001
Red Phosphor (As P)	mg/kg	20	ND

Notes :

These tests are not accredited by CNAS.

Halogen

Test Method : With reference to EN 14582: 2016 , analysis was performed by IC.

Test Item(s)	Unit	MDL	001
Fluorine (F)	mg/kg	50	>100000
Chlorine (Cl)	mg/kg	200	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND



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Tetrabromobisphenol A (TBBP-A)

Test Method : With reference to US EPA 3540C: 1996, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

Polycyclic aromatic hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2019:01 PAK, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Naphthalene(NAP)	mg/kg	0.1	ND
Phenanthrene(PHE)	mg/kg	0.1	ND
Anthracene(ANT)	mg/kg	0.1	ND
Fluoranthene(FLT)	mg/kg	0.1	ND
Pyrene(PYR)	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	mg/kg	0.1	ND
Chrysene(CHR)	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF)	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	mg/kg	0.1	ND
Sum of Phenanthrene, Pyrene, Anthracene, Fluoranthene	mg/kg	-	ND
Sum of 15 PAHs	mg/kg	-	ND



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AfPS (German commission for Product Safety) : GS PAHs requirements

Parameter	Category 1	Category 2		Category 3	
	Materials, that are destined in mouth closed or material in toys according to Directive 2009/48 EC or materials in articles for use by children up to 3 years with longer term according to skin contact (longer than 30s) at intended use	Materials not covered in category 1, with foreseeable contact to skin longer than 30 seconds (long-term skin contact) or repeated short term skin contact at intended or foreseeable use		Materials that do not fall in category 1 or 2, with foreseeable contact to skin up to 30 seconds (short-term skin contact) at intended or foreseeable use	
		Used by Children (<14 years)	Other Consumer Products	Used by Children (<14 years)	Other Consumer Products
Benzo(a)pyrene (BaP) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene (BeP) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene (BaA) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene (BbF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene (BjF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene (BkF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene (CHR) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene (DBA) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene (BPE) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(1,2,3-cd)pyrene (IPY) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Phenanthrene (PHE), pyrene (PYR), anthracene (ANT), fluoranthene (FLT), mg/kg	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene (NAP) mg/kg	< 1	< 2		< 10	
Sum of 15 PAHs	<1	< 5	< 10	< 20	< 50

Phthalates

Test Method : With reference to EN14372: 2004, analysis was performed by GC-MS.



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Di-n-octyl Phthalate (DNOP)	117-84-0	%	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0/68515 -49-1	%	0.01	ND
Diisononyl Phthalate (DINP)	28553-12-0/68515 -48-0	%	0.01	ND



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Test Report

No. NGBML2200124301

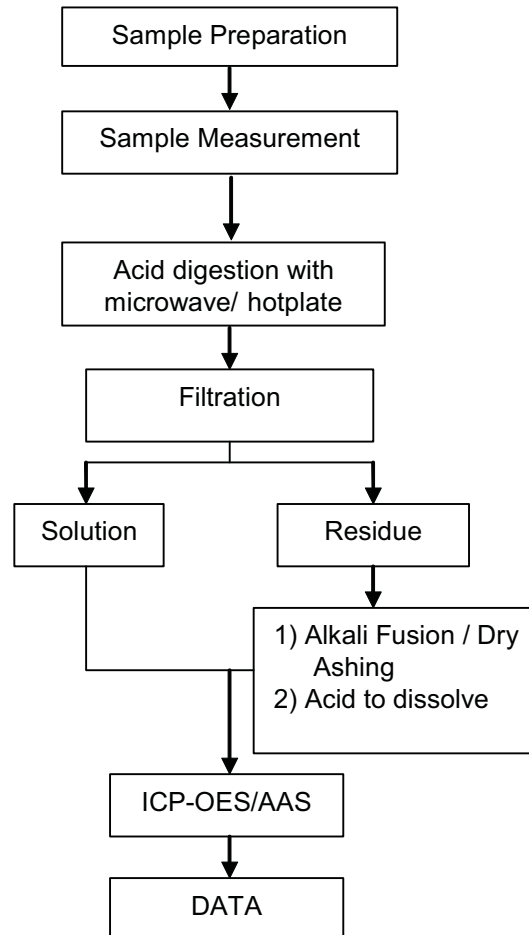
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



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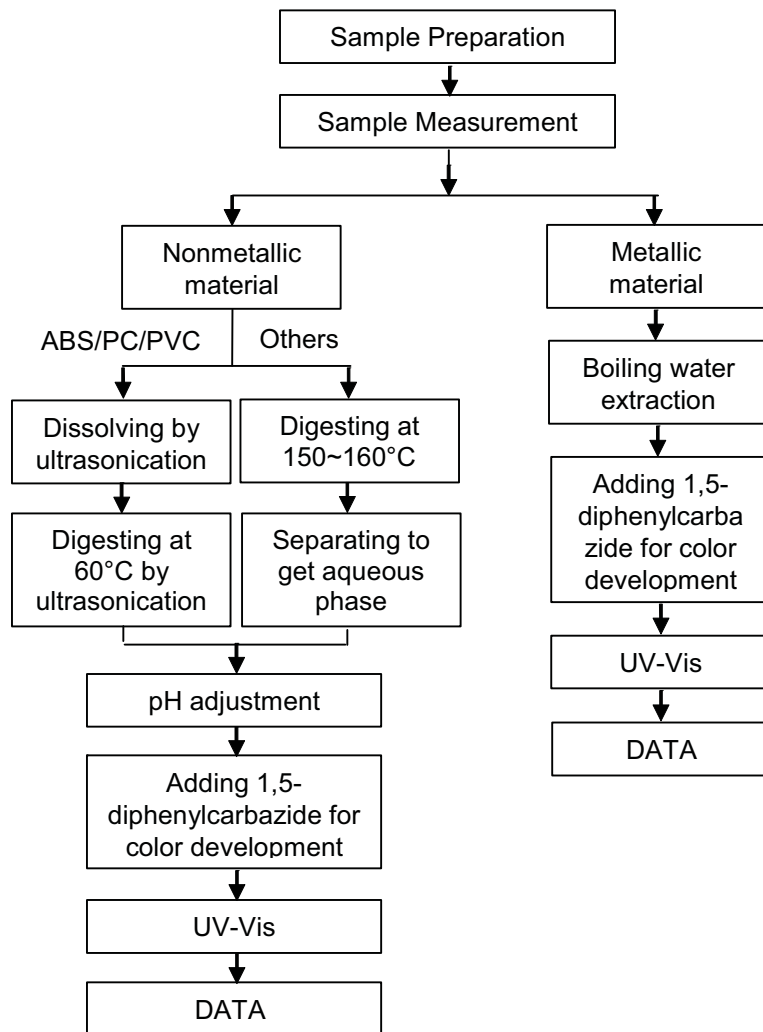
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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Test Report

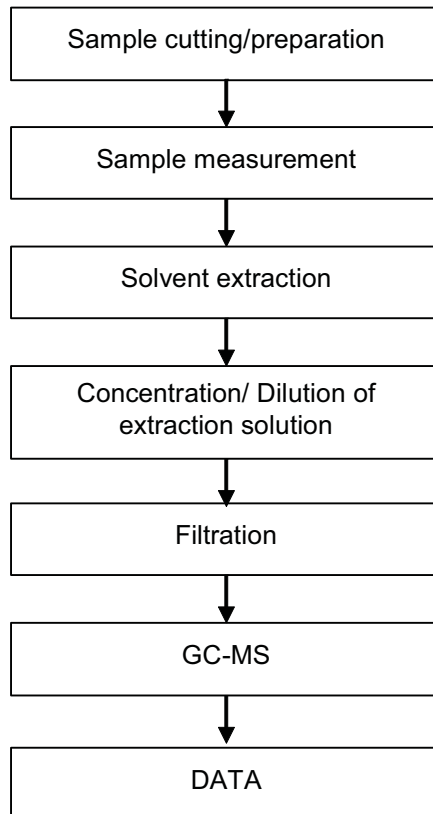
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PBBs/PBDEs Testing Flow Chart



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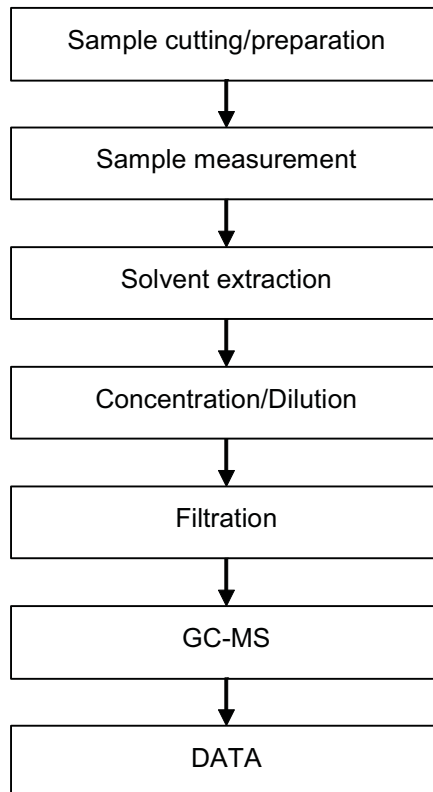
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Phthalates Testing Flow Chart



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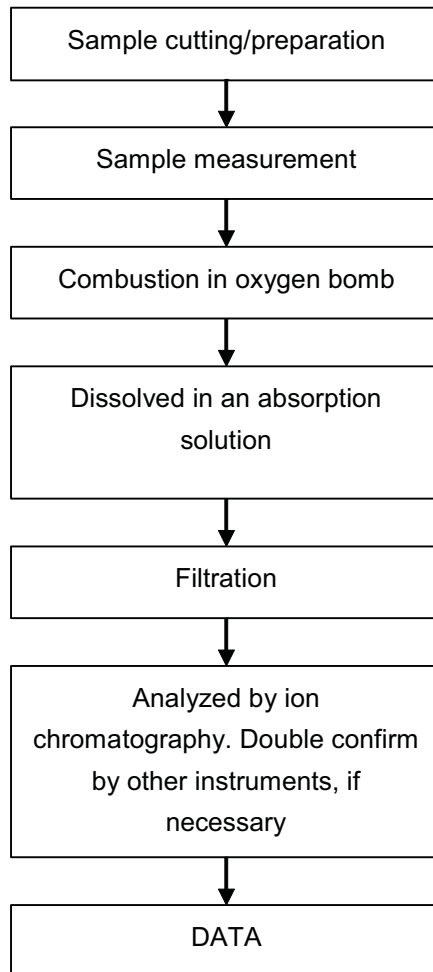
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Halogen Testing (oxygen bomb) Flow Chart



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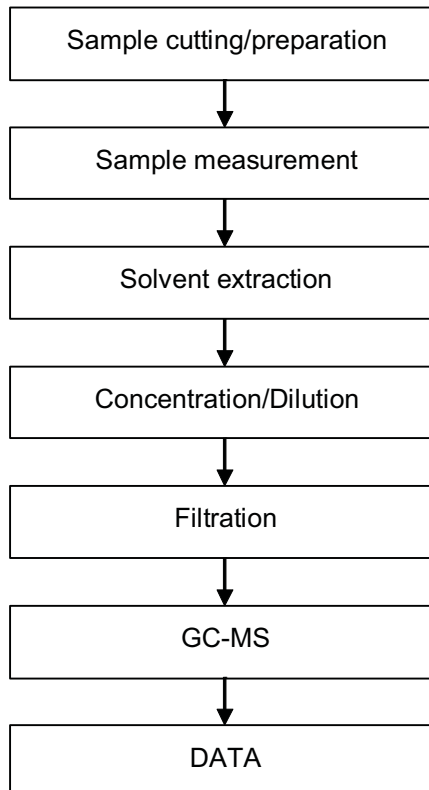
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PAHs Testing Flow Chart



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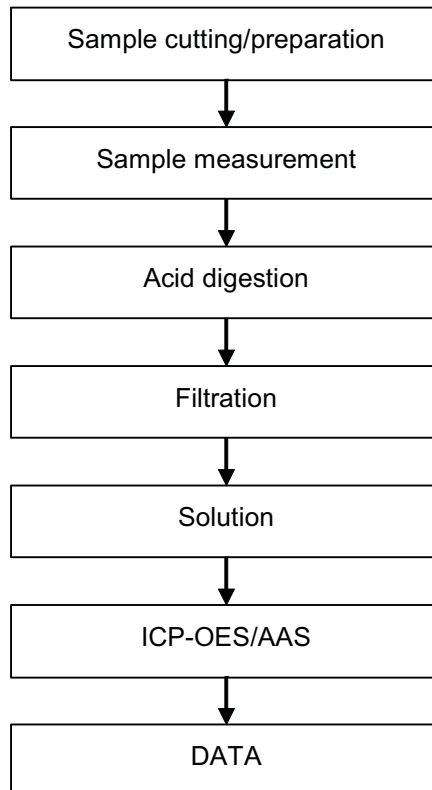
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Elements Testing Flow Chart



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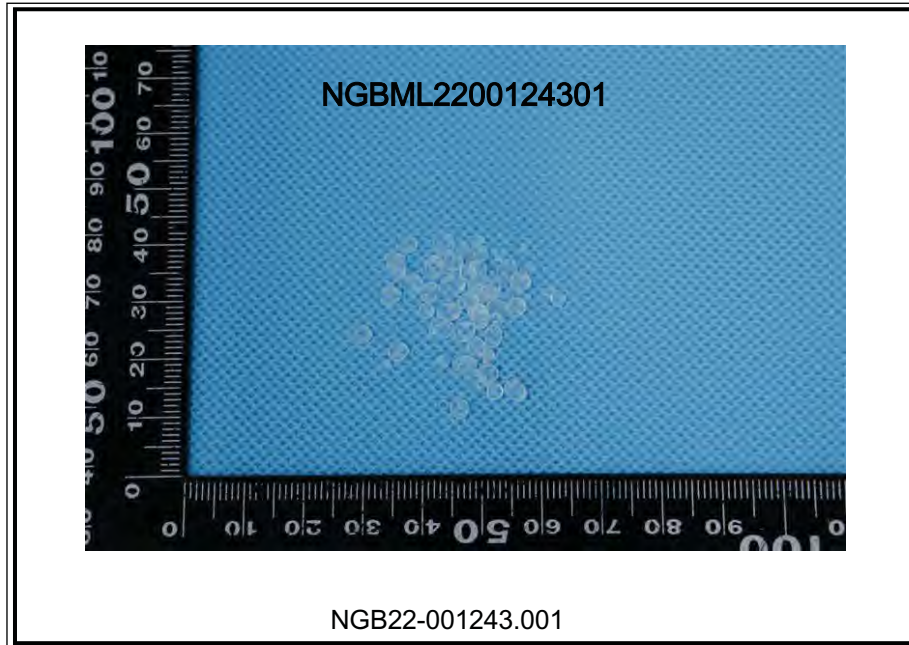
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Sample photo:



SGS authenticate the photo on original report only

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Test Report



Report No. A2220020280101002

Page 1 of 10

Company Name TAIZHOU DONGYUAN ELECTRONICS CO., LTD

shown on Report

Address NO.6,XUHE ROAD,GAOGANG DISTRICT,TAIZHOU CITY,JIANGSU PROVINCE

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

Sample No.	Sample Name(s)	Material
001	Silver plated copper clad steel	Iron. Copper. Silver
002		
003	Silver plated copper clad steel	Iron. Copper. Silver

Sample Received Date Jan. 14, 2022

Testing Period Jan. 14, 2022 to Jan. 20, 2022

Test Requested

As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Beryllium(Be), Antimony(Sb), Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) in the submitted sample(s).

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



Tested by

Li Zheng Su

Reviewed by

Chen Rui

Approved by

Chen Kaimin

Date

Jan. 20, 2022

Chen kaimin
Lab Manager



Centre Testing International Rimbao(Shanghai) Co., Ltd.

No. R475311912

No.1351, Wanfang Road, Minhang District, Shanghai, China

Test Report

Report No. A2220020280101002

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Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5:2013	ICP-OES
	Refer to IEC 62321-5:2013	
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
	Refer to IEC 62321-5:2013	
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
	Refer to IEC 62321-4:2013+AMD1:2017 CSV	
Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Beryllium(Be)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
Antimony(Sb)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
Perfluorooctane Sulfonates(PFOS)	Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS/LC-MS
Perfluorooctanoic Acid(PFOA)	Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS/LC-MS
Fluorine (F)	Refer to EN 14582:2016	IC
Chlorine (Cl)	Refer to EN 14582:2016	IC
Bromine (Br)	Refer to EN 14582:2016	IC
Iodine (I)	Refer to EN 14582:2016	IC

Test Result(s)

Tested Item(s)	Result			MDL
	001	002	003	
Lead (Pb)	N.D.	12 mg/kg	N.D.	2 mg/kg
Cadmium (Cd)	N.D.	N.D.	N.D.	2 mg/kg
Mercury (Hg)	N.D.	N.D.	N.D.	2 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.▼	N.D.▼	N.D.▼	0.10 µg/cm ² (LOQ)

Test Report

Report No. A2220020280101002

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Tested Item(s)	Result	MDL
	001	
Polybrominated Biphenyls (PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
	001	
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2220020280101002

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Tested Item(s)	Result	MDL
	001	
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result		MDL
	002	003	
Polybrominated Biphenyls (PBBs)			
Monobromobiphenyl	N.D.	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	N.D.	5 mg/kg

Test Report

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Tested Item(s)	Result		MDL
	002	003	
Polybrominated Diphenyl Ethers (PBDEs)			
Monobromodiphenyl ether	N.D.	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	N.D.	5 mg/kg

Tested Item(s)	Result		MDL
	002	003	
Phthalates (DBP, BBP, DEHP, DIBP)			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	N.D.	50 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	N.D.	50 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
	003	
Beryllium (Be)	N.D.	10 mg/kg

Tested Item(s)	Result	MDL
	003	
Antimony (Sb)	N.D.	10 mg/kg

Test Report

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Tested Item(s)	Result	MDL
	003	
Perfluorooctane Sulfonates (PFOS)	N.D.	0.5 µg/m ²

Tested Item(s)	Result	MDL
	003	
Perfluorooctanoic Acid (PFOA)	N.D.	0.5 µg/m ²

Tested Item(s)	Result	MDL
	003	
Fluorine (F)	N.D.	50 mg/kg
Chlorine (Cl)	N.D.	50 mg/kg
Bromine (Br)	N.D.	50 mg/kg
Iodine (I)	N.D.	50 mg/kg

Sample/Part Description

001 Metal base

002 Cupreous plating

003 Silver-white plating

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

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL or LOQ)

-mg/kg = ppm = parts per million

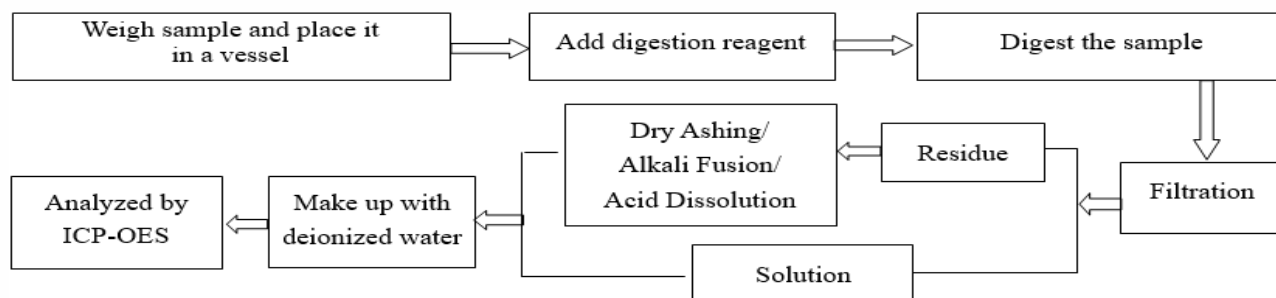
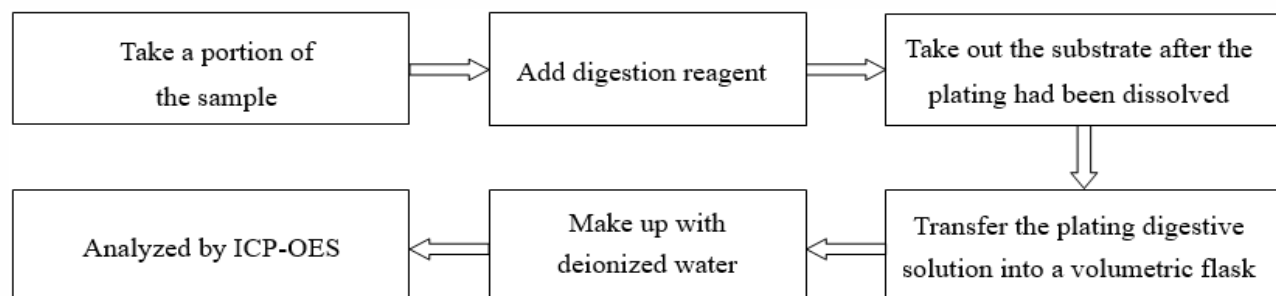
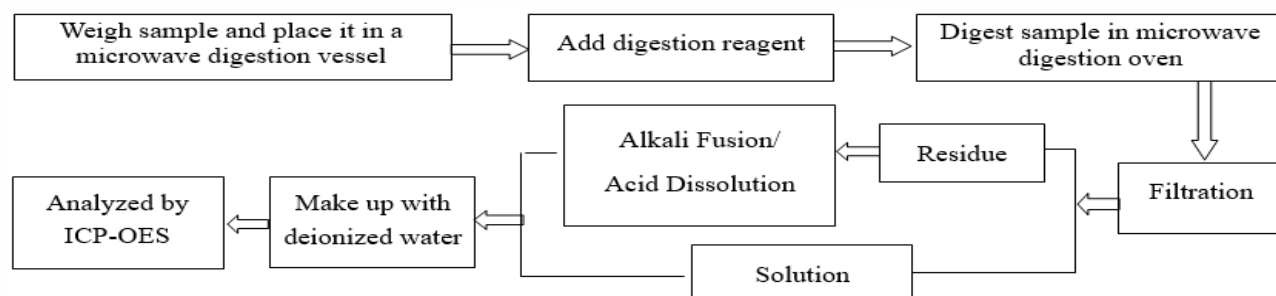
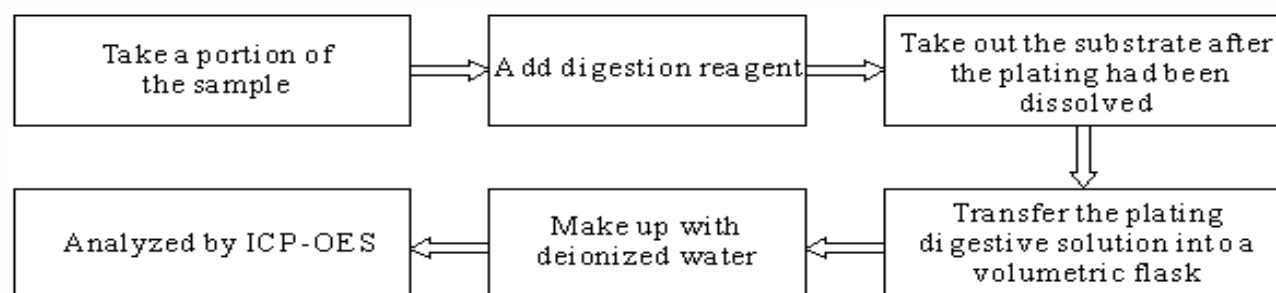
-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm²

-▼ 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.

Test Report

Report No. A2220020280101002

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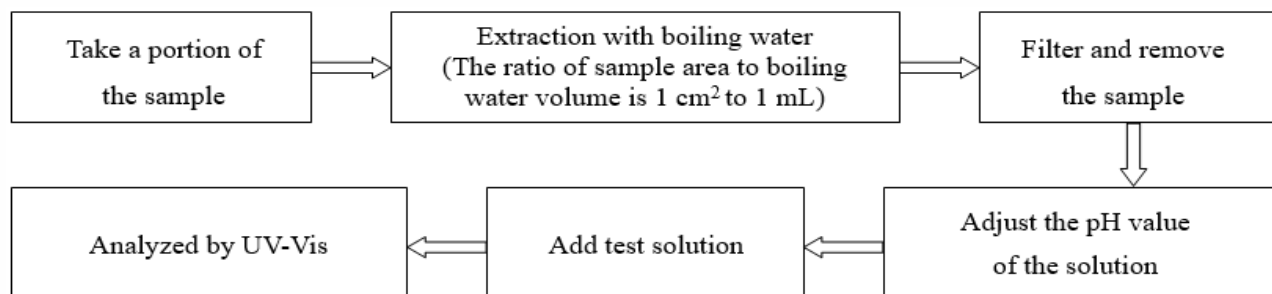
Test Process**1. Lead (Pb), Cadmium (Cd)****(1) IEC 62321-5:2013****(2) Refer to IEC 62321-5:2013****2. Mercury (Hg)****(1) IEC 62321-4:2013+AMD1:2017 CSV****(2) Refer to IEC 62321-4:2013+AMD1:2017 CSV**

Test Report

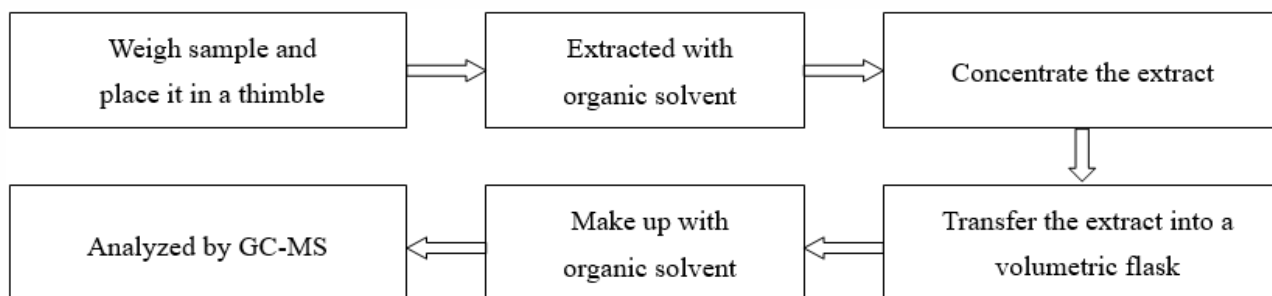
Report No. A2220020280101002

Page 8 of 10

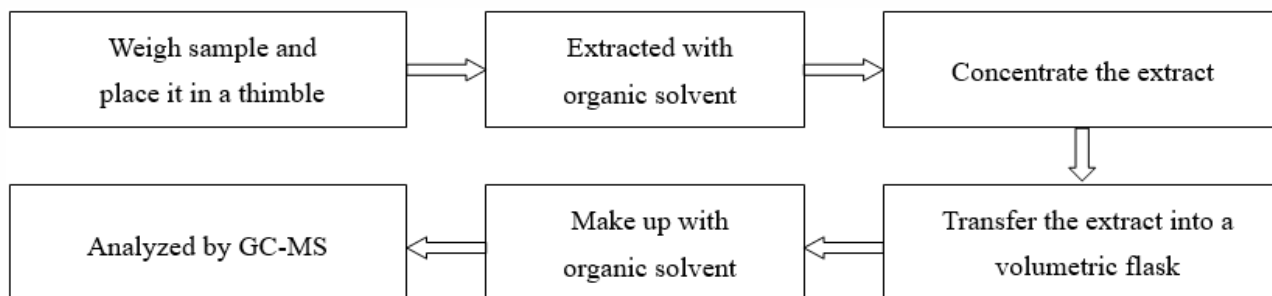
3. Hexavalent Chromium (Cr(VI))



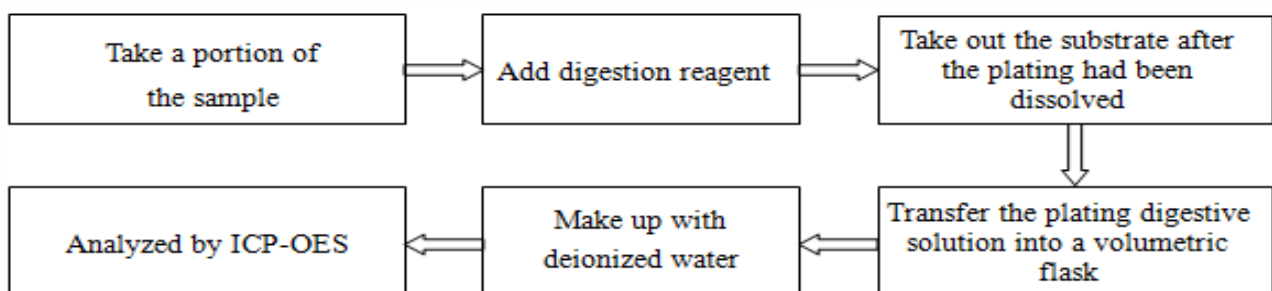
4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. Phthalates (DBP, BBP, DEHP, DIBP)



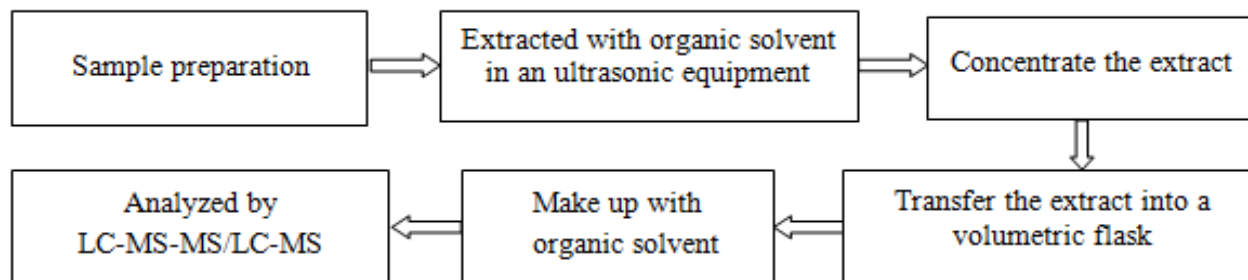
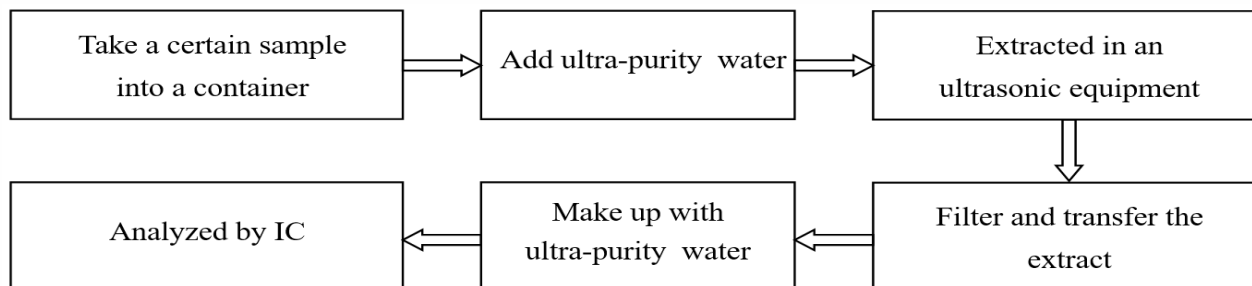
6. Beryllium(Be), Antimony(Sb)



Test Report

Report No. A2220020280101002

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7. Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA)**8. Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)**

Test Report

Report No. A2220020280101002

Page 10 of 10

Photo(s) of the sample(s)

001,002



003



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
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5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of Report ***



Test Report

No. CANML2203955903

Date: 17 Mar 2022

Page 1 of 4

Client Name : FOSHAN HENGQI TONGYI METAL MATERIAL CO.,LTD

Client Address : NO.13-1 (APPLICATION FOR RESIDENCE) OF WEST INDUSTRIAL ZONE, NO.1 "LIFTING BOARD SURFACE" NORTH OF ZHONGBIAN, DALI TOWN, NANHAI DISTRICT, FOSHAN CITY, CHINA

Sample Name : xinhejin

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

SGS Job No. : GZPH2203001985PC - GZ

Date of Sample Received : 14 Mar 2022

Testing Period : 14 Mar 2022 - 17 Mar 2022

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

Trophy Zhang
Approved Signatory



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Test Report

No. CANML2203955903

Date: 17 Mar 2022

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-039559.002	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

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

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	21
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	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:1258637,25
- (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.



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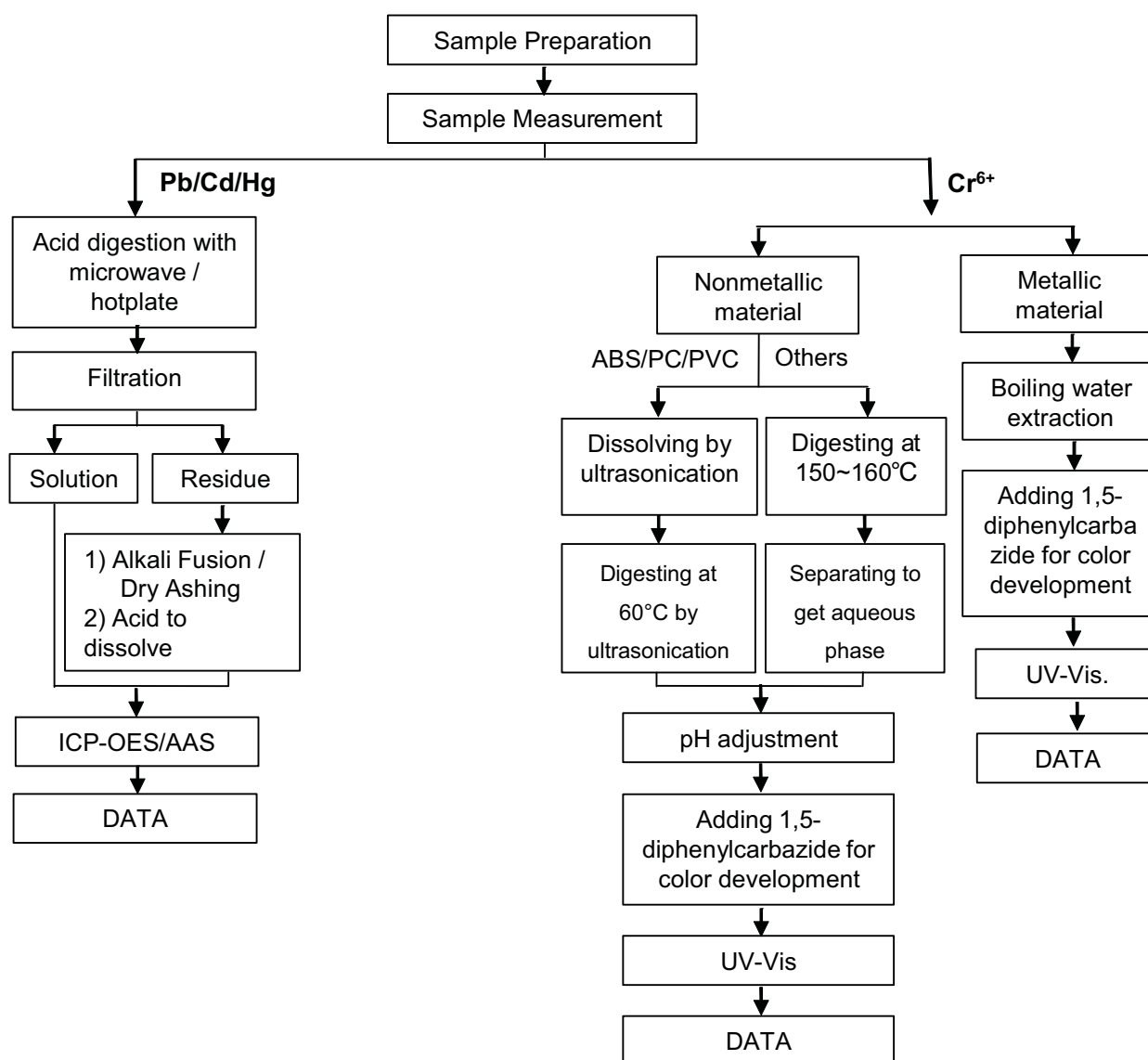
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Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart

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



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Test Report

No. CANML2203955903

Date: 17 Mar 2022

Page 4 of 4

Sample photo:



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Test Report

No. CANEC2212590809

Date: 20 Jun 2022

Page 1 of 6

Client Name : SHANTOU XINYANG METAL PRODUCTS CO., LTD

Client Address : XIANGDI JINGTOU VILLAGE, JINZAO TOWN, CHAOYANG DISTRICT, SHANTOU CITY,
GUANGDONG PROVINCE
CHINA

Sample Name : BRASS C3604

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

SGS Job No. : CP22-032347 - GZ

Date of Sample Received : 13 Jun 2022

Testing Period : 13 Jun 2022 - 17 Jun 2022

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

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

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

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

Jessie Li

Jessie Li
Approved Signatory



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Center Chemical Laboratory

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Test Report

No. CANEC2212590809

Date: 20 Jun 2022

Page 2 of 6

Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-125908.003	Brassy 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

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

Test Item(s)	Limit	Unit	MDL	003
Cadmium (Cd)	100	mg/kg	2	20
Lead (Pb)	1,000	mg/kg	2	36380▲
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	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. CANEC2212590809

Date: 20 Jun 2022

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Test Item(s)	Limit	Unit	MDL	003
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:1258637,25
- (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.

Remark▲: According to the declaration from the client, Lead (Pb) in specimen is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 6(c)]: Copper alloy containing up to 4 % lead by weight.

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



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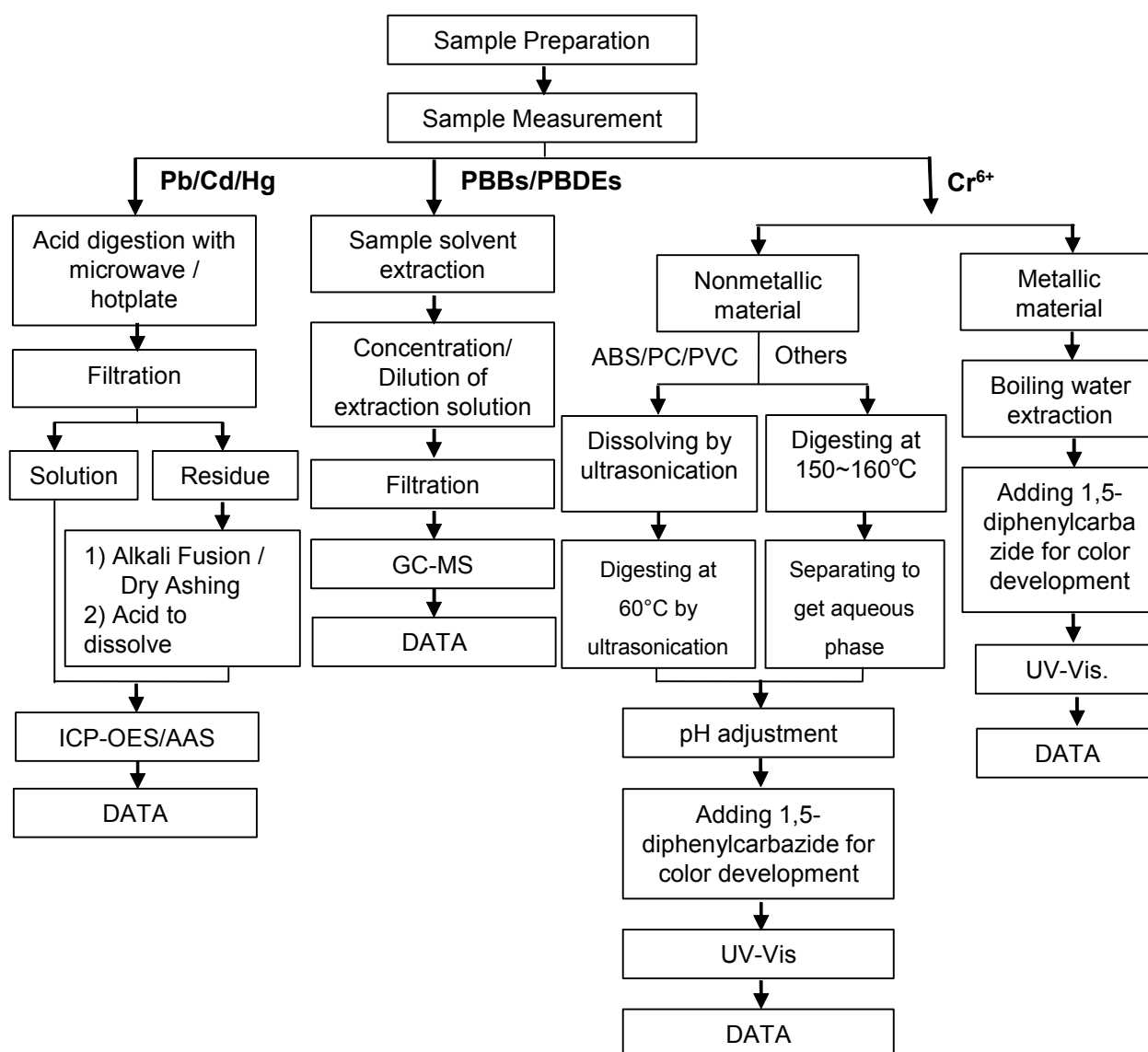
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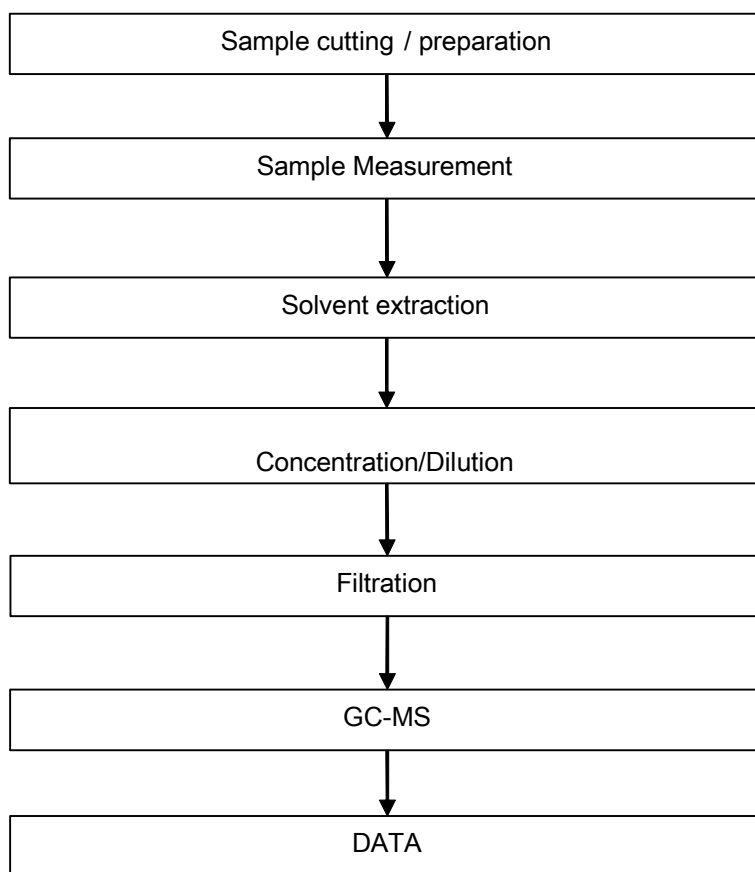
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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



ATTACHMENTS

Phthalates Testing Flow Chart



Test Report

No. CANEC2212590809

Date: 20 Jun 2022

Page 6 of 6

Sample photo:



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*** End of Report ***

Test Report

No. SHAEC2127258003

Date: 21 Dec 2021

Page 1 of 8

PTM ENGINEERING PLASTICS (NANTONG) CO.,LTD.

NO.171 MINXING ROAD NANTONG ECONOMIC AND TECHNOLOGY DEVELOPMENT AREA, NANTONG CITY, JIANGSU PROVINCE, PRC

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

SGS Job No. : SP21-036467 - SUZ
 Model No. : DURACON M90-44 CF2001
 Main Substance : [(CH₂-O) p -(CH₂CH₂O-) q]n
 Date of Sample Received : 15 Dec 2021
 Testing Period : 15 Dec 2021 - 20 Dec 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 Cadmium, Lead, Mercury, 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 (Shanghai) Co., Ltd.

Carol Luo

Carol Luo
 Approved Signatory



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Test Report

No. SHAEC2127258003

Date: 21 Dec 2021

Page 2 of 8

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA21-272580.002	White solid pellet

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report

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Date: 21 Dec 2021

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Test Item(s)	Limit	Unit	MDL	002
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl 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. 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:1258637,25
- (2) 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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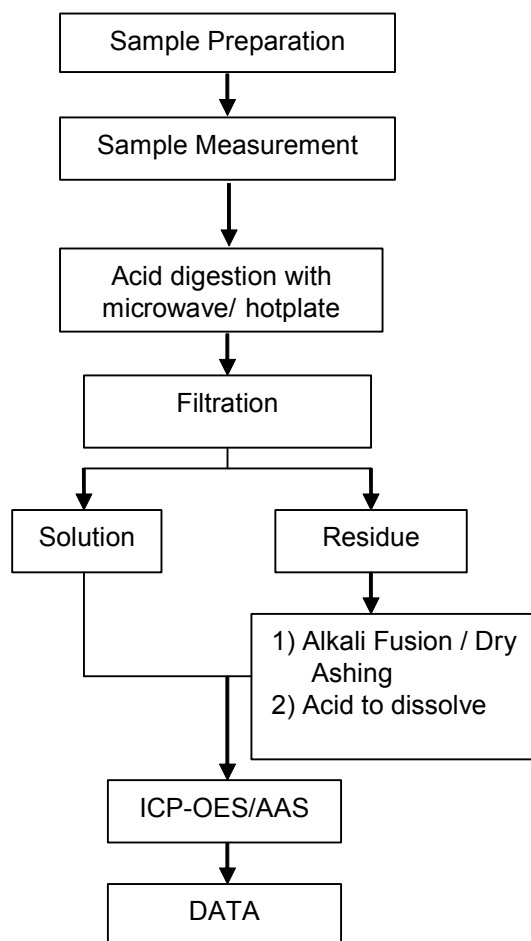
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



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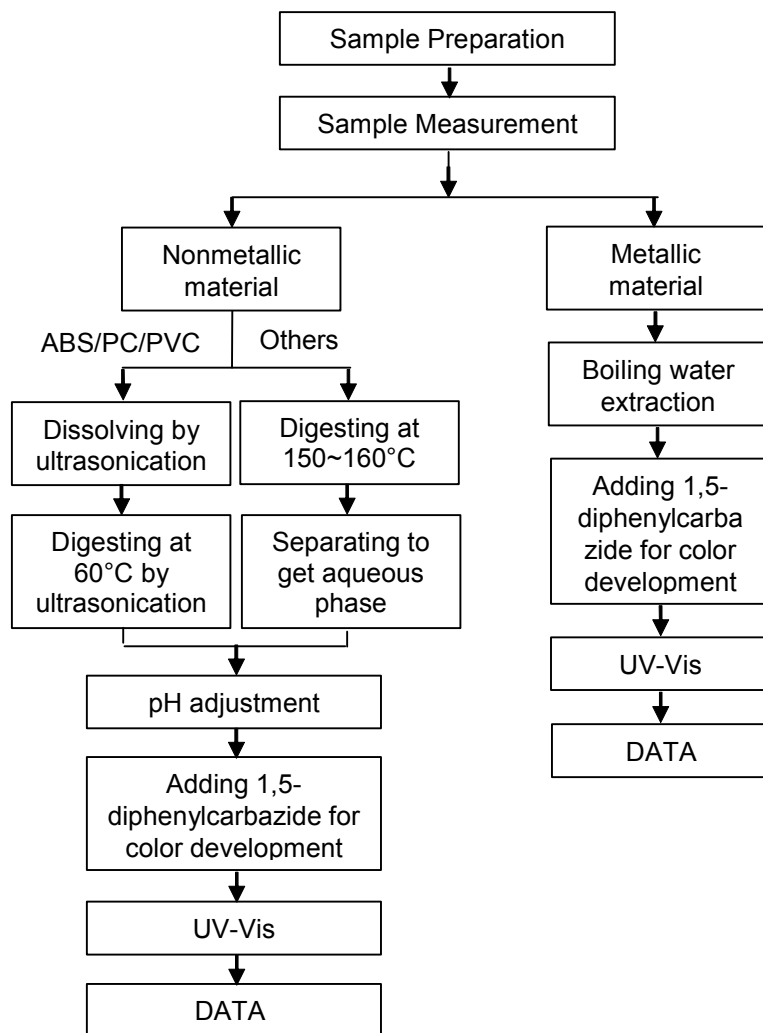
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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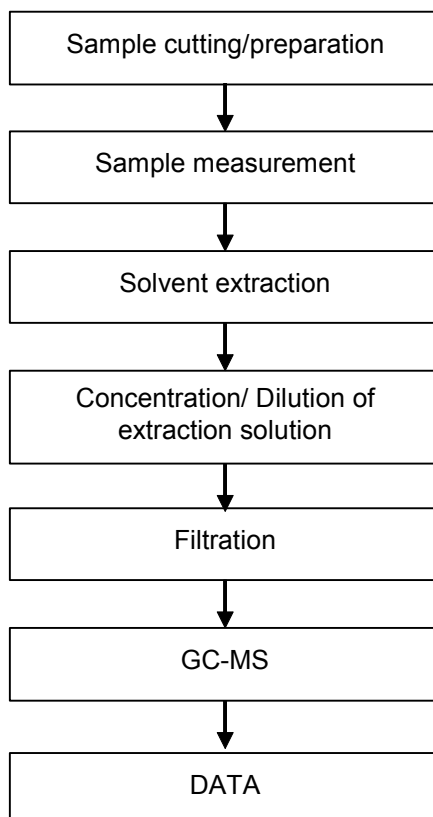
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PBBs/PBDEs Testing Flow Chart



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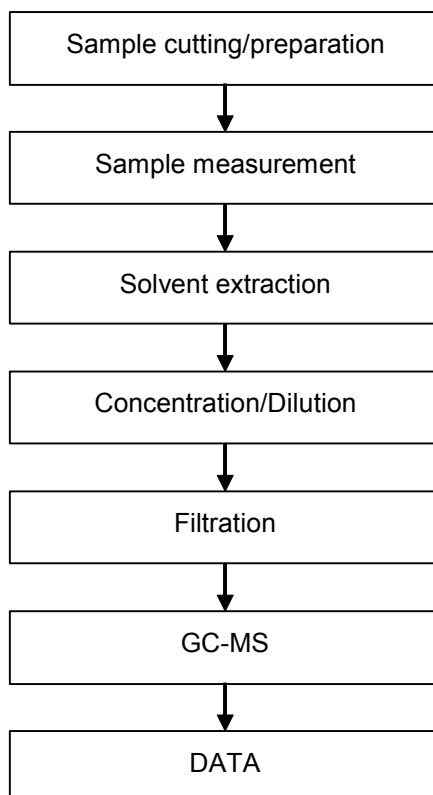
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Phthalates Testing Flow Chart



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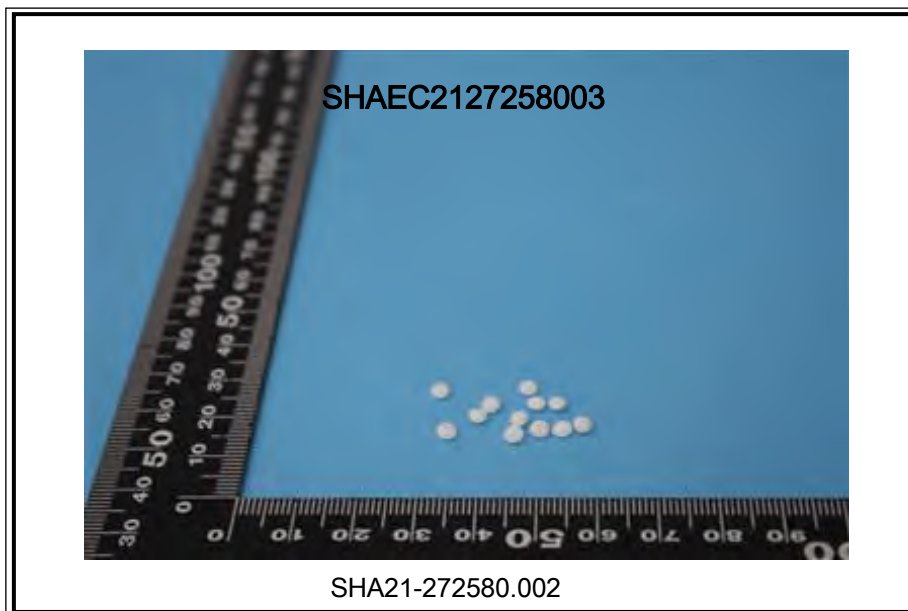
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Sample photo:



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检测报告

Test Report

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Report No. A222001345610102E

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报告抬头公司名称 东莞市道滘见欣塑胶制品厂
Company Name DONGGUAN CITY DAOJIAO JIANXIN PLASTIC PRODUCTS FACTORY
shown on Report
地 址 广东省东莞市道滘镇大鱼沙工业区
Address DAYUSHA INDUSTRIAL ZONE,DAOJIAO TOWN,DONGGUAN,GUANGDONG,
CHINA

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 环保硅橡胶色母/色膏
Sample Name Environmental silicone rubber masterbatch/color paste
样品接收日期 2022.01.11
Sample Received Date Jan. 11, 2022
样品检测日期 2022.01.11-2022.01.14
Testing Period Jan. 11, 2022 to Jan. 14, 2022

测试内容 Test Conducted:

根据客户的申请要求, 具体要求详见下一页。

As requested by the applicant. For details refer to next page(s).



主 检
Tested by

廖红月

审 核
Reviewed by

黄艳

批 准

郑晴涛

日 期
Date

2022.01.14



郑晴涛
技术经理 Technical Manager

No. R411779905

广东省深圳市宝安区新安街道兴东社区华测检测大楼

华测检测认证集团股份有限公司
CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

检测报告 Test Report

报告编号 A222001345610102E
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测试摘要 Executive Summary:

测试要求

TEST REQUEST

- 1) 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)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 氟(F), 氯(Cl), 溴(Br), 碘(I), 邻苯二甲酸酯,多环芳烃(PAHs)进行测试。
As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Phthalates, Polycyclic Aromatic Hydrocarbons (PAHs) in the submitted sample(s).
- 2) EN 71-3:2019
欧洲玩具安全标准 European Standard on Safety of Toys
- 特定元素的迁移
Migration of certain elements

测试结果

CONCLUSION

见第 4-7 页
See page 4-7

符合
PASS

*****详细结果, 请见下页*****

***** For further details, please refer to the following page(s) *****

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检测依据 Test Method

测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead (Pb)	IEC 62321-5:2013	ICP-OES
镉 Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
汞 Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 和/或 IEC 62321-5:2013 测试总 铬含量 IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
氟 Fluorine (F)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
氯 Chlorine (Cl)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
溴 Bromine (Br)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
碘 Iodine (I)	参考 EN 14582:2016 Refer to EN 14582:2016	IC
邻苯二甲酸酯 Phthalates	参考 EN 14372:2004(E) Refer to EN 14372:2004(E)	GC-MS
多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2019:01 PAK	GC-MS

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Test Report

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检测结果 1 Test Result(s) 1

Table with 3 columns: Tested Item(s), Result, MDL. Rows include Lead (Pb), Cadmium (Cd), Mercury (Hg), and Hexavalent Chromium (Cr(VI)).

Table with 3 columns: Tested Item(s), Result, MDL. Section: Polybrominated Biphenyls (PBBs). Rows include Monobromobiphenyl through Decabromobiphenyl.

Table with 3 columns: Tested Item(s), Result, MDL. Section: Polybrominated Diphenyl Ethers (PBDEs). Rows include Monobromodiphenyl ether through Decabromodiphenyl ether.

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)		
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	002	
氟 Fluorine (F)	N.D.	10 mg/kg
氯 Chlorine (Cl)	N.D.	10 mg/kg
溴 Bromine (Br)	N.D.	10 mg/kg
碘 Iodine (I)	N.D.	10 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
邻苯二甲酸酯 Phthalates		
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	30 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	30 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	30 mg/kg
邻苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	30 mg/kg
邻苯二甲酸二异壬酯 Di-isononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	001	
邻苯二甲酸二异癸酯 Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
邻苯二甲酸二甲酯 Dimethyl phthalate (DMP) CAS#:131-11-3	N.D.	30 mg/kg
邻苯二甲酸二乙酯 Diethyl phthalate (DEP) CAS#:84-66-2	N.D.	30 mg/kg
邻苯二甲酸二丙酯 Dipropyl phthalate (DPrP) CAS#:131-16-8	N.D.	30 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	30 mg/kg
邻苯二甲酸二戊酯 Dipentyl phthalate (DPP) CAS#:131-18-0	N.D.	30 mg/kg
邻苯二甲酸二环己酯 Dicyclohexyl phthalate (DCHP) CAS#:84-61-7	N.D.	30 mg/kg
邻苯二甲酸二异辛酯 Diisooctyl phthalate (DIOP) CAS#:27554-26-3	N.D.	50 mg/kg
邻苯二甲酸二壬酯 Dinonyl phthalate (DNP) CAS#:84-76-4	N.D.	30 mg/kg
邻苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP) CAS#:84-75-3	N.D.	30 mg/kg
邻苯二甲酸二苄酯 Dibenzyl phthalate (DBzP) CAS#:523-31-9	N.D.	30 mg/kg
邻苯二甲酸二苯酯 Diphenyl phthalate (DPhP) CAS#:84-62-8	N.D.	30 mg/kg

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测试项目 Tested Item(s)	结果 Result 001	方法检出限 MDL
多环芳烃(PAHs)Polycyclic Aromatic Hydrocarbons (PAHs)		
萘 Naphthalene	N.D.	0.2 mg/kg
菲 Phenanthrene	N.D.	0.2 mg/kg
蒽 Anthracene	N.D.	0.2 mg/kg
荧蒽 Fluoranthene	N.D.	0.2 mg/kg
芘 Pyrene	N.D.	0.2 mg/kg
蒾 Chrysene	N.D.	0.2 mg/kg
苯并(a)蒽 Benzo(a)anthracene	N.D.	0.2 mg/kg
苯并(b)荧蒽 Benzo(b)fluoranthene	N.D.	0.2 mg/kg
苯并(k)荧蒽 Benzo(k)fluoranthene	N.D.	0.2 mg/kg
苯并(j)荧蒽 Benzo(j)fluoranthene	N.D.	0.2 mg/kg
苯并(a)芘 Benzo(a)pyrene	N.D.	0.2 mg/kg
苯并(e)芘 Benzo(e)pyrene	N.D.	0.2 mg/kg
二苯并(a,h)蒽 Dibenzo(a,h)anthracene	N.D.	0.2 mg/kg
苯并(g,h,i)花 Benzo(g,h,i)perylene	N.D.	0.2 mg/kg
茚并(1,2,3-cd)芘 Indenol(1,2,3-cd)pyrene	N.D.	0.2 mg/kg
菲,蒽,荧蒽,芘总量 Sum (Phenanthrene, Anthracene, Fluoranthene, Pyrene)	N.D.	/
15 PAHs 总量 Sum 15 PAHs	N.D.	/

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可接触的表面材料中 PAHs 含量限值(mg/kg)(按风险评估的结果分类)

Maximum PAHs limits (mg/kg) for the materials with relevant contact/grip and operating surfaces that are to be categorised based on the results of the risk assessment

参数 Parameters	一类 Category 1	二类 Category 2		三类 Category 3	
	可放入口中的材料，或预期和皮肤接触时间超过 30 秒（长时间接触）2009/48/EC 定义的玩具材料或供 3 岁以下儿童使用的产品 Materials intended to be placed in the mouth, or materials in toys according to Directive 2009/48/EC or materials for the use by children up to 3 years of age coming into long-term contact with skin (more than 30s) during the intended use	未包含在第一类材料中，预期和皮肤接触时间超过 30 秒（长时间接触），或者和皮肤短时间频繁接触**的材料 Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact** with skin during the intended or foreseeable use		未包含在第一类和第二类材料中，预期和皮肤接触时间不超过 30 秒（短时间接触）的材料 Materials not covered by category 1 nor by category 2, coming into short-term contact (up to 30s) with skin during the intended or foreseeable use	
		供儿童（< 14 岁）使用的产品（包括主动和被动直接接触） Use by children (< 14 years) (include both active and passive direct contact)	其他类产品 Other consumer products	供儿童（< 14 岁）使用的产品（包括主动和被动直接接触） Use by children (< 14 years) (include both active and passive direct contact)	其他类产品 Other consumer products
苯并(a)芘 Benzo(a)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(e)芘 Benzo(e)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(a)蒽 Benzo(a)anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(b)荧蒽 Benzo(b)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(j)荧蒽 Benzo(j)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(k)荧蒽 Benzo(k)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
蒽Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
二苯并(a,h)蒽 Dibenz(a,h)anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(g,h,i)花 Benzo(g,h,i)perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
茚并(1,2,3-cd)芘 Indenol(1,2,3-cd)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
菲, 蒽, 荧蒽, 芘	总量 < 1	总量 < 5	总量 < 10	总量 < 20	总量 < 50

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Phenanthrene, Anthracene, Fluoranthene, Pyrene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
萘 Naphthalene	< 1	< 2		< 10	
15 PAHs 总量 Sum 15 PAHs	< 1	< 5	< 10	< 20	< 50

** “短时间频繁接触” 来自REACH法规附录XVII第50项的修订案(法规 (EU) No. 1272/2013)
Definition “short-term repetitive contact” taken from REACH Annex XVII entry 50 amendment
(REGULATION (EU) No.1272/2013)

备注: 对于检测铅, 镉, 汞之样品已消解完全。

-N.D. = 未检出 (小于方法检出限)
-mg/kg = ppm = 百万分之一

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

-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

检测报告

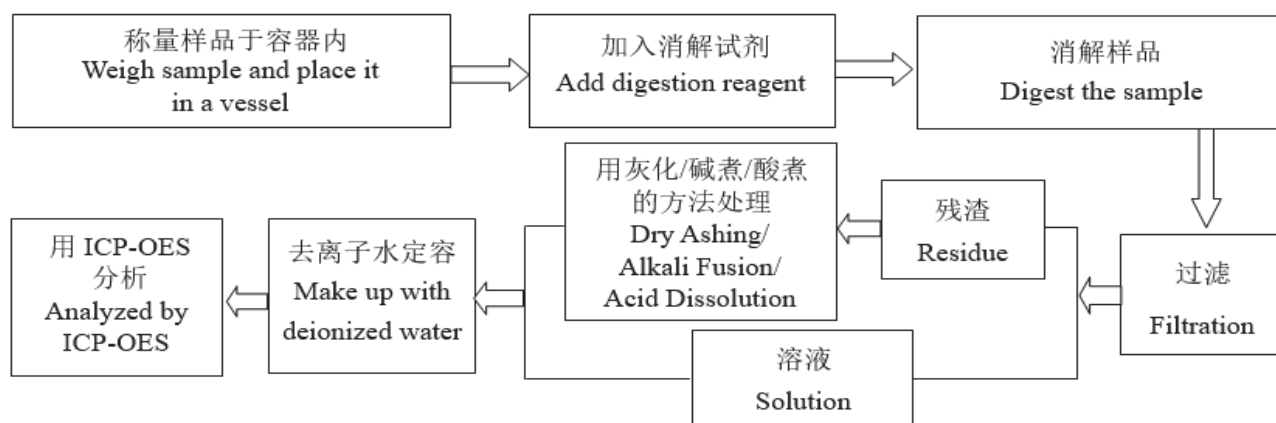
Test Report

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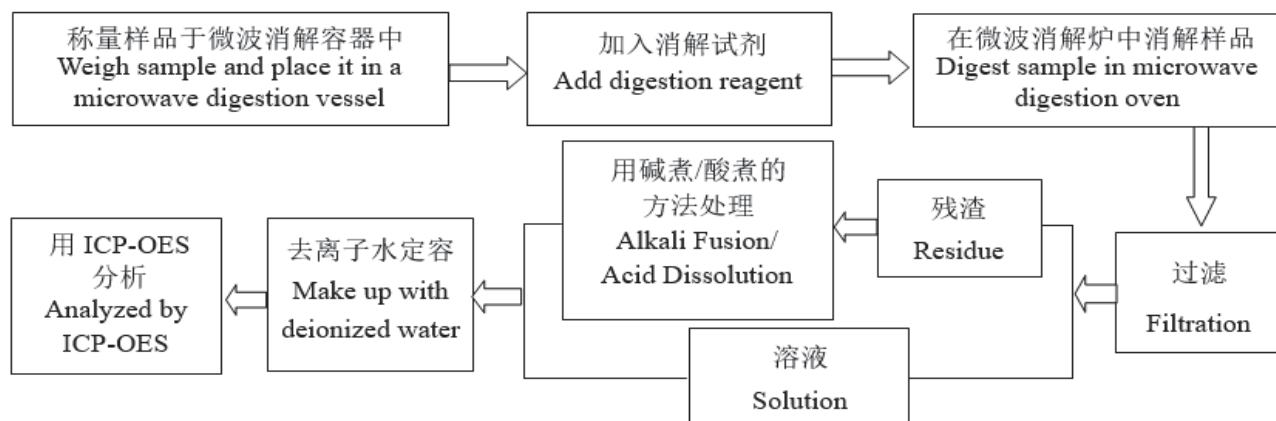
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检测流程 Test Process

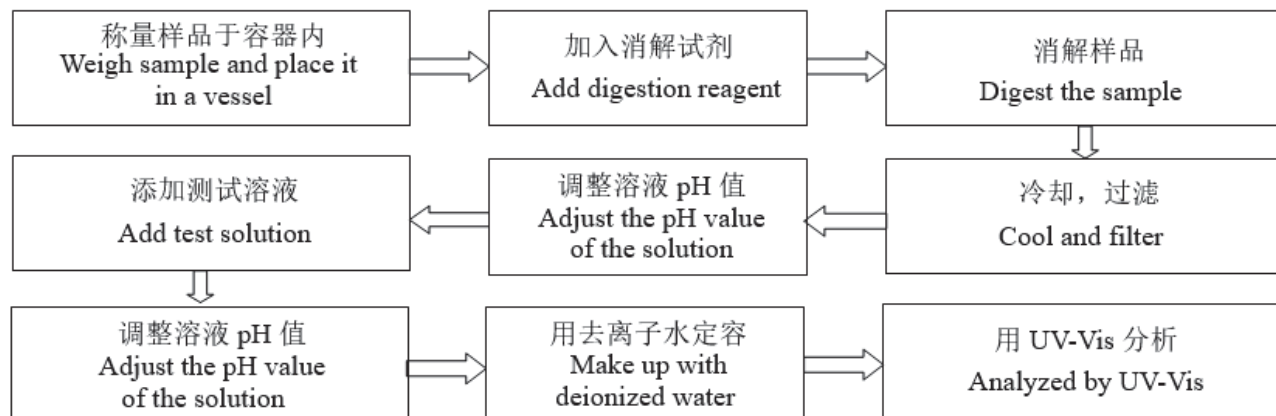
1. 铅 Lead (Pb), 镉 Cadmium (Cd), 铬 Chromium(Cr)



2. 汞 Mercury (Hg)



3. 六价铬 Hexavalent Chromium (Cr(VI))

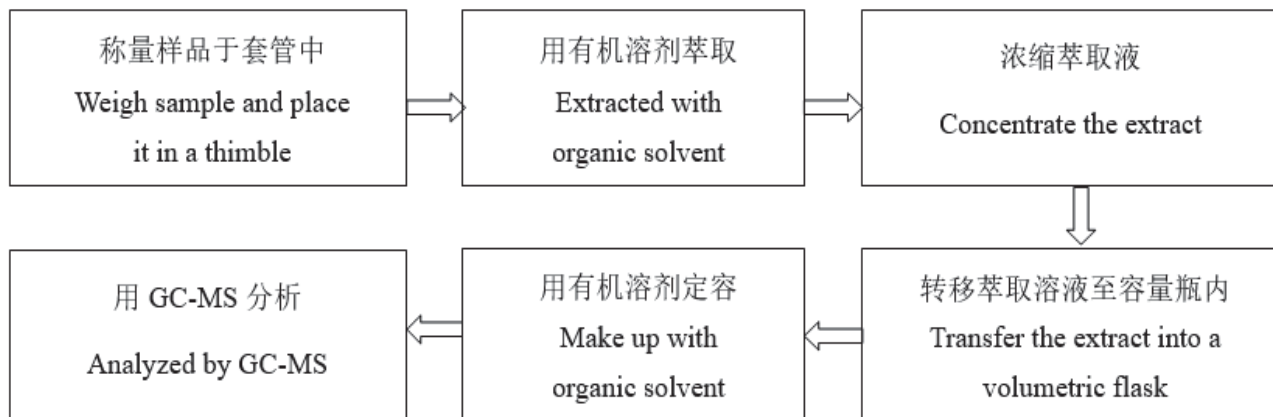


检测报告 Test Report

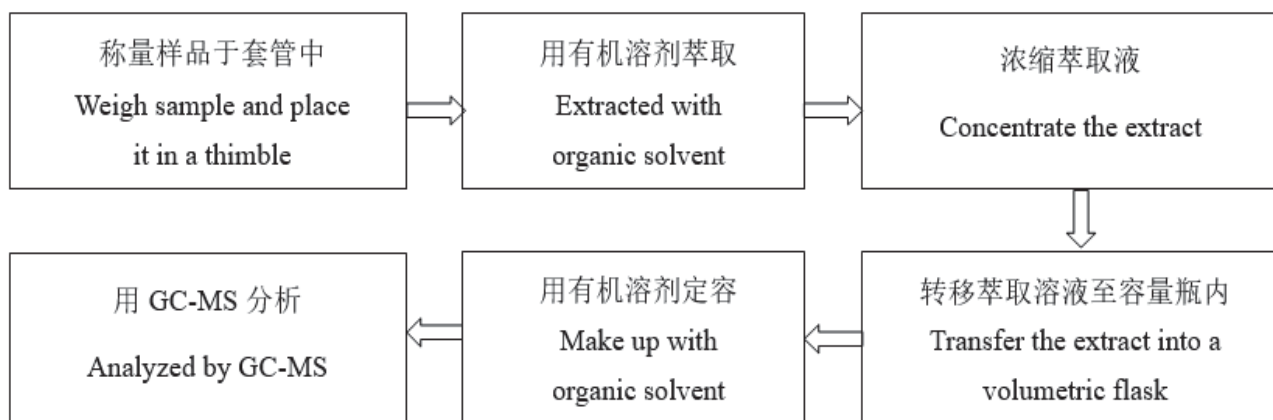
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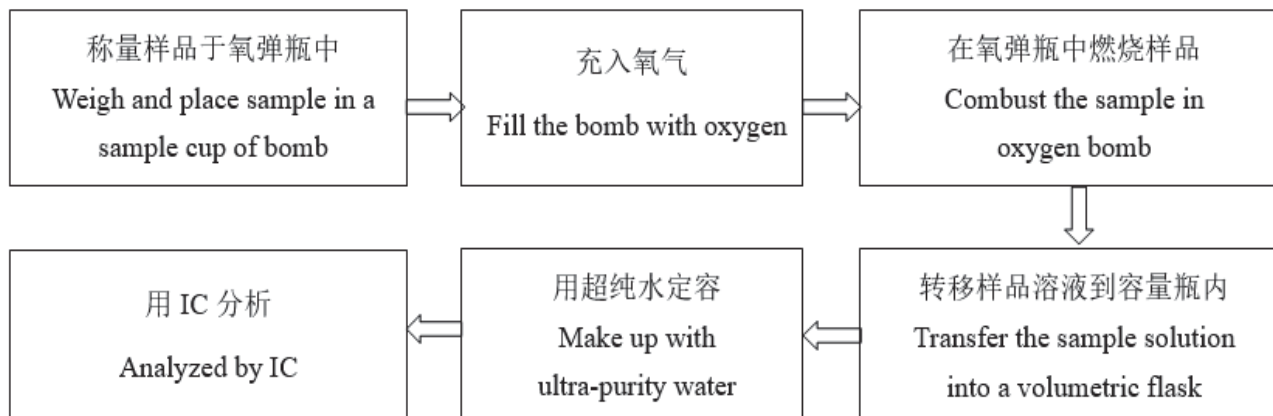
4. 多溴联苯 Polybrominated Biphenyls (PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)



5. 邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)



6. 氟 Fluorine (F), 氯 Chlorine (Cl), 溴 Bromine (Br), 碘 Iodine (I)

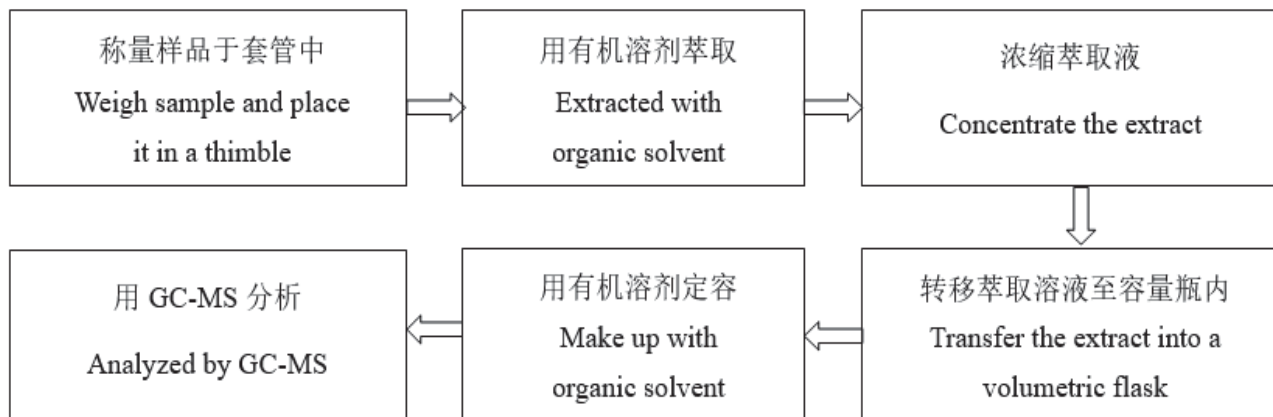


检测报告 Test Report

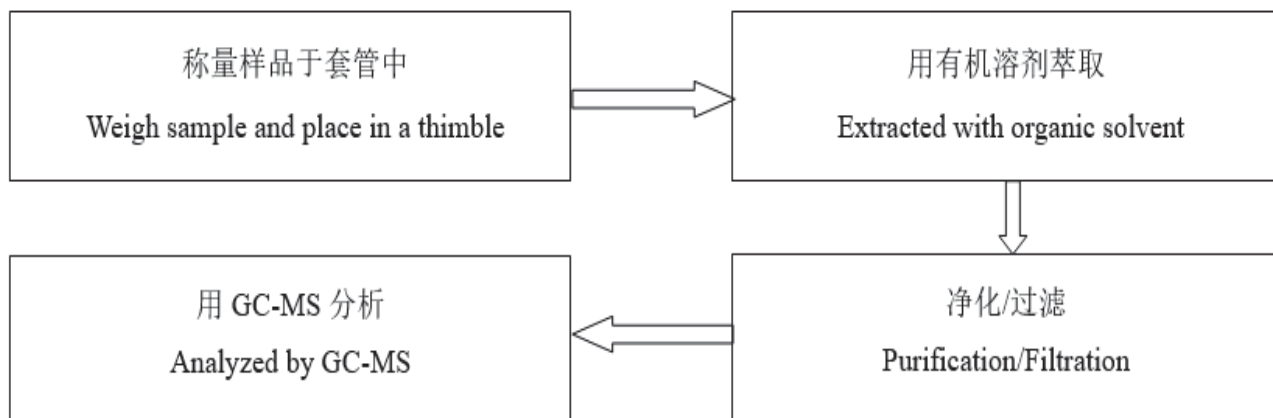
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7. 邻苯二甲酸酯 Phthalates



8. 多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)



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检测结果 2 Test Result(s) 2

EN 71-3:2019 欧洲玩具安全标准 European Standard on Safety of Toys▼ **特定元素的迁移 Migration of certain elements**

使用方法 EN 71-3:2019, 通过 ICP-OES, ICP-MS, IC-UV 和/或 GC-MS 分析。

Method(s) EN 71-3:2019 was/were used, and the item(s) was/were analyzed by ICP-OES, ICP-MS, IC-UV and/or GC-MS.

类别III: 玩具中可刮取材料

Category III: scraped-off toy material

测试项目 Tested Item(s)	结果 Result (mg/kg)	方法检出限	限值
	001	MDL (mg/kg)	Limit (mg/kg)
铝 Aluminium (Al)	N.D.	50	70000
锑 Antimony (Sb)	N.D.	5	560
砷 Arsenic (As)	N.D.	5	47
钡 Barium (Ba)	N.D.	50	18750
硼 Boron (B)	N.D.	50	15000
镉 Cadmium (Cd)	N.D.	1	17
三价铬 Chromium (III) ^{#1}	N.D.	0.2	460
六价铬 Chromium (VI)	N.D.	0.002	0.053
钴 Cobalt (Co)	N.D.	5	130
铜 Copper (Cu)	N.D.	50	7700
铅 Lead (Pb)	N.D.	1	23
锰 Manganese (Mn)	N.D.	50	15000
汞 Mercury (Hg)	N.D.	5	94
镍 Nickel (Ni)	N.D.	5	930
硒 Selenium (Se)	N.D.	5	460
锶 Strontium (Sr)	N.D.	50	56000
锡 Tin (Sn) ^{#2}	N.D.	2	180000
有机锡 Organic tin (TBT) ^{#3}	N.D.	0.05	12
锌 Zinc (Zn)	N.D.	50	46000

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备注 Remark:

- MDL = 方法检出限 Method Detection Limit
- N.D. = 未检出 Not Detected (小于方法检出限 <MDL)
- mg/kg = ppm = 百万分之一 parts per million
- 实验室采用滤纸代替滤膜进行测试。
Filter paper was used instead of membrane filter in lab testing.
- ^{#1} 三价铬含量=铬含量-六价铬含量。
^{#1} Trivalent chromium (Cr (III)) = Chromium (Cr) - Hexavalent chromium (Cr (VI)).
- ^{#2} 为符合 EN 71-3:2019 可以通过锡含量来对有机锡进行筛选测试。
^{#2} Tin (Sn) content can be used for screen test for organic tins analysis to show compliance with the requirement of EN 71-3:2019.
- ^{#3} 有机锡的迁移含量以三丁基锡含量表示。当锡的含量超过有机锡的限值时, 通过 GC-MS 分析下表中的十一种有机锡, 客户应清楚可能有其它的有机锡会存在玩具材料中。
^{#3} The migration of organic tin is expressed as tributyltin (TBT). Where the tin content exceeded the limit of organic tin, eleven organic tins listed in the table were determined by GC-MS and the client should note there are other organic tins that may be present in toy materials.

EN 71-3:2019 中测试的有机锡
Organic tins tested under EN 71-3:2019
Methyl tin (MeT)
Butyl tin (BuT)
Dibutyl tin (DBT)
Tributyl tin (TBT)
Tetrabutyl tin (TeBT)
n-Octyl tin (MOT)
Di-n-octyl tin (DOT)
Di-n-propyl tin (DProT)
Diphenyl tin (DPhT)
Triphenyl tin (TPhT)
Dimethyl tin (DMT)

样品/部位描述 Sample/Part Description

- 001 黑色硅橡胶 Black silicone rubber
002 黑色硅橡胶 Black silicone rubber

注释 Note:

- 客户样品多信息说明: 供给不同客户, 会有不同的名称叫法。
Information Statement: Different sample name with different buyer.
- 本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。
The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

检测报告 Test Report

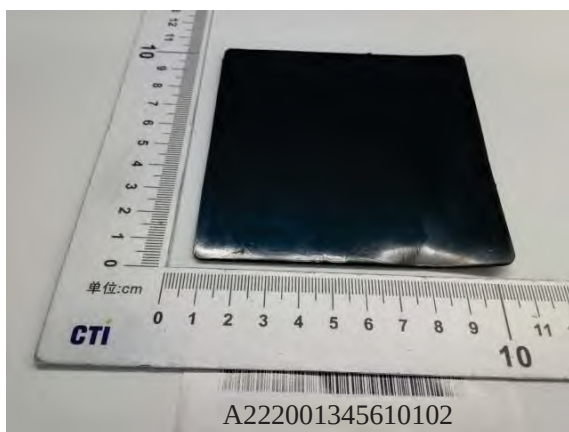
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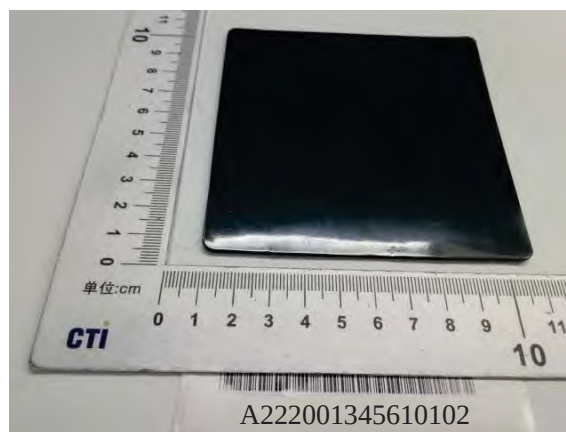
样品图片

Photo(s) of the sample(s)

001



002



声明 Statement:

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3. 本报告检测结果仅对受测样品负责;
The result(s) shown in this report refer(s) only to the sample(s) tested;
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*** 报告结束 ***

*** End of Report ***

附录 Appendix

客户参考信息 Client Reference Information

样品序号 Sample No.	客户参考信息 Client Reference Information
001	JK-2101/1800/1801/1801A/1801A-1/1802/1803/1804/1805/300/1830/6801/6802/ 珠光银/R-2800/255 黑 JS.JM.JSA-211/235/236/237/238/239/21592/6801/6802/211A JSH.Lims-2118/2100/H2100/2118A/6801/6802 JK-2101/1800/1801/1801A/1801A-1/1802/1803/1804/1805/300/1830/6801/6802/ 珠光银/R-2800/255 黑 JS.JM.JSA-211/235/236/237/238/239/21592/6801/6802/211A JSH.Lims-2118/2100/H2100/2118A/6801/6802
002	JK- 2101/1800/1801/1801A/1801A-1/1802/1803/1804/1805/300/1830/6801/6802/ 珠光銀/R-2800/255 黑 JS.JM.JSA-211/235/236/237/238/239/21592/6801/6802 JSH.Lims-2118/2100/H2100/2118A/6801/6802 JK- 2101/1800/1801/1801A/1801A-1/1802/1803/1804/1805/300/1830/6801/6802/ 珠光銀/R-2800/255 黑 JS.JM.JSA-211/235/236/237/238/239/21592/6801/6802 JSH.Lims-2118/2100/H2100/2118A/6801/6802

声明 Statement:

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The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
2. 附录内容为 A222001345610102E 报告的补充。
The Appendix Information is/are the supplement(s) for the Report A222001345610102E.

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Client name : ZHENJIANG SHENGKEDA ELECTRONICS CO.,LTD

Client address : XINQI VILLAGE, XINFENG TOWN, DANTU DISTRICT, ZHENJIANG CITY

Sample Name : PTFE ROD

Client Ref. Information : PTFE INSULATPOR

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

SGS Job No. : SP22-018296

Sample Receiving Date : Aug 17, 2022

Testing Period : Aug 17, 2022 to Aug 22, 2022

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

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

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

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

Signed for and on behalf of

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Sue Sheng

Sue Sheng

Approved Signatory

scan to see the report



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Test Results:

Test Part Description:

SN ID	Sample No	SGS Sample ID	Description
SN1	A1	SHA22-0007670-0001.C001	White solid

Remarks:

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

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

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, Hg analyzer, UV-Vis and GC-MS.

Test Item(s)	Limit	Units	MDL	A1
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tribromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND



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Test Item(s)	Limit	Units	MDL	A1
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND
Tetrabromodiphenylether(TetraBDE)	-	mg/kg	5	ND
Pentabromodiphenyl ethers (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether(HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenyl ethers (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenyl ether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND

Notes:

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

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



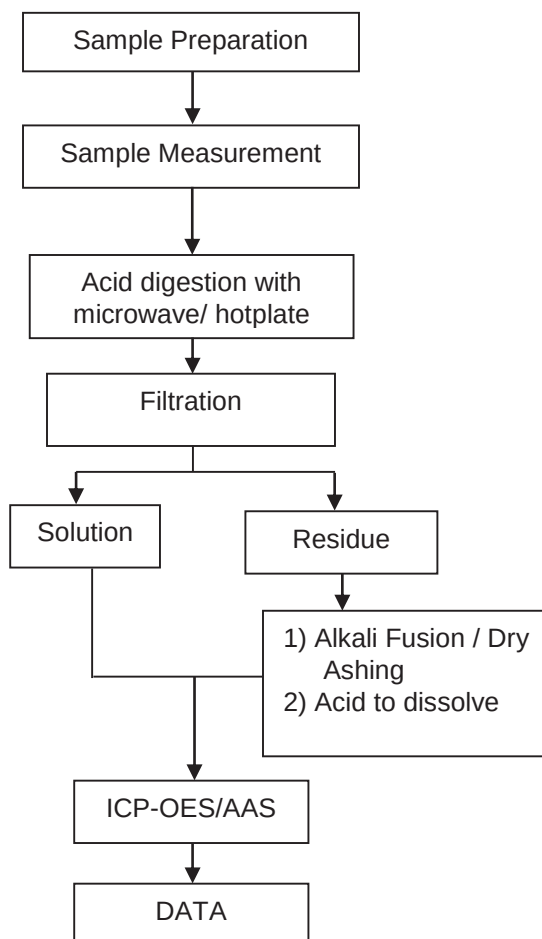
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



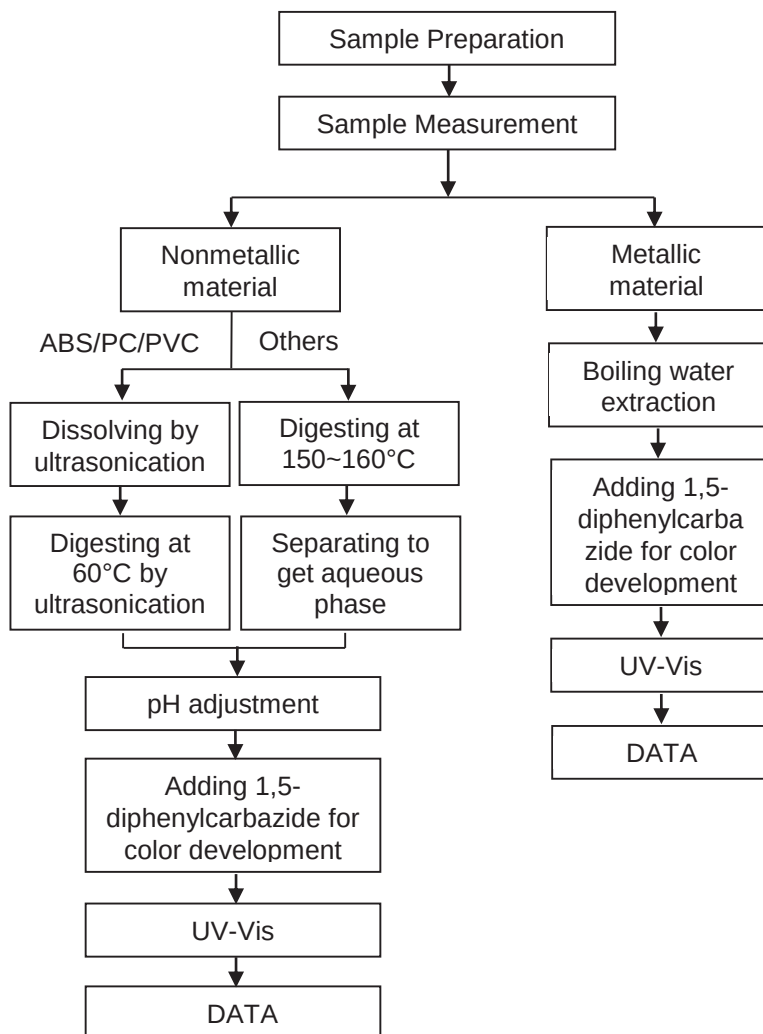
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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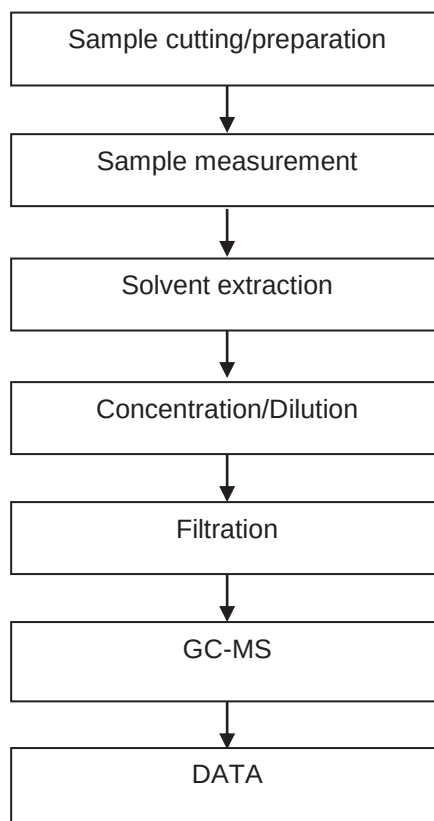
No.: SHAEC22000767001

Date: Aug 23, 2022

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ATTACHMENTS

Phthalates Testing Flow Chart



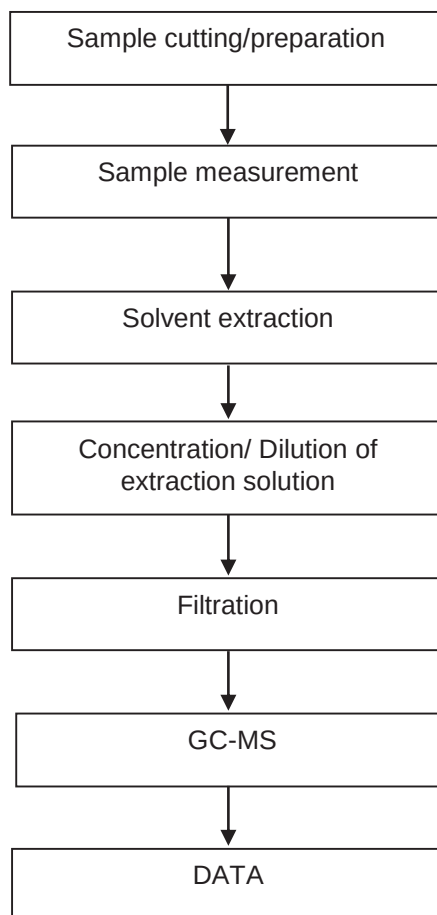
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PBBs/PBDEs Testing Flow Chart



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Sample Photo:



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Test Report

No. SZXEC2103405301

Date: 12 Nov 2021

Page 1 of 6

SHENZHEN ZHICHENG INDUSTRIAL CO.,LTD.ZHICHENG PLASTIC HARDWARE PRODUCTS FACTORY
NO.2,FIVE LANES,XINSHA INDUSTRIAL ZONE,BILING COMMUNITY,PINGSHAN STREET,PINGSHAN
DISTRICT,SHENZHEN

The following sample(s) was/were submitted and identified on behalf of the clients as : Gold plating (in Chinese as镀金层)

SGS Job No. : RP21-026189 - SZ

Date of Sample Received : 04 Nov 2021

Testing Period : 04 Nov 2021 - 12 Nov 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. Shenzhen Branch

Ford

Ford Shi
Approved Signatory



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Test Report

No. SZXEC2103405301

Date: 12 Nov 2021

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX21-034053.001	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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	24
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	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. SZXEC2103405301

Date: 12 Nov 2021

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Test Item(s)	Limit	Unit	MDL	001
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 Phthalate (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:1258637,25
- (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.



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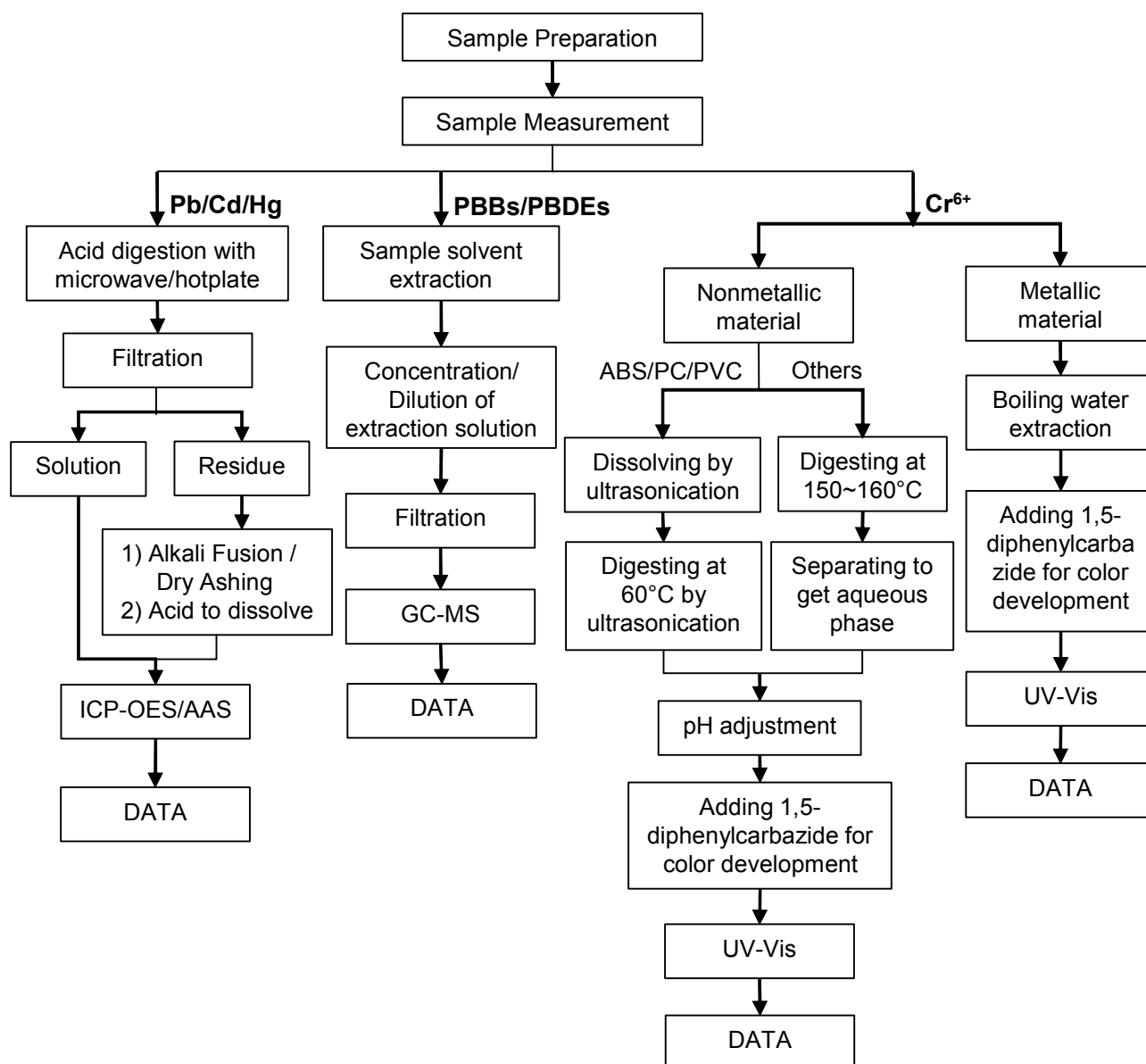
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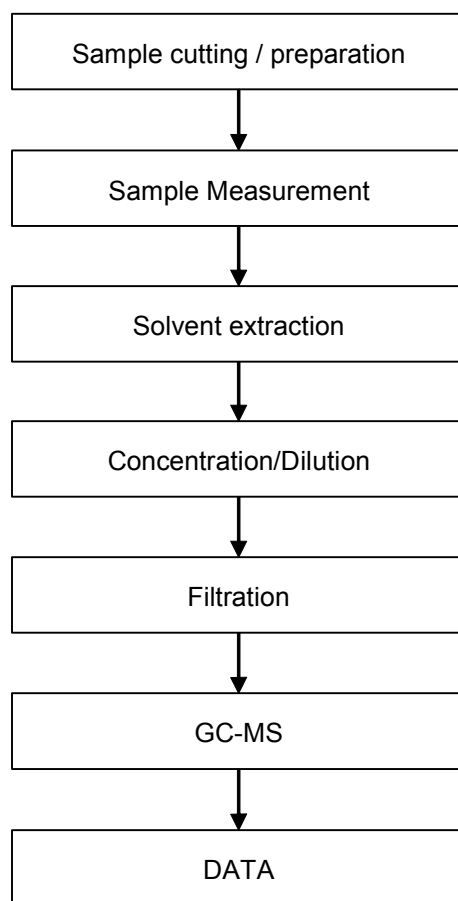
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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



ATTACHMENTS

Phthalates Testing Flow Chart



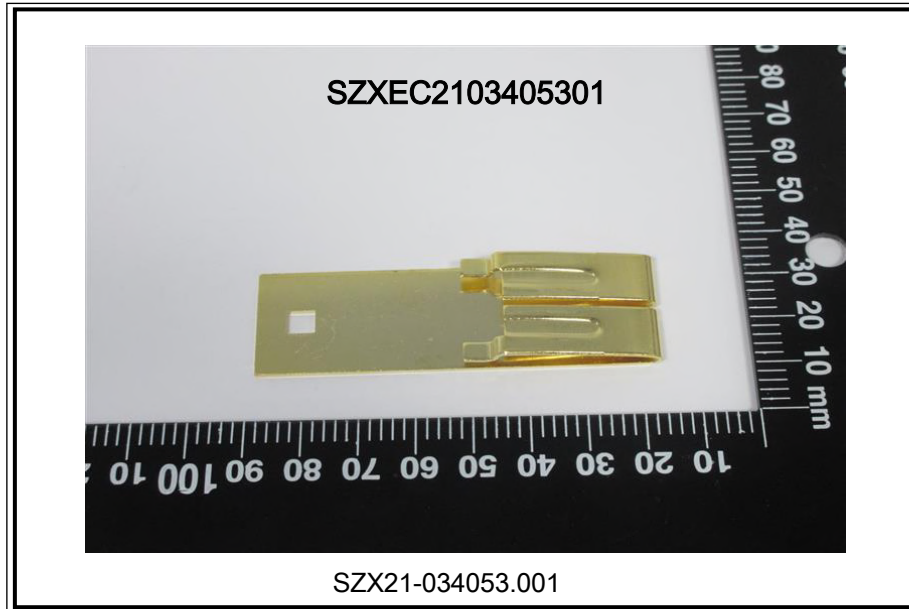
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NO.2,FIVE LANES,XINSHA INDUSTRIAL ZONE,BILING COMMUNITY,PINGSHAN STREET,PINGSHAN
DISTRICT,SHENZHEN

The following sample(s) was/were submitted and identified on behalf of the clients as : Nickel plating (in Chinese as 镀镍层)

SGS Job No. : RP21-026189 - SZ

Date of Sample Received : 04 Nov 2021

Testing Period : 04 Nov 2021 - 12 Nov 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. Shenzhen Branch

Ford

Ford Shi
Approved Signatory



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Test Report

No. SZXEC2103405307

Date: 12 Nov 2021

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX21-034053.003	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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	003
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	28
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	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

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Date: 12 Nov 2021

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Test Item(s)	Limit	Unit	MDL	003
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 Phthalate (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:1258637,25
- (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.



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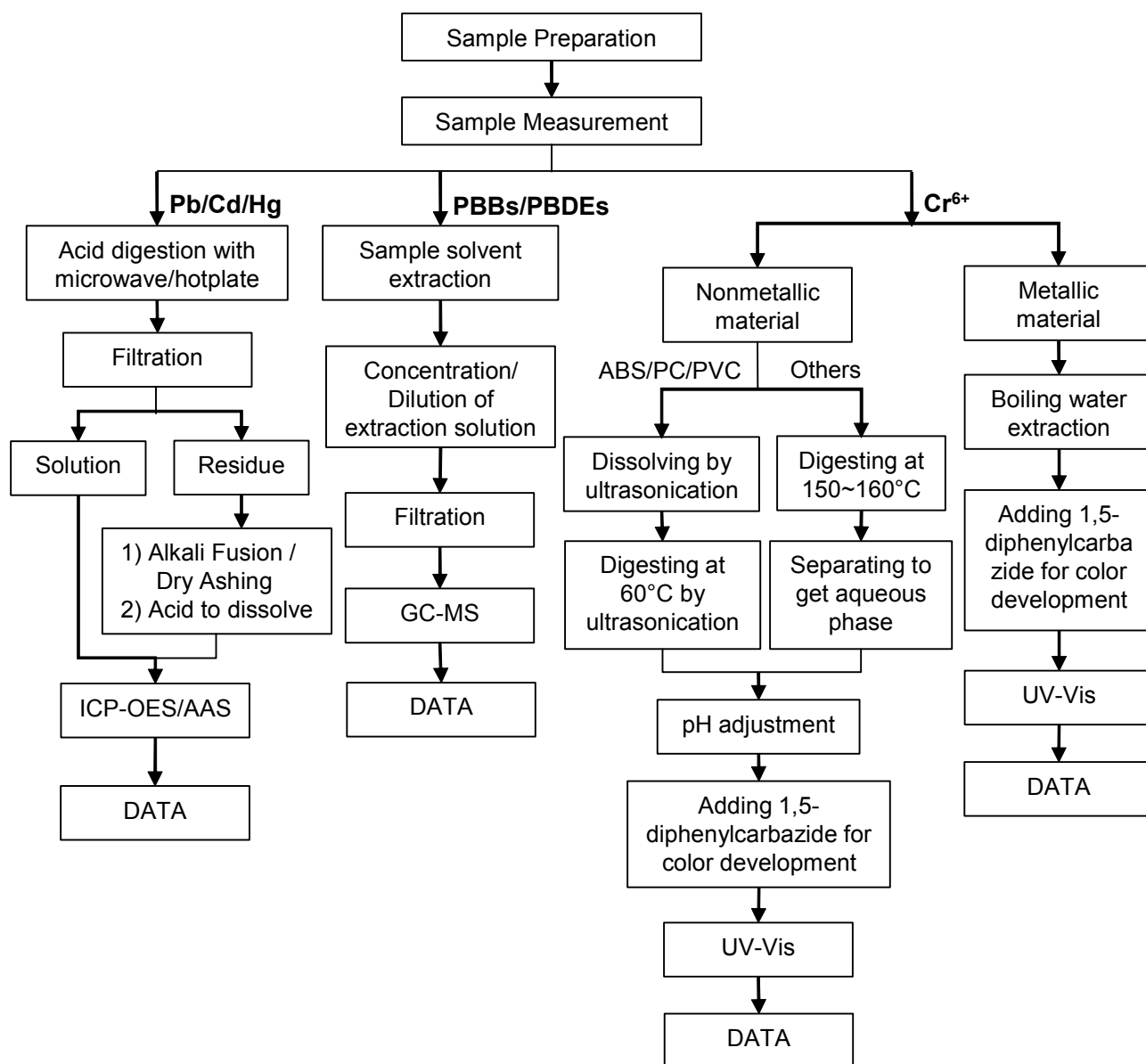
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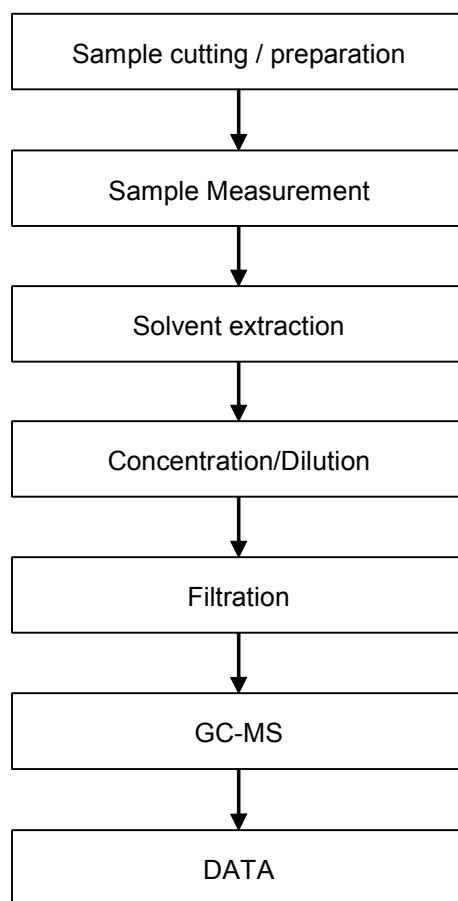
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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



ATTACHMENTS

Phthalates Testing Flow Chart



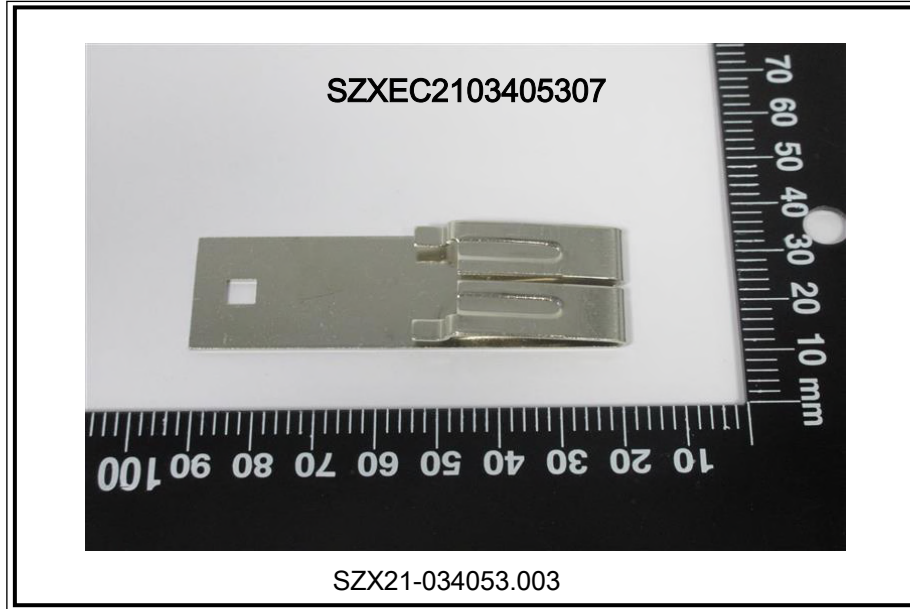
Test Report

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Date: 12 Nov 2021

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Sample photo:



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*** End of Report ***

Test Report

No. CANEC2202626909

Date: 02 Mar 2022

Page 1 of 7

Client Name : TEIJIN KASEI(HK)LIMITED GUANGZHOU REP.OFFICE

Client Address : RM2011 OFFICE TOWER CITIC PLAZA 233 TIANHE N.RD, GUANGZHOU

Sample Name : L-1250Z COLOR:100

Manufacturer : TEIJIN POLYCARBONATE CHINA LTD

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

SGS Job No. : CP22-007173 - GZ

Date of Sample Received : 23 Feb 2022

Testing Period : 23 Feb 2022 - 01 Mar 2022

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

Jessie Li

Jessie Li
Approved Signatory



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Test Report

No. CANEC2202626909

Date: 02 Mar 2022

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-026269.005	Colorless transparent grains

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

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

Test Item(s)	Limit	Unit	MDL	005
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 (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

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Date: 02 Mar 2022

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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>005</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:1258637,25
- (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.

Halogen

Test Method : With reference to EN 14582:2016, analysis was performed by IC.

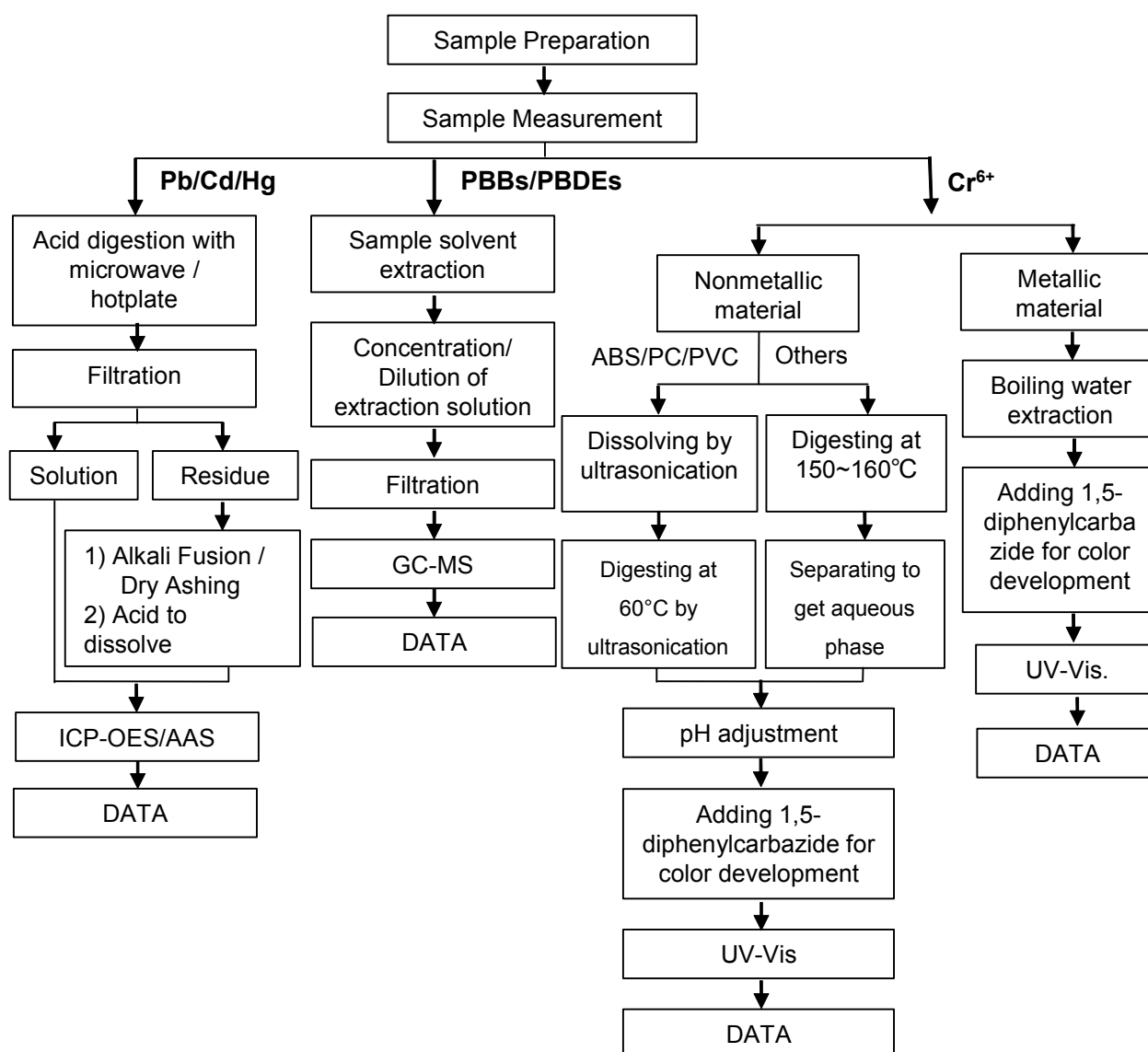
<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND



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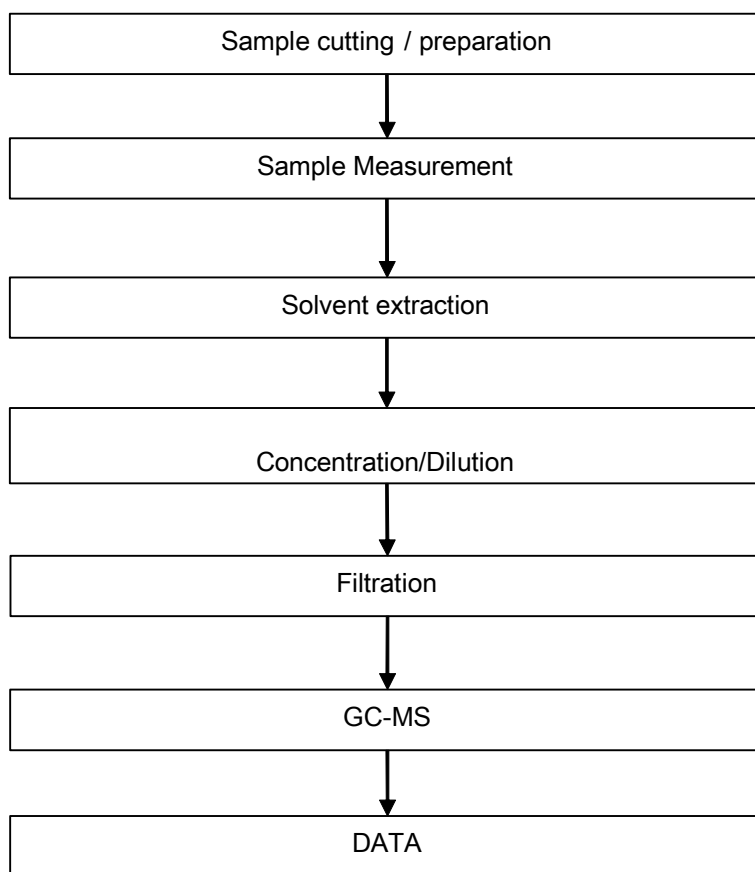
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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



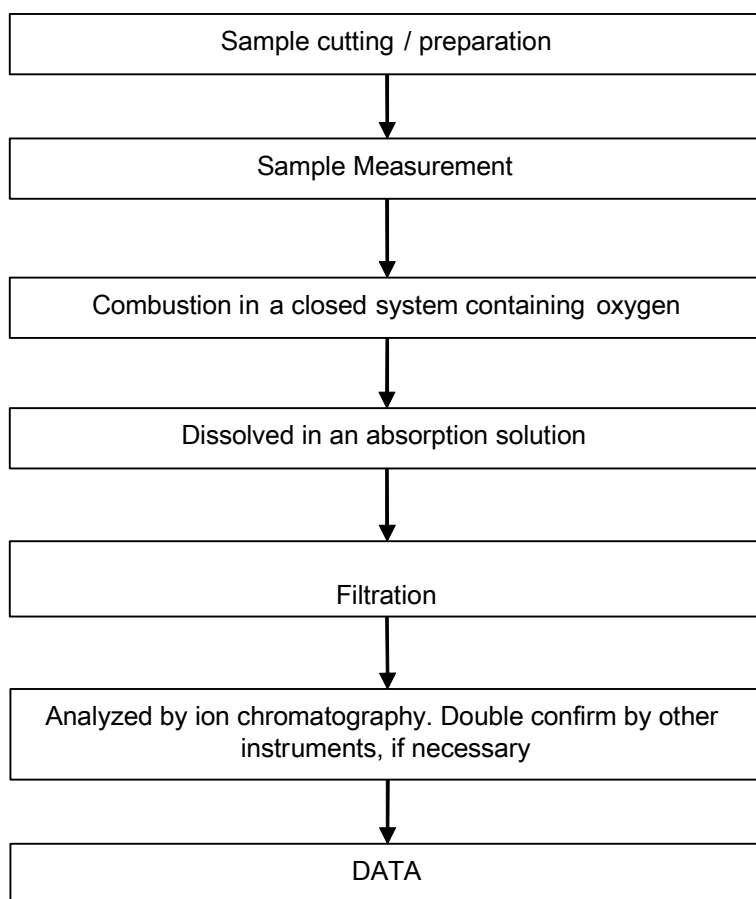
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Phthalates Testing Flow Chart



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Halogen Testing Flow Chart



Test Report

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Date: 02 Mar 2022

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Sample photo:



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Test Report

No. SZXEC2201088901

Date: 21 Apr 2022

Page 1 of 6

Client Name : DONGGUAN LUZHENG PLASTIC TECHNOLOGY CO.,LTD

Client Address : NO.357 SURONG EAST ROAD DAJINGJIU PLASTIC MARKET CHANGPING TOWN DONGGUAN CITY

Sample Name : PC/PBT

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

SGS Job No. : RP22-008329 - SZ

Date of Sample Received : 18 Apr 2022

Testing Period : 18 Apr 2022 - 21 Apr 2022

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

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

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

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. Shenzhen Branch

Andy

Andy Ni
Approved Signatory



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Test Report

No. SZXEC2201088901

Date: 21 Apr 2022

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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX22-010889.001	White plastic grains

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	001
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))	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. SZXEC2201088901

Date: 21 Apr 2022

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Test Item(s)	Limit	Unit	MDL	001
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 Phthalate (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:1258637,25

(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.

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



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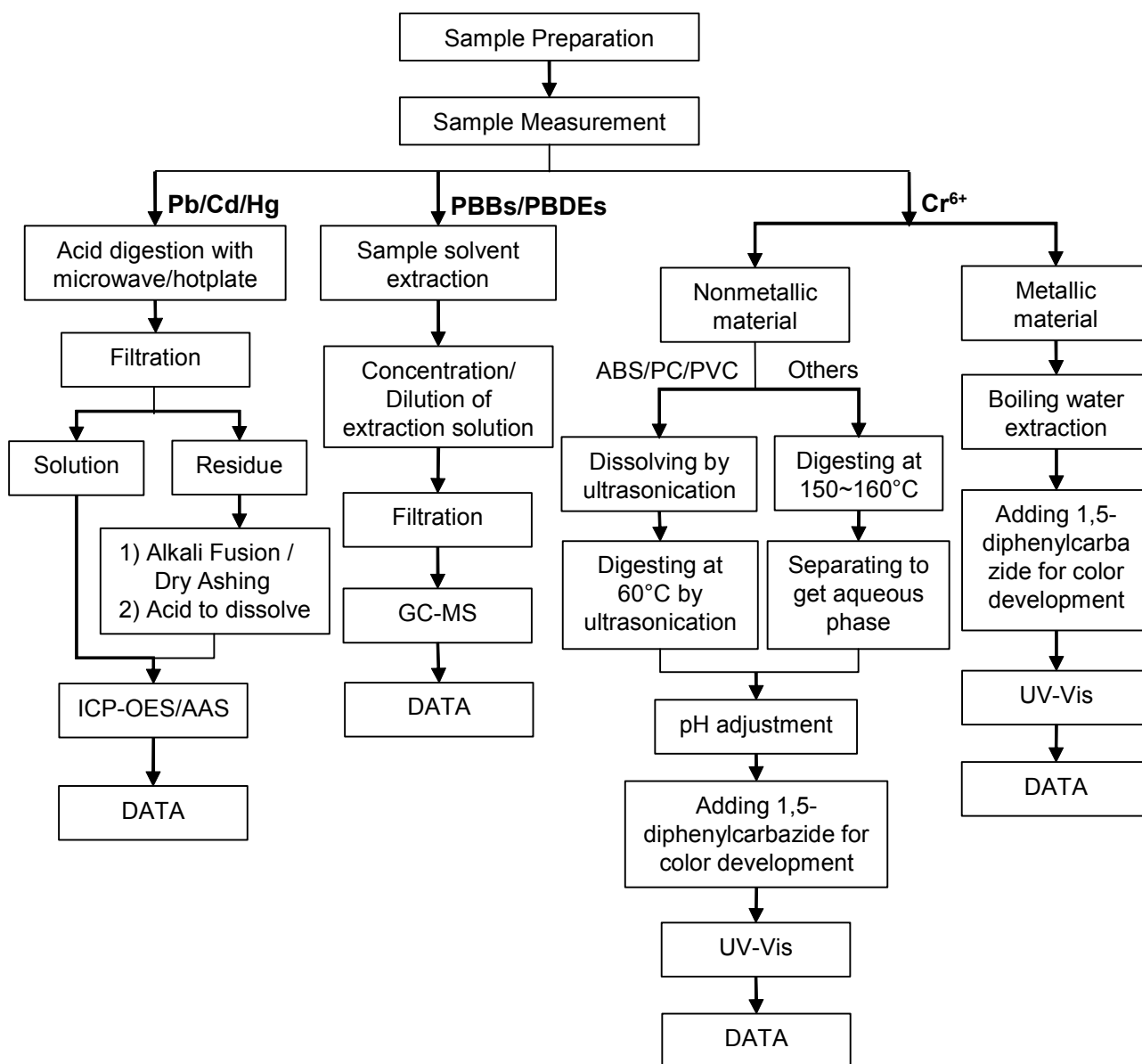
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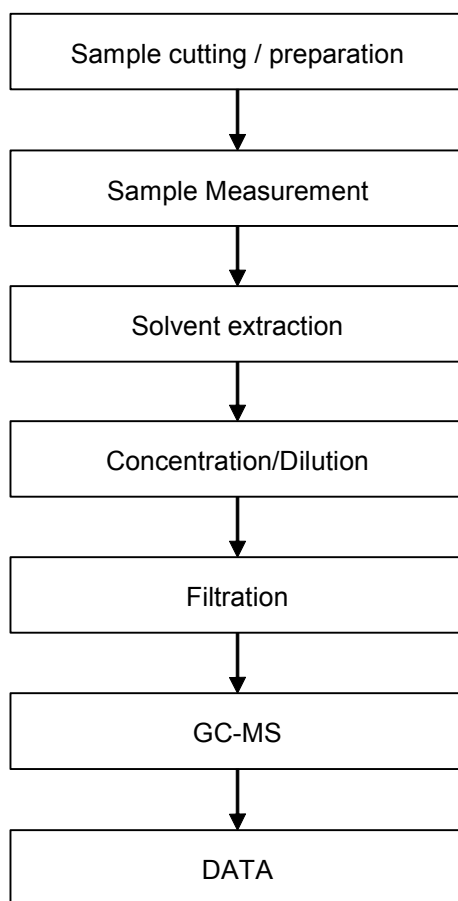
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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



ATTACHMENTS

Phthalates Testing Flow Chart



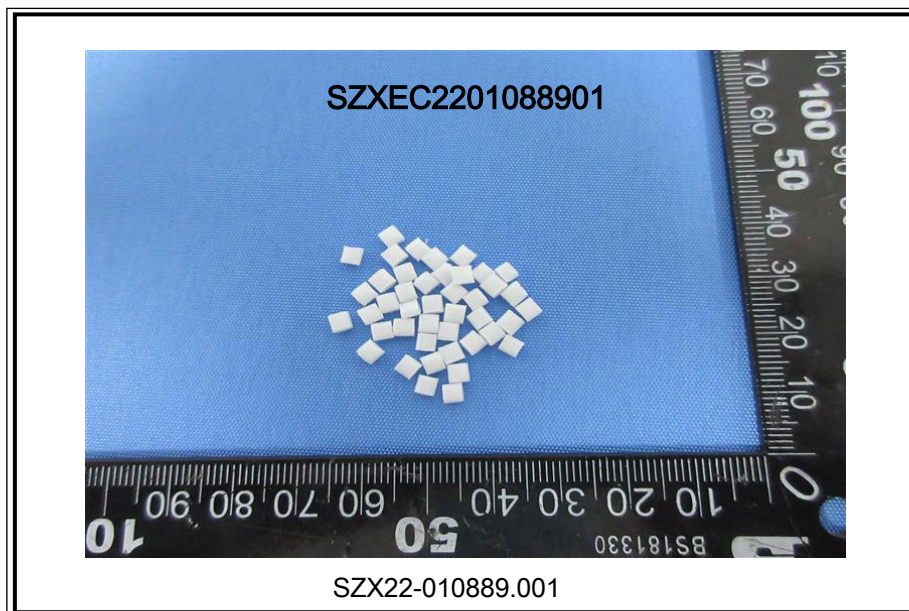
Test Report

No. SZXEC2201088901

Date: 21 Apr 2022

Page 6 of 6

Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

Test Report

No. SHAEC2127941903

Date: 25 Dec 2021

Page 1 of 8

SINOPEC YIZHENG CHEMICAL FIBRE LIMITED LIABILITY COMPANY PBT DEPARTMENT
NO.1, CHANGJIANG WEST ROAD, YIZHENG CITY, JIANGSU PROVINCE, P.R.C

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

SGS Job No. : SP21-039581 - SH

Lot No. : 202110

Date of Sample Received : 21 Dec 2021

Testing Period : 21 Dec 2021 - 25 Dec 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 Cadmium, Lead, Mercury, 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 (Shanghai) Co., Ltd.

Jenny Lan

Jenny Lan
Approved Signatory



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Test Report

No. SHAEC2127941903

Date: 25 Dec 2021

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA21-279419.002	White solid pellet

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Report

No. SHAEC2127941903

Date: 25 Dec 2021

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Test Item(s)	Limit	Unit	MDL	002
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl 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. 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:1258637,25
- (2) 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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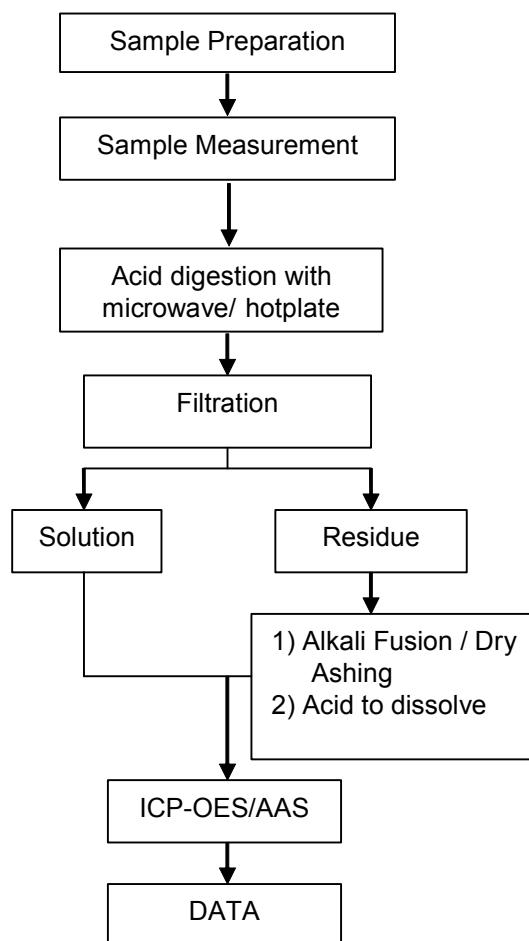
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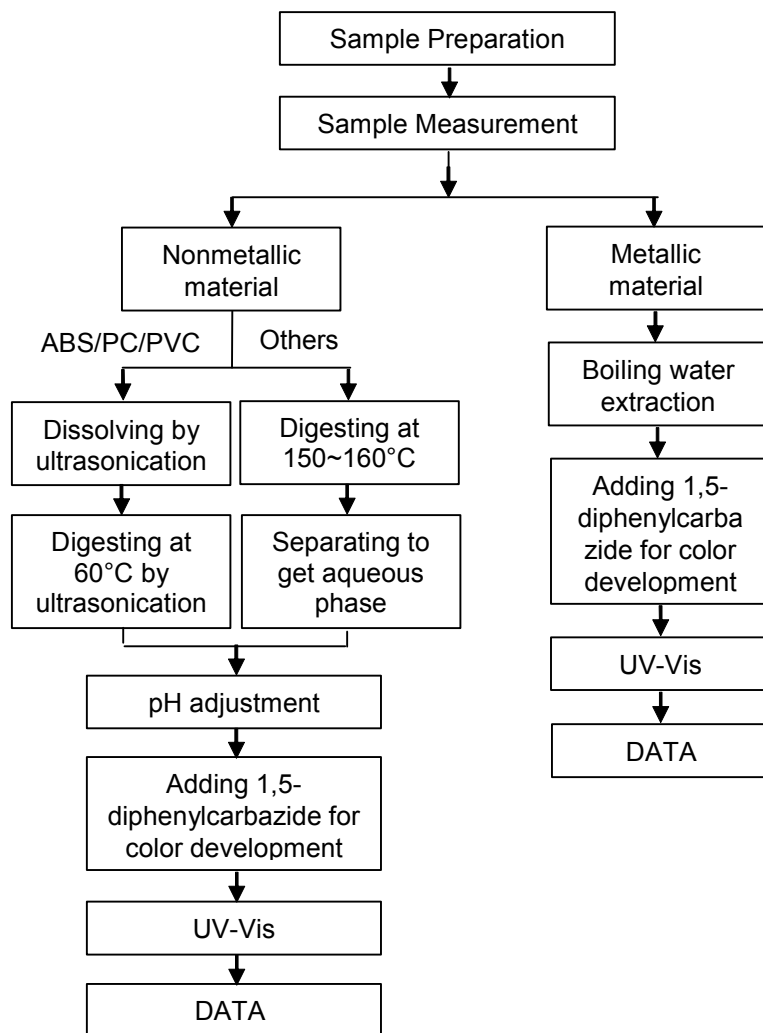
Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



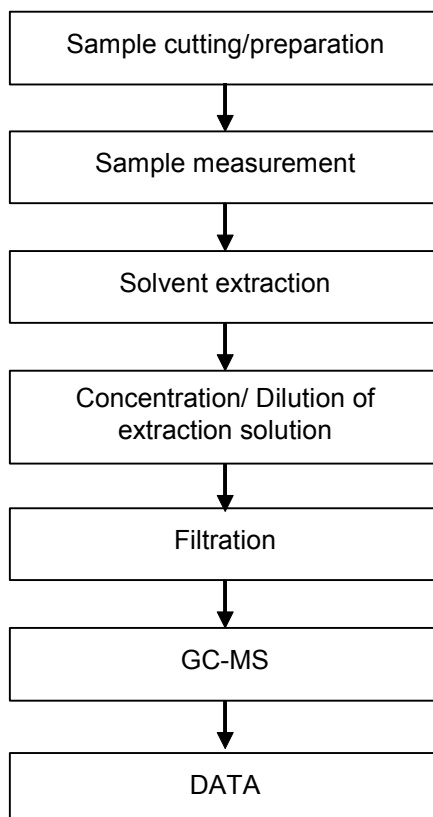
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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PBBs/PBDEs Testing Flow Chart

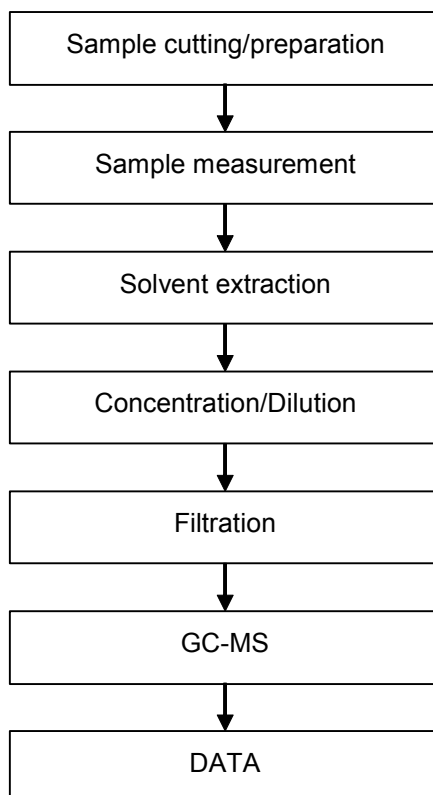


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Phthalates Testing Flow Chart



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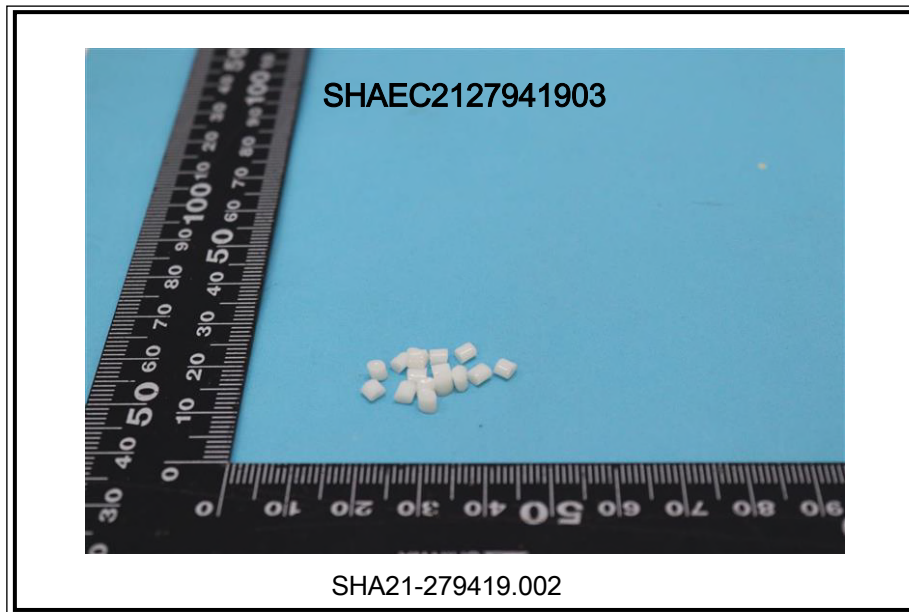
Test Report

No. SHAEC2127941903

Date: 25 Dec 2021

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Sample photo:



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Test Report

No. CANEC2209432703

Date: 19 May 2022

Page 1 of 6

Client Name : YIXING COPPER (NANHAI FOSHAN)MANUFACTORY CO.,LTD

Client Address : NO.18,NORTH PARK ROAD,ECONOMIC & TECHNOLOGY DEVELOPMENT ZONE,SHISHAN TOWN,NANHAI DISTRICT,FOSHAN CITY ,GUANGDONG PROVINCE CHINA

Sample Name : Brass Rod

Model No. : C3604

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

SGS Job No. : CP22-024959 - GZ

Date of Sample Received : 12 May 2022

Testing Period : 12 May 2022 - 19 May 2022

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

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

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

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

Jessie Li

Jessie Li
Approved Signatory



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Test Report

No. CANEC2209432703

Date: 19 May 2022

Page 2 of 6

Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-094327.002	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

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

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	27
Lead (Pb)	1,000	mg/kg	2	30423 [▲]
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	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. CANEC2209432703

Date: 19 May 2022

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Test Item(s)	Limit	Unit	MDL	002
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:1258637,25
- (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.

Remark▲: According to the declaration from the client, Lead (Pb) in specimen is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 6(c)]: Copper alloy containing up to 4 % lead by weight.

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



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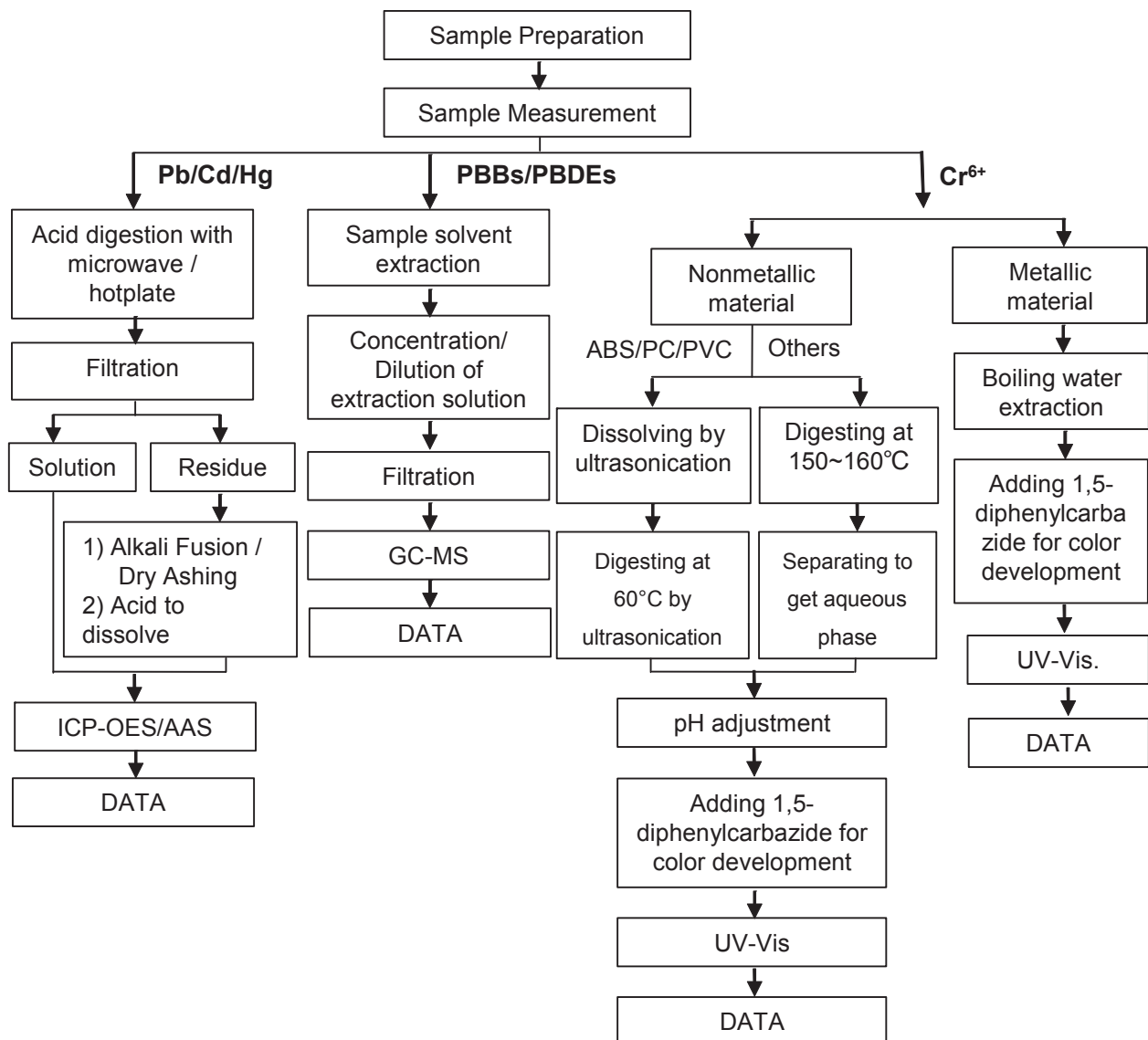
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Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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



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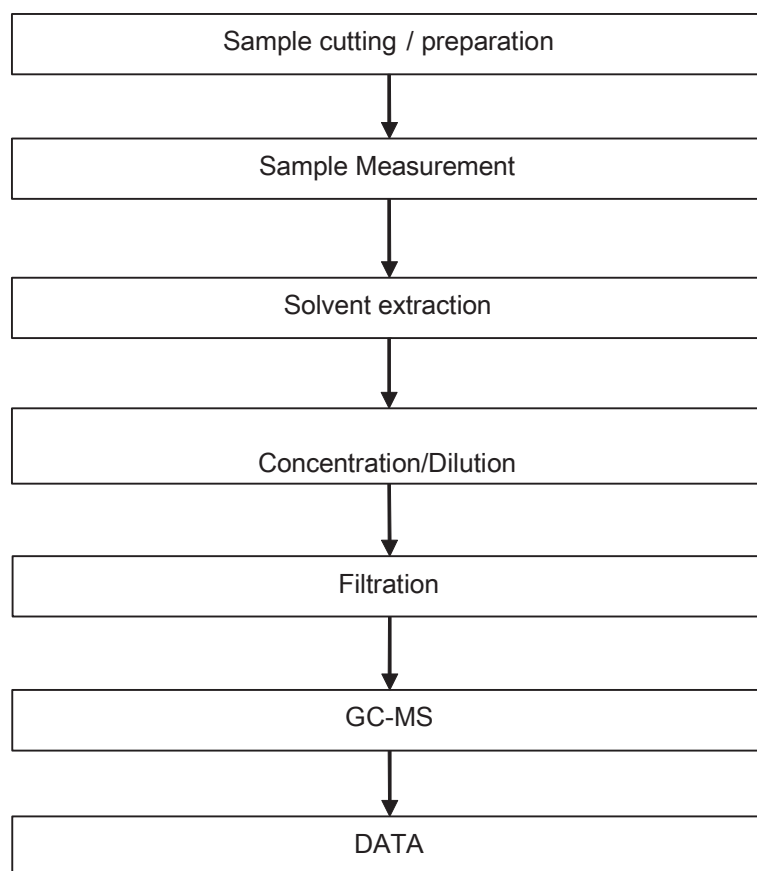
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ATTACHMENTS

Phthalates Testing Flow Chart



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Test Report

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Date: 19 May 2022

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Sample photo:



SGS authenticate the photo on original report only

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检测报告
Test Report报告编号 A2220323935101002E
Report No. A2220323935101002E第 1 页 共 10 页
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报告抬头公司名称 安徽翊昇表面处理科技有限公司
Company Name ANHUI YISHENG SURFACE TREATMENT TECHNOLOGY CO., LTD
shown on Report
地 址 安徽省池州市皖江江南新兴产业集中区皖江西路7号表面处理中心3号厂房
Address PLANT 3, SURFACE TREATMENT CENTER, NO. 7, WANJIANG WEST ROAD,
WANJIANG JIANGNAN EMERGING INDUSTRY CONCENTRATION AREA,
CHIZHOU CITY, ANHUI PROVINCE

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 镀层亮锡
Sample Name Bright tin coating
材料名称 镀层亮锡
Material Bright tin coating
样品接收日期 2022.07.28
Sample Received Date Jul. 28, 2022
样品检测日期 2022.07.28-2022.08.08
Testing Period Jul. 28, 2022 to Aug. 8, 2022

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)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 铍(Be), 锑(Sb), 氟(F), 氯(Cl), 溴(Br), 碘(I), 全氟辛烷磺酸(PFOS), 全氟辛酸(PFOA)进行测试。
Test Requested As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Beryllium(Be), Antimony(Sb), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Perfluorooctane Sulfonates(PFOS) Perfluorooctanoic Acid(PFOA) 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).



主 检 周红霞
批 准 陈凯敏
Approved by
陈凯敏
实验室经理 Lab Manager

审 核 耿雨竹
Reviewed by
日 期 2022.08.08
Date

No. R188382388

上海市闵行区万芳路1351号

No.1351, Wanfang Road, Minhang District, Shanghai, China

检测报告
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	欧盟RoHS指令2011/65/EU及其修订指令(EU) 2015/863 RoHS Directive 2011/65/EU with amendment (EU) 2015/863	符合 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.

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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
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
铍 Beryllium(Be)	参考US EPA 3050B:1996 & US EPA 6010D:2018* Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
锑 Antimony(Sb)	参考US EPA 3050B:1996 & US EPA 6010D:2018* Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
氟 Fluorine (F)	参考EN 14582:2016* Refer to EN 14582:2016*	IC
氯 Chlorine (Cl)	参考EN 14582:2016* Refer to EN 14582:2016*	IC
溴 Bromine (Br)	参考EN 14582:2016* Refer to EN 14582:2016*	IC
碘 Iodine (I)	参考EN 14582:2016* Refer to EN 14582:2016*	IC
全氟辛烷磺酸 Perfluorooctane Sulfonates(PFOS)	参考US EPA 3550C:2007 & US EPA 8321B:2007* Refer to US EPA 3550C:2007 & US EPA 8321B:2007*	LC-MS-MS/LC-MS
全氟辛酸 Perfluorooctanoic Acid(PFOA)	参考US EPA 3550C:2007 & US EPA 8321B:2007* Refer to US EPA 3550C:2007 & US EPA 8321B:2007*	LC-MS-MS/LC-MS

检测报告
Test Report

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检测结果 Test Result(s)

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
铅 Lead (Pb)	97 mg/kg	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/cm² (LOQ)	1000 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
多溴联苯 Polybrominated Biphenyls (PBBs)			
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg	1000 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg	
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg	
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg	
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg	
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg	
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg	
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg	
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg	
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg	

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)			
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg	1000 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg	
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg	
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg	
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg	
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg	
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg	
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg	
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg	
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg	

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Test Report

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	限值 Limit
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)			
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
铍 Beryllium (Be)	N.D.	10 mg/kg	
锑 Antimony (Sb)	N.D.	10 mg/kg	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
氟 Fluorine (F)	N.D.	1 µg/cm²	
氯 Chlorine (Cl)	N.D.	1 µg/cm²	
溴 Bromine (Br)	N.D.	1 µg/cm²	
碘 Iodine (I)	N.D.	1 µg/cm²	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS)	N.D.	0.5 µg/m²	
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL	
全氟辛酸 Perfluorooctanoic Acid (PFOA)	N.D.	0.5 µg/m²	

检测报告 Test Report

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样品/部位描述 银色镀层

Sample/Part Description Silvery plating

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备注: 对于检测铅, 镉, 汞, 铍, 锑之样品已消解完全。

-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 $\mu\text{g}/\text{cm}^2$

-▼六价铬浓度小于0.10 $\mu\text{g}/\text{cm}^2$, 样品未检出六价铬。

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Beryllium, Antimony.**

-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 $\mu\text{g}/\text{cm}^2$

-▼The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 $\mu\text{g}/\text{cm}^2$. The coating is considered a non-Cr(VI) based coating.

注释: 本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。

“*”表示该方法不在CNAS认可范围内。

Note: **The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.**

“*”indicates the method(s) is (are) not in CNAS accreditation scope.

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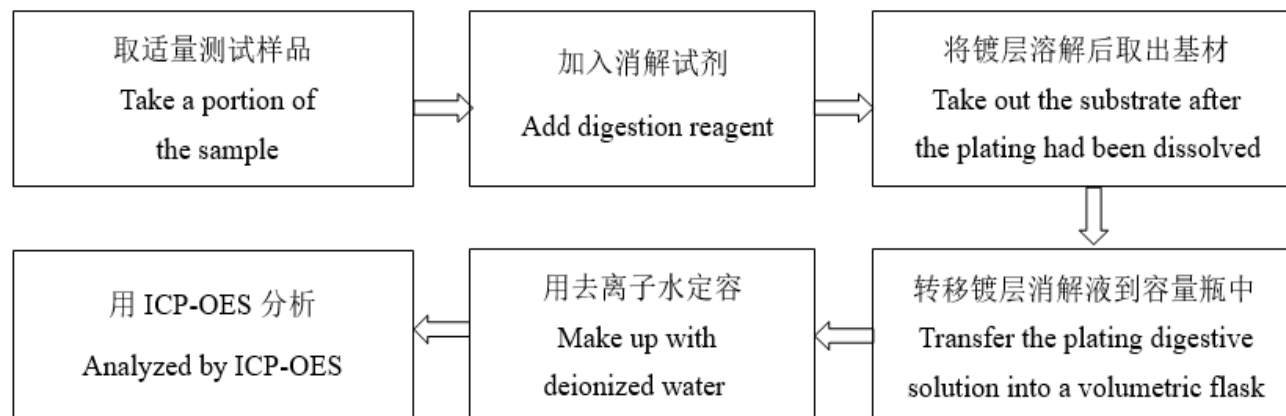
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检测流程 Test Process

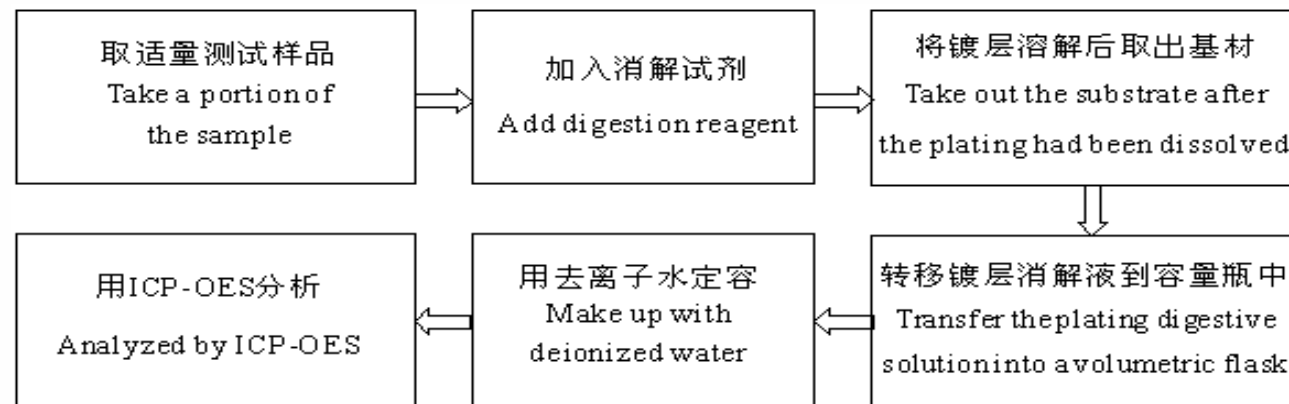
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Lead (Pb), Cadmium (Cd)



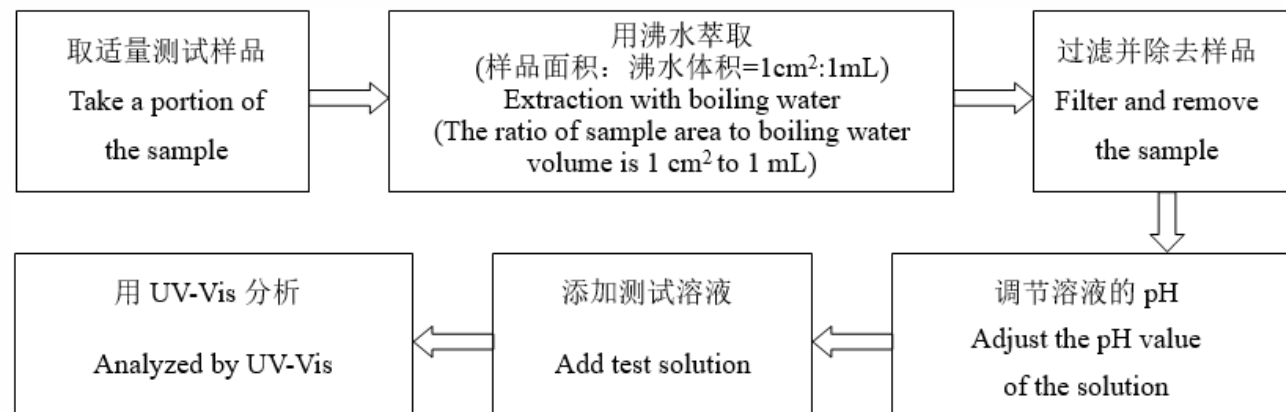
2. 汞(Hg)

Mercury (Hg)



3. 六价铬(Cr(VI))

Hexavalent Chromium (Cr(VI))



检测报告 Test Report

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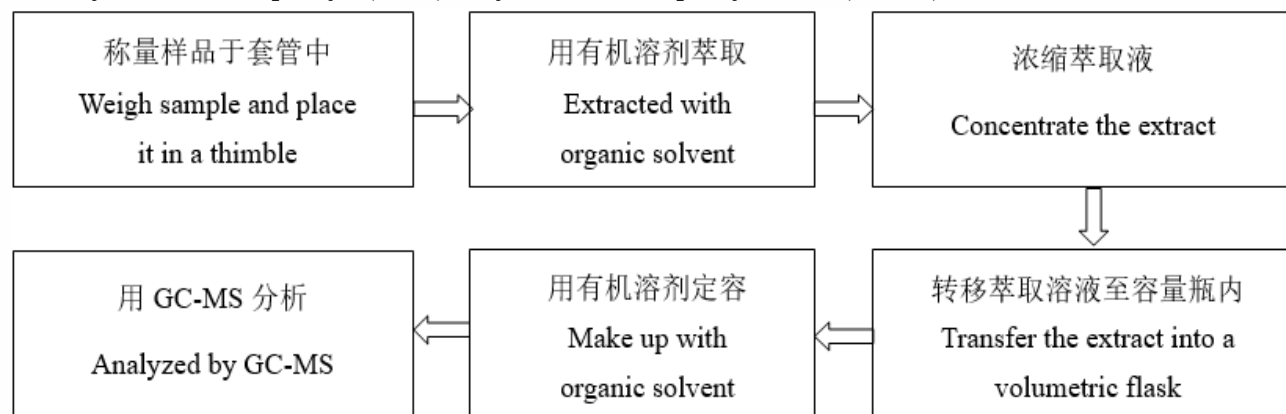
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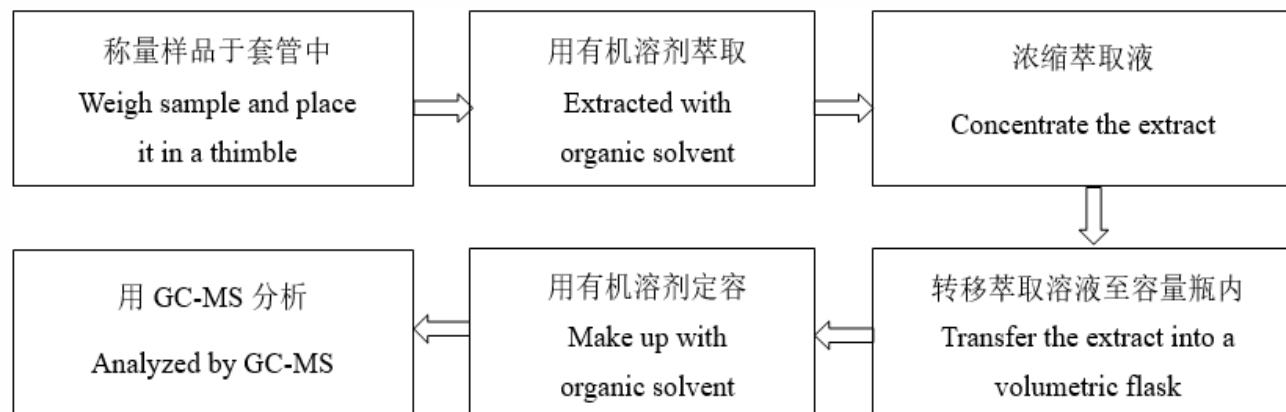
4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



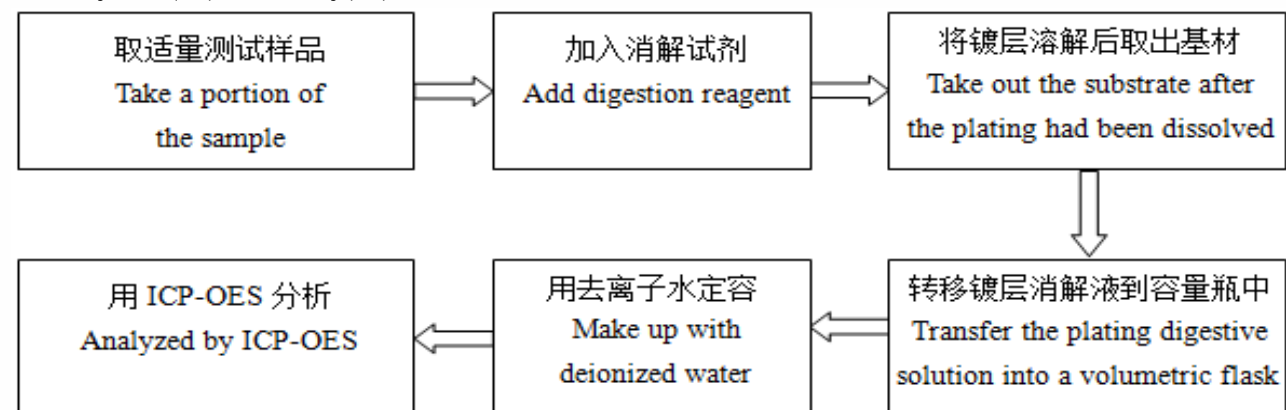
5. 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)



6. 铍(Be), 锑(Sb)

Beryllium(Be), Antimony(Sb)



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报告编号 A2220323935101002E

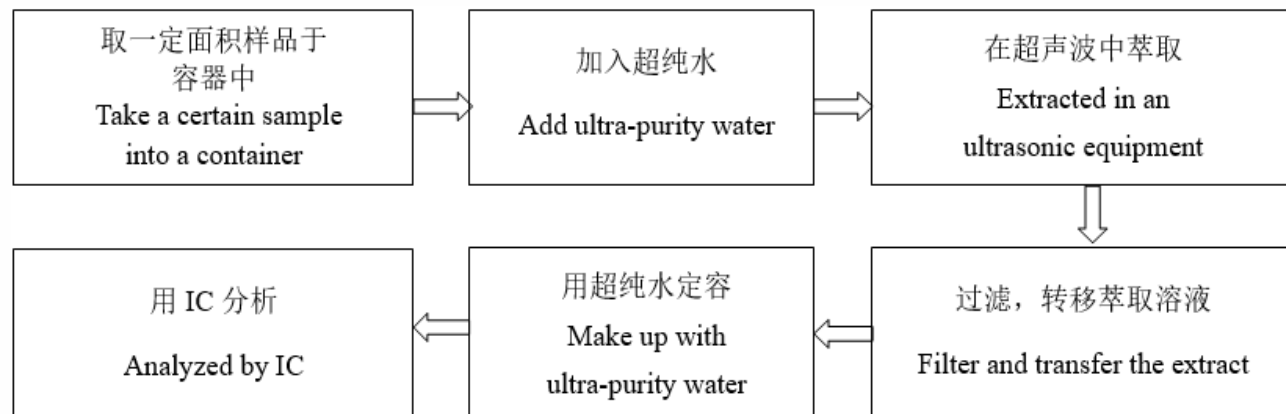
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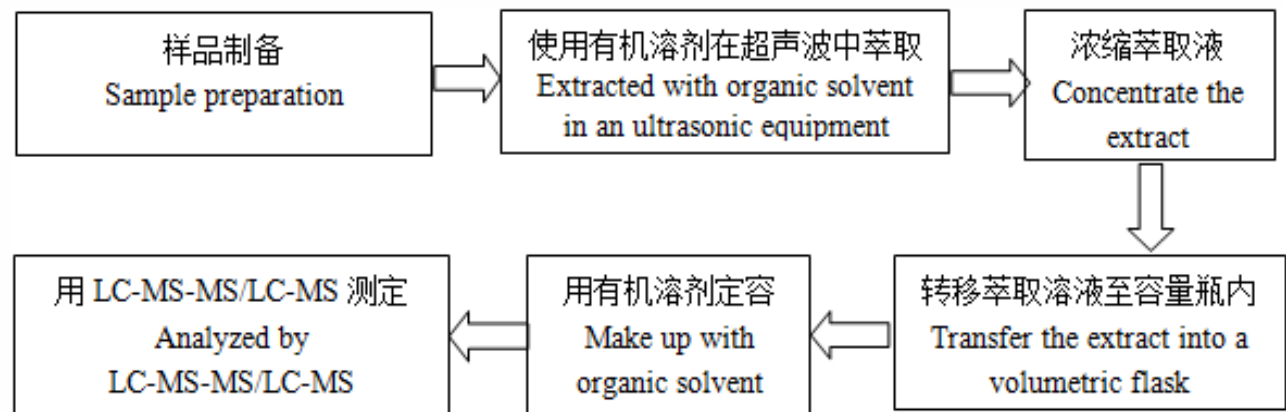
7. 氟(F), 氯(Cl), 溴(Br), 碘(I)

Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



8. 全氟辛烷磺酸(PFOS), 全氟辛酸(PFOA)

Perfluorooctane Sulfonates(PFOS), Perfluorooctanoic Acid(PFOA)

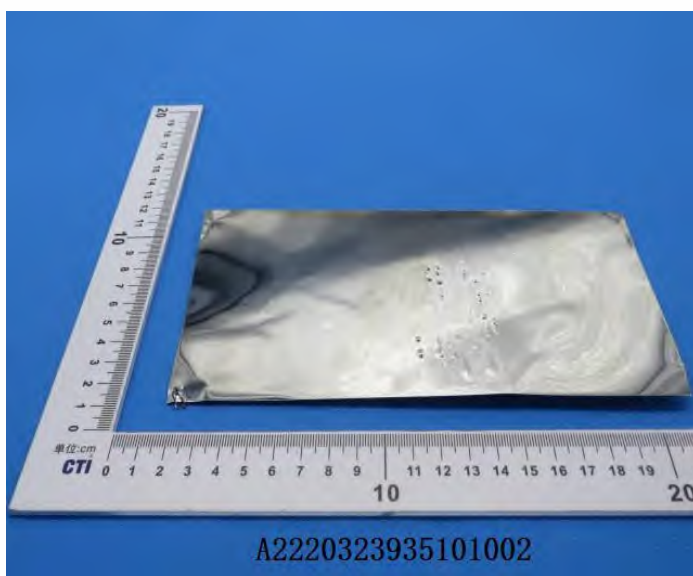


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样品图片 Photo(s) of the sample(s)



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The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. 本报告检测结果仅对受测样品负责;
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报告结束

*** End of report ***

Test Report

No. CANEC2202116603

Date: 24 Feb 2022

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Client Name : SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD

Client Address : WOER INDUSTRIAL PARK,LANJING NORTH ROAD, LONGTIAN STREER,PINGSHAN
DISTRICT,SHENZHEN, GUANGDONGSample Name : Halogen Free and Red Phosphorus Free Flame-retardant Heat Shrinkable Tube
The above sample(s) and information were provided by the client.

SGS Job No. : CP22-005080 - SZ

Date of Sample Received : 15 Feb 2022

Testing Period : 15 Feb 2022 - 24 Feb 2022

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

Violet Shi

Violet, Shi
Approved Signatory



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Test Report

No. CANEC2202116603

Date: 24 Feb 2022

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-021166.002	Black tube

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

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

Test Item(s)	Limit	Unit	MDL	002
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 (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 Item(s)	Limit	Unit	MDL	002
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:1258637,25

(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.

Halogen

Test Method : With reference to EN 14582:2016, analysis was performed by IC.

Test Item(s)	Unit	MDL	002
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Red Phosphor

Test Method : SGS In-house method (SGS-CCL-TOP-215-01), analysis was performed by PY-GC/MS/ICP-OES / GC-MS.

Test Item(s)	Unit	MDL	002
Red phosphorus	mg/kg	500	ND

Notes :

(1) Methods is/are not accredited by CNAS.



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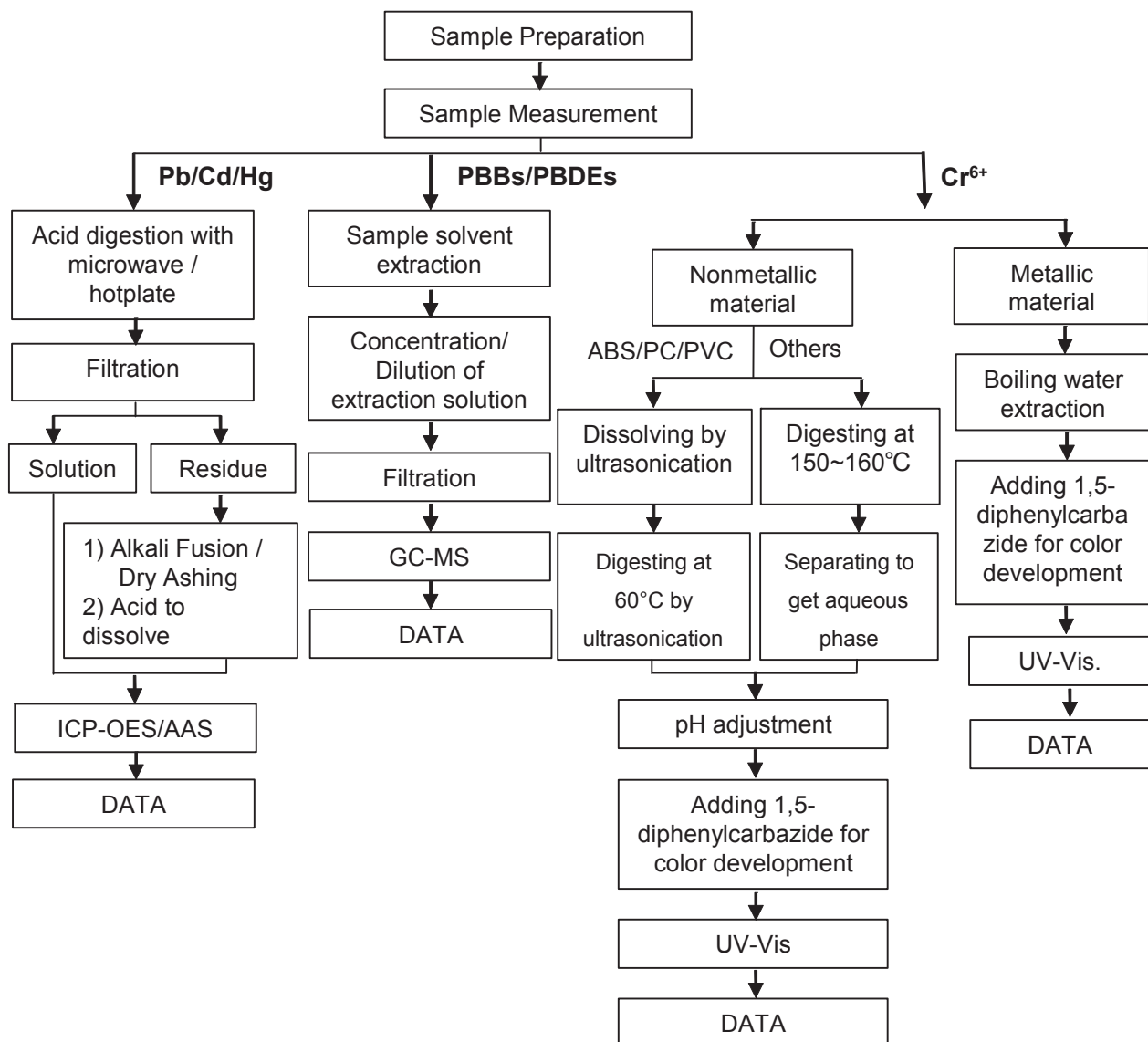
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Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

- 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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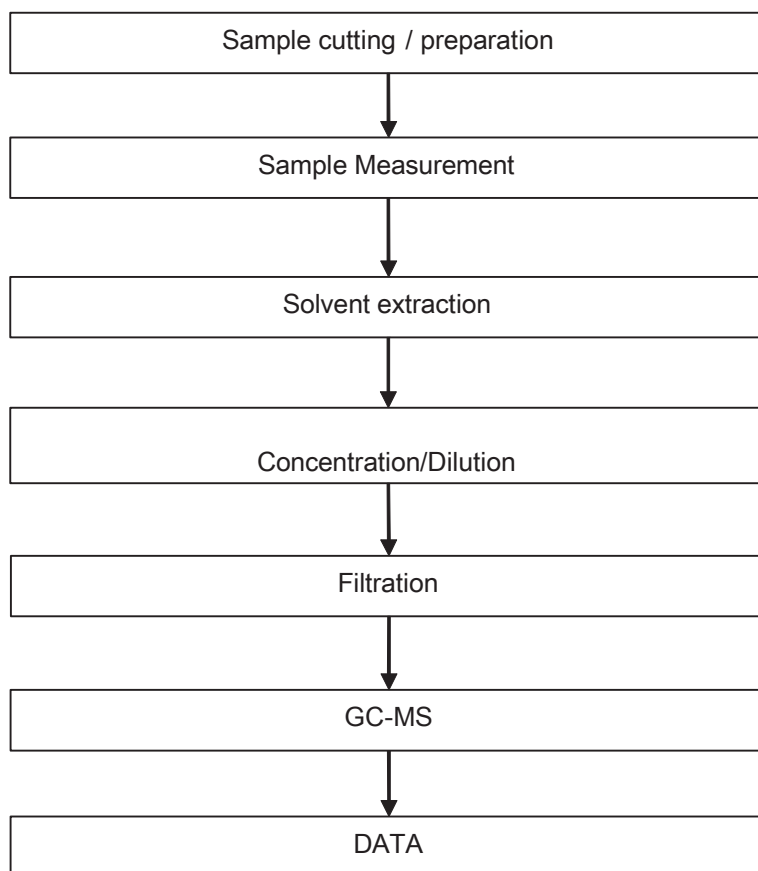
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Phthalates Testing Flow Chart



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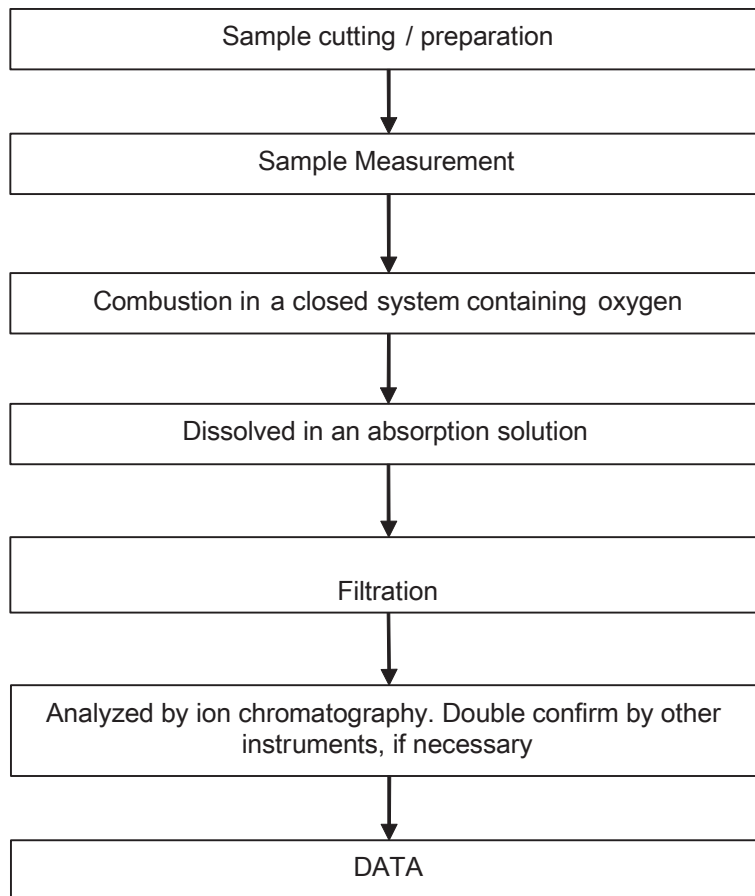
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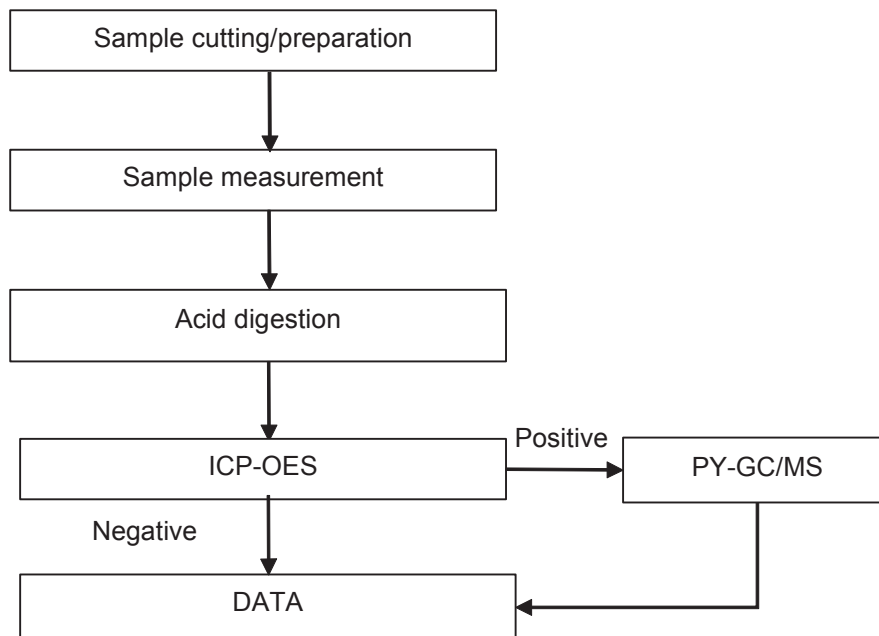
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Halogen Testing Flow Chart



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Red phosphorus Testing Flow Chart



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Test Report

No. SHAEC2203499105

Date: 07 Mar 2022

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Client Name : SHANGHAI JIE XIN INK CO.,LTD.

Client Address : SWITE 262,BUILDING 5,NO.2278,ZHAOCHONG RD TOWN,ZHONGGU TOWN,QING PU DISTRICT,SHANGHAI,P.R.C

Sample Name : WHITE INK

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

SGS Job No. : SP22-005442 - SH

Date of Sample Received : 02 Mar 2022

Testing Period : 02 Mar 2022 - 07 Mar 2022

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 Cadmium, Lead, Mercury, 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 (Shanghai) Co., Ltd.

Sue Sheng

Sue Sheng
Approved Signatory



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Test Report

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Date: 07 Mar 2022

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA22-034991.002	White liquid

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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Test Item(s)	Limit	Unit	MDL	002
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl 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. 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:1258637,25
- (2) 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.

Result shown is of the total weight of dried sample.



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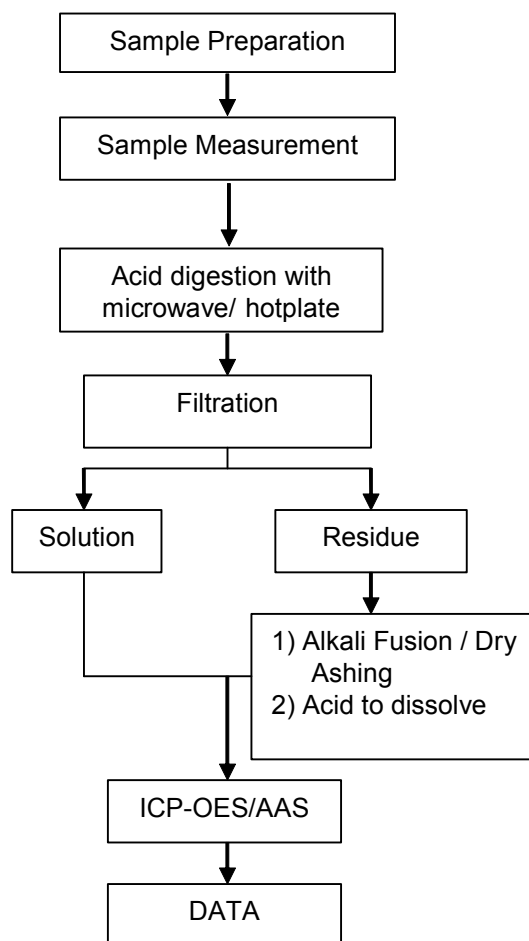
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

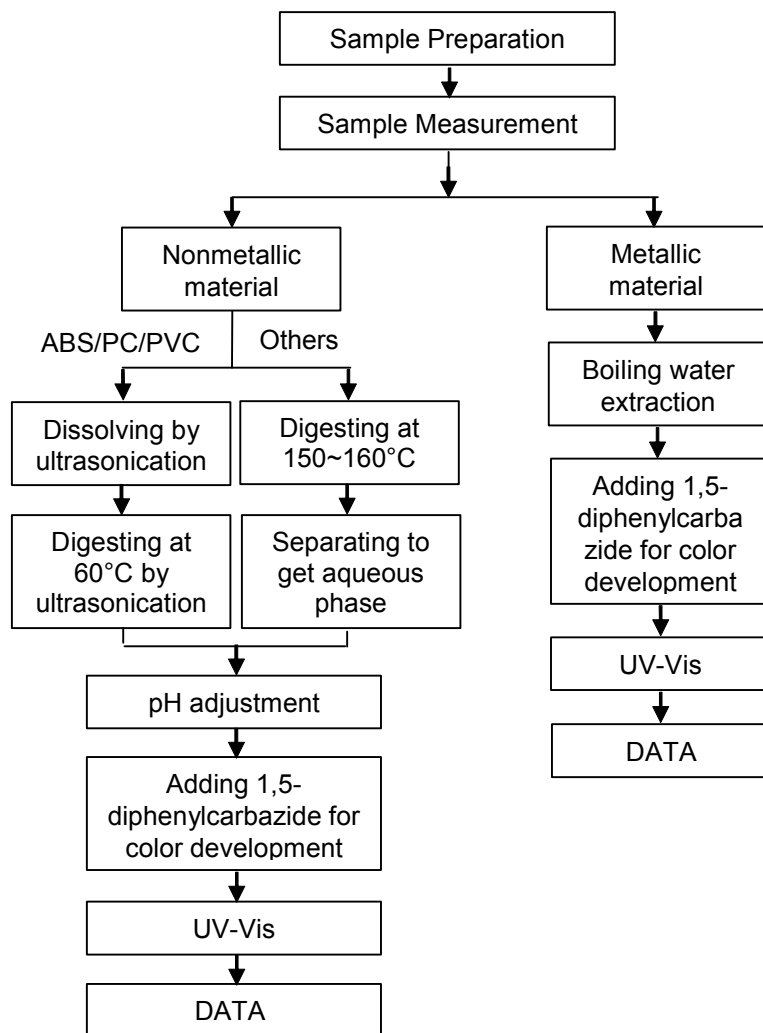


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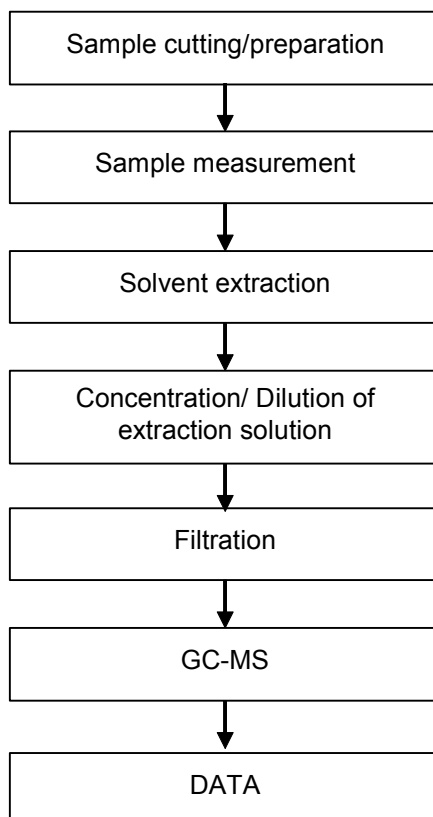
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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PBBs/PBDEs Testing Flow Chart

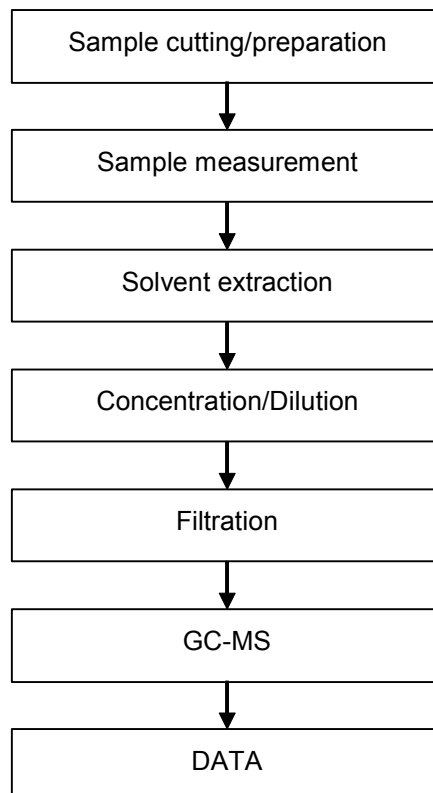


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Phthalates Testing Flow Chart



Test Report

No. SHAEC2203499105

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鋁合金 aluminum alloys	< 4,000ppm
銅合金 copper alloys	< 40,000ppm
高熔點鉛料(有鉛焊錫) Lead in high melting temperature type solder	≥ 85,0000 PPM

公司名稱：譚裕實業股份有限公司

Company name: WHA YU INDUSTRIAL CO., LTD

公司地址：新竹市公道五路二段 326 號

Company address: No. 326, Sec 2, Kung Tao 5 Road, Hsin Chu City, Taiwan

連絡電話：03-5714225

TEL: +886-3-5714225

負責人：鄒宓富 董事長

Sign by:

立約日期：2022.06.20

Date: 2022/06/20

