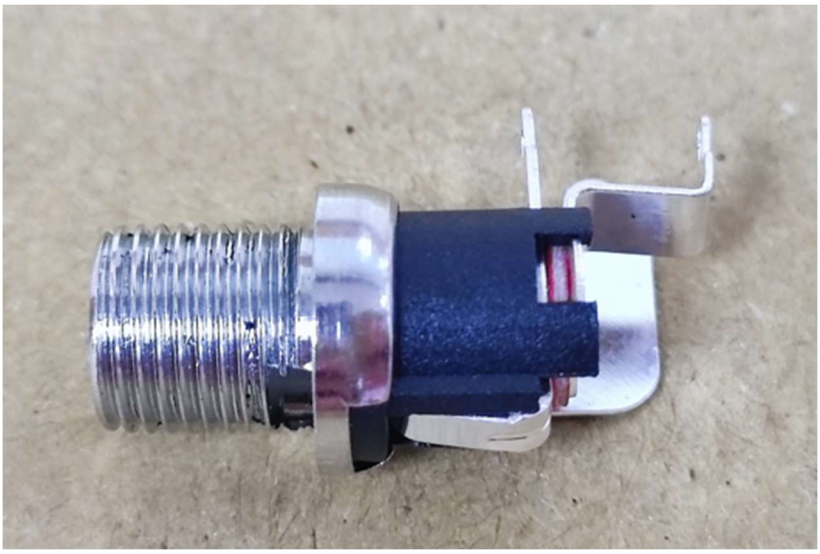
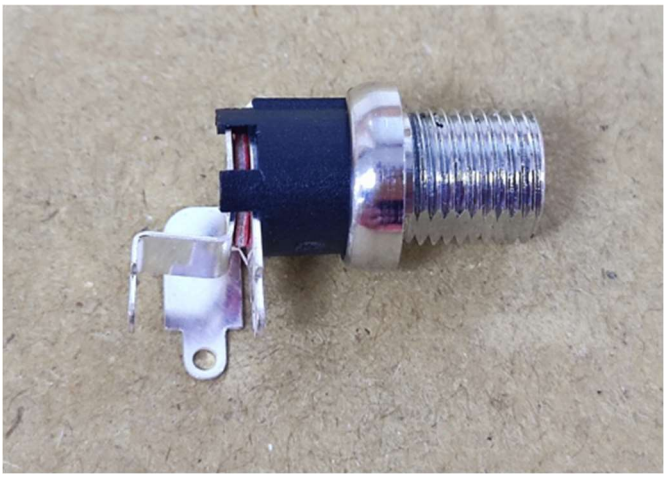


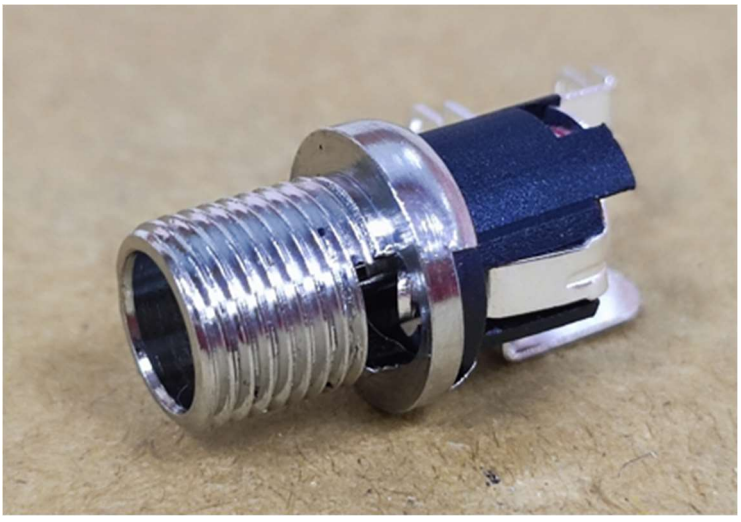












設計驗證
工程課
2024-07-10
發行
鈺鑽科技開發股份有限公司

JKCR Electronics Co., Ltd.

規 格 書
SPECIFICATION

CUSTOMER NAME	客戶名稱:	鈺緯科技開發股份有限公司
CUSTOMER PARTS NO.	客戶料號:	3FJ00200410 (F0299)
DESIGNATION	本廠系列:	DC POWER JACK
MODEL NO.	本廠型號:	DCD-020-66LMA
DATE	日　　期:	2024/7/10

PLEASE CONFIRM OUR SPECIFICATION。 敬請確認規格書之內容。

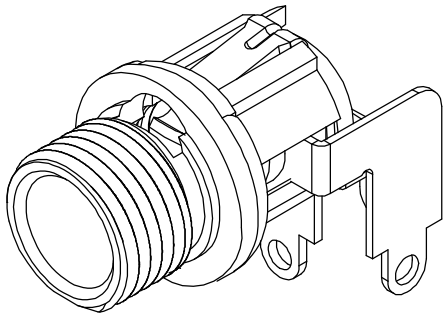
PLEASE CONFIRM AND RETURN 1 COPY。 請確認後惠返。

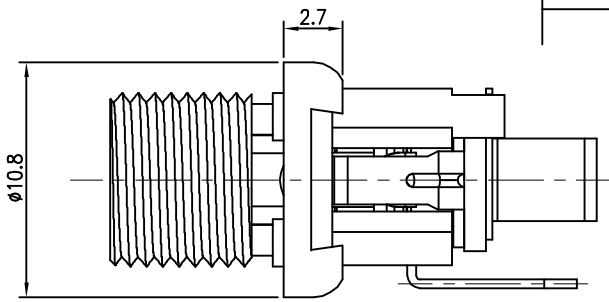
APPROVAL STATUS 審批			
◆ APPROVED 接受	設計驗證 工程課 2024-07-10 發行 鈺緯科技開發股份有限公司	◆ FAILED 不接受	
SIGNATURE 簽署		DATE 日期	

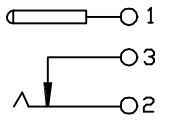
新 北 市 中 和 區 中 山 路 二 段 530 號 7 樓
TEL: (02) 8228-2182　　FAX: (02) 8228-2186
http://jkcr.com.tw/

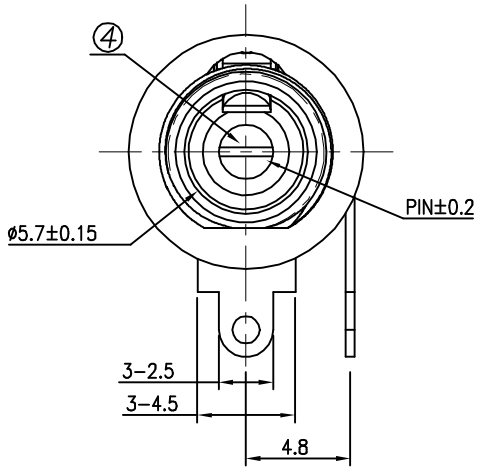
* RoHS COMPLIANT *

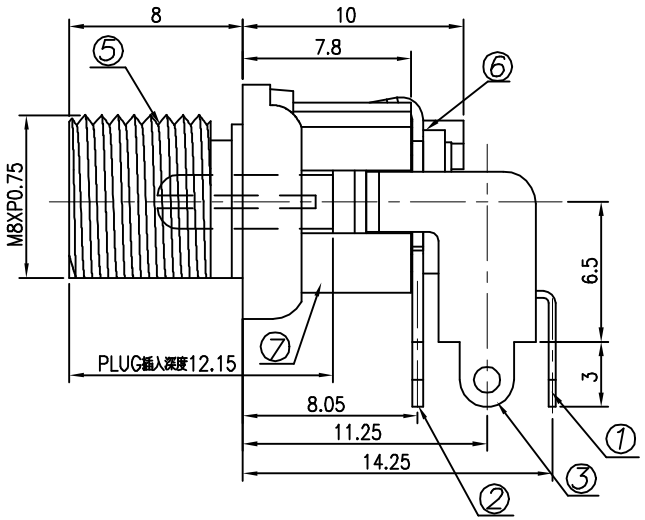
✳ REVISIONS				
LTR	DESCRIPTION	DATE	REVISED	APPROVED

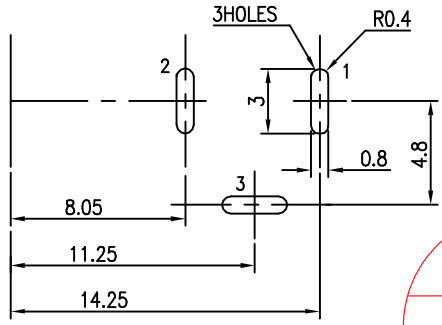




CAT NO.	PIN	SCHEMATIC
DCD-020-66LMA	ø2.0	
DCD-020-66LMB	ø2.5	





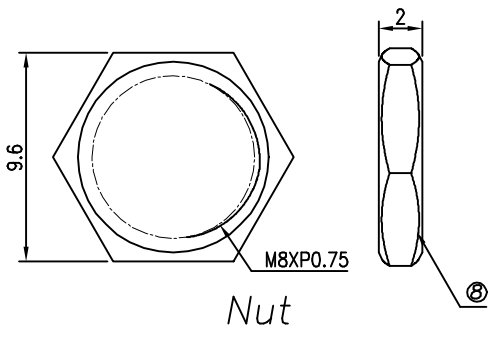


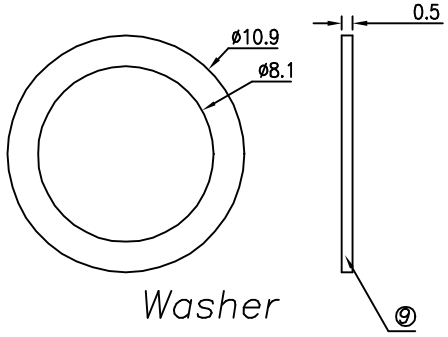
T:1.6 Dimensions of PC board holes

Tolerance : ±0.05(Printed-Top view)

設計驗證
工程課
2024-07-10
發行
紅緯科技開發股份有限公司

3FJ00200410 (F0299)





LTR	PART NAME	QTY	MATERIAL	REMARK
9	WASHER	1	SPCC	Cu/Sn PLATED
8	NUT	1	H59(COPPER ALLOY)	Cu/Sn PLATED
7	HOUSING	1	PBT 4815	UL-94V0(BLACK)
6	INSULATOR	2	PF	
5	AXIS SUPPORT	1	H59(COPPER ALLOY)	Cu/Sn PLATED
4	PIN	1	H59(COPPER ALLOY)	Cu/Sn PLATED
3	SHUNT TERMIANL	1	C2680	Sn PLATED
2	TIP SPRING	1	C5191	Sn PLATED
1	CENTER PIN TERMINAL	1	C2680	Sn PLATED

DWN	MOMO	DATE	2020.08.31	3RD ANGLE PROJECTION	NAME: DC POWER JACK
CHKD	ANDY	DATE	2020.08.31		CAT. NO.: DCD-020-66LM
APVD	JON	DATE	2020.08.31	UNIT: mm	

JKCR Electronics Co., Ltd.

DWN.NO. F-020-66 005

UNLESS OTHERWISE SPECIFIED, TOLERANCE ON DECIMAL: ±0.3

JKCR Electronics co., Ltd.
SPECIFICATION

TITLE	SPC. NO.	PAGE： 1 OF 5
DC POWER JACK	DCD-020-66	DATE： 2013.04.08

1.Scope

This specification applies to unified polarity type DC jack used in electronic equipment.
For DC input use.

2.Standard atmospheric conditions

Unless otherwise specified. The standard range of atmospheric condition for making measurements and tests are as follows：

Ambient temperature：15℃ to 35℃

Relative humidity：25% to 80%

Air pressure：86kPa to 106kPa

If there is any doubt about the results, measurements shall be made within the follow limits:

Ambient temperature：20±2℃

Relative humidity：60% to 70%

Air pressure：86kPa to 106kPa

Operating temperature range：-25℃ to 70℃

Storage temperature range：-25℃ to 85℃

3.Mechanical characteristics

	Item	Conditions	Specification
1	Insertion force	Measurement shall be made after insertion and withdrawal using standard plug gauge 3 times.	0.3～3.0kgf
2	Withdrawal force	Measurement shall be made after insertion and withdrawal using standard plug gauge 3 times.	

ISSUE	DATE	WRTN	CHKD	APVD	DESCRIPTIONS

JKCR Electronics co., Ltd.
SPECIFICATION

TITLE	SPC. NO.	PAGE： 2 OF 5
DC POWER JACK	DCD-020-66	DATE：2013.04.08

4.Electrical characteristics

	Item	Conditions	Specification
1	Rating		DC12V，12.5A
2	Contact resistance	1K Hz Measured at small current (1A or less)	30 mΩ or less
3	Insulation resistance	A voltage of 500V DC shall be applied for a minute. Between conductors which should not make contact under normal conditions after which measurement shall be made.	100MΩ MIN.
4	Dielectric strength	Between conductors which should not make contact under normal conditions. 500V AC （50 to 60Hz）for 1 min.(trip current 2mA)	Without distinct damage.

5.Endurance characteristics

	Item	Conditions	Specification
1	Solderability	The terminals shall be dipped into soldering flux, and shall be immersed into molten solder of 245 ℃±5℃ for a period 3±0.5 seconds.	A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.
2	Resistance to soldering heat	The terminal for a printed circuit board： Temperature of solder：260 ±5℃ Dip time：5 ±1 seconds The terminal for a lead wire： Temperature of solder：350 ±10℃ Dip time：3 ±1 seconds	Electrical and mechanical characteristics shall be satisfied.
3	Cold	The jack shall be stored at a temperature of -40℃±2℃ for 96 hours. And then it shall be subjected to the controlled recovery conditions for 0.5 hours after which measurement shall be made.	Electrical and mechanical characteristics shall be satisfied. There shall be not show remarkable failure.
4	Dry heat	The jack shall be stored at a temperature of 70℃ ±2℃ for 96 hours. And then it shall be subjected to the controlled recovery conditions for 0.5 hours after which measurement shall be made.	
5	Humidity	The Pin Jack shall be subject to 90% ~95%RH, 40℃±2℃ for 96 hours, and shall then be conditioned at room ambient conditions for a period of 30 minutes.	Electrical and mechanical characteristics shall be satisfied. Insulation resistance：50MΩ MIN. Contact resistance：50mΩ MAX.

	Item	Conditions	Specification
6	Life test	Insertion and withdrawal shall be made with the mating plugs and jacks for 5000 cycles at a speed of 10~30 cycles/min.	Insertion force：3.0 kgf MAX Withdrawal force：0.3～3.0kgf Contact resistance： Between plug and contact：100mΩ MAX.

6.Warning:

Dc power jack shall be dipped, warning to inferior contact by flux and transform mold.

Resistance to flux ：It shall be prevention between PCB and housing.

Transform mold ：It must not add direct heat to Dc power jack

Temperature of solder：255℃ MAX.

Preheat temperature ：90℃ MAX.

Preheat time ：2 minute MAX.

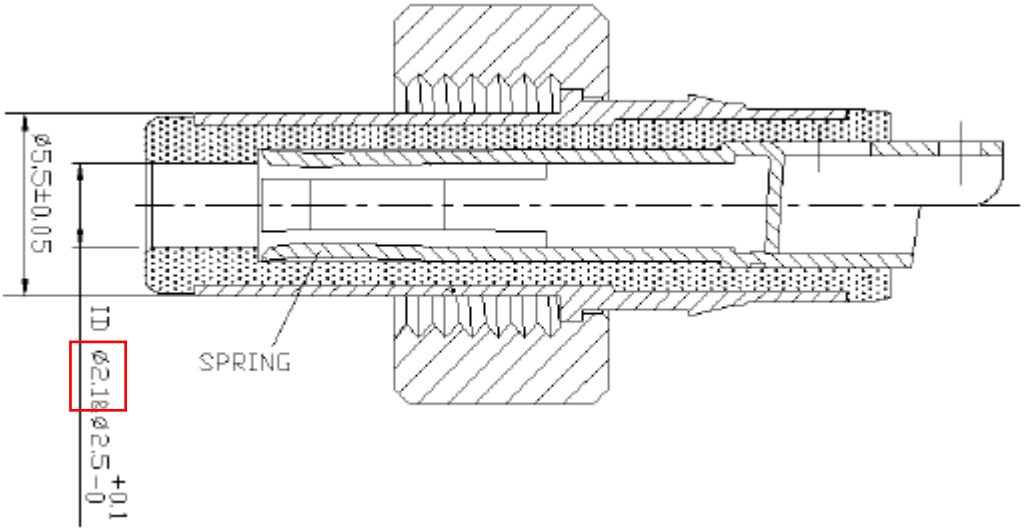
7. Recommend Torque Value: 2.0 kgf Max

JKCR Electronics co., Ltd.

SPECIFICATION

TITLE	SPC. NO.	PAGE： 4 OF 5
DC POWER JACK	DCD-020-66	DATE：2013.04.08

7. Mating plug dimension



JKCR Electronics co., Ltd.
SPECIFICATION

TITLE	SPC. NO.	PAGE： 5 OF 5
DC POWER JACK	DCD-020-66	DATE：2013.04.08

APPLICATION NOTES:

1. ROSIN AND OTHER INSULATING AND CAUSTIC MATERIAL CAN NOT BE DIPPED INTO THE ROCKET DURING SOLDERING.
2. PRODUCTS CAN NOT BE BLOWN WITH AIR GUN OR CLEANED WITH A SOLVENT AFTER SOLDERING.
3. ALL PARTS OF THE PRODUCTS CAN NOT BE DISSOLVED BEFORE SOLDERING.
4. AVOID STORING THE PRODUCTS IN A PLACE AT HIGH TEMPERATURE, HIGH HUMIDITY AND IN CORROSIVE GASES.
5. SHELF LIFE IS LESS THAN 180 DAYS SINCE THE GOODS WARE SENT OUT FROM OUR FACTORY. OUR COMPANY DOESN'T ACCEPT RESPONSIBILITY FOR REJECTS IF THE SHELF LIFE OF GOODS EXCEEDS 180 DAYS.
6. PLEASE FEEL FREE TO REPORT TO US IF YOU DISCOVER THE INFERIOR GOODS, SO THAT WE CAN TAKE NOTE, CHECK, AND TRACK AND IMPROVE THEM. THANKS.

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PROSPECTOR® CLICK TO CONTINUE

View additional material information including performance and processing data

The information presented on the UL Prospector datasheet was acquired by UL Prospector from the producer of the material. UL Prospector makes substantial efforts to assure the accuracy of this data. However, UL Prospector assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

Component - Plastics E59481

Guide Information

CHANG CHUN PLASTICS CO LTD

No 8 Huaxi Rd, Daliao District, Kaohsiung City 83164 TW

4815

Polybutylene Terephthalate (PBT) "LONGLITE", furnished as pellets

Color	Min. Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	3.0-3.2	V-0	1	3	75	75	75

Comparative Tracking Index (CTI): 3

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): 2

Dimensional Stability (%): -

Inclined Plane Tracking (IPT) kV: -

Volume Resistivity (10^x ohm-cm): -

Surface Resistivity (10^x ohms/square): -

High Volt, Low Current Arc Resis (D495): 7

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1987-09-01

Last Revised: 2020-04-09

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	3.0-3.2	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	°C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	°C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	°C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	°C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-1	kJ/m^2	-	-

CHANG CHUN PLASTICS CO., LTD.

NO. 301, SONGKIANG ROAD, 7TH FL.,TAIPEI, 10477 TAIWAN
TEL : 886-2-2503-8131 (REF) FAX : 886-2- 2501-8018

PBT 4815

Property (物性)	Value (规格值)	Unit (单位)	Test method (测试方法) ASTM
Glass Fiber Content (玻纤含量)	15 %		CCP
Specific gravity(比重)	1.48 -		D792
Melting point(熔点)	225	℃	DSC
HDT(热变形温度)			
--- 18.6 kg/cm^2	205	℃	D648
--- 4.6 kg/cm^2	220	℃	D648
Moisture absorption (24h)(吸湿率)	0.03	%	D570
Flammability acc. to UL94, 3.2 ㎜ thickness (耐燃性)	V-0 -		UL94
Tensile strength(引张强度)	888 MPa		D638
Tensile elongation(引张伸长率)	3.8	%	
Flexural strength(挠曲强度)	1355	kg/cm^2	D790
Flexural modulus(挠曲模数)	≥50000	MPa	D790
Izod impact strength – notched 1/4" (冲击强度)	6	KJ/m^2	D256
Hardness - rockwell (洛氏硬度)	93 M-Scale		D785
Dielectric strength, 2 ㎜ thickness (绝缘破坏强度)	>20	KV/㎜	D149
Volume resistivity(体积抵抗率)	>10^{15}	Ω-cm	D257
Surface resistivity(表面抵抗率)	>10^{13}	Ω	D257
Dielectric constant((介电常数)	4.5 60Hz		D150
Dielectric dissipation factor(诱电正接)	0.001 60Hz		D150
Arc resistance(电弧抵抗率)	100 SEC		D495

※ 表中测试数据仅作参考用,非制定之规格值.

(1) For reference only.

(2) All data in the table are the typical values of the material and not the minimum values of the material specifications.

測試報告
Test Report

號碼(No.): ETR23C01968　　日期(Date): 19-Dec-2023　　

長春人造樹脂廠股份有限公司 (CHANG CHUN PLASTICS CO., LTD.)
長春化工(漳州)有限公司 (CHANG CHUN CHEMICAL (ZHANGZHOU) CO., LTD.)
長春化工(江蘇)有限公司 (CHANG CHUN CHEMICAL (JIANGSU) CO.,LTD.)
104-83 台灣台北市松江路301號7樓 (7TH FLOOR, NO. 301, SONGJIANG RD., ZHONGSHAN DISTRICT 10483, TAIPEI, TAIWAN)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by the applicant as)：

送樣廠商(Sample Submitted By)	:	長春人造樹脂廠股份有限公司 (CHANG CHUN PLASTICS CO., LTD.)
樣品名稱(Sample Name)	:	POLYBUTYLENE TEREPHTHALATE (PBT)
樣品型號(Style/Item No.)	:	PBT(4108,4108F,4115,4115F,4120,4130,4130F,4140,4615,4620,4630,4730, 4810M,4815,4820,4830,4840,4815G,4820G,4830G,4330G,4315,4315F, 4330F,4330R,4130R,4130E,4830E,4830S,4830F,4815F,V4130,V4815G, V4820G,V4830G,4130RB,V4130CRX,4830N,4330RE,4615T,4630T,4630N)

==========

收件日(Sample Receiving Date)	:	12-Dec-2023
測試期間(Testing Period)	:	12-Dec-2023 to 19-Dec-2023

測試需求(Test Requested) :

(1) 依據客戶指定，參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP。 (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)

(2) 客戶指定，依據長春人造樹脂廠股份有限公司要求進行紅磷測試。 (The test is compliant with Chang Chun Plastics Co., Ltd.'s test condition, specified by client to test Red Phosphorus.)

(3) 依據客戶指定，測試 PAHs 及其他測項。 (As specified by client, to test PAHs and other item(s).)

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

結　論(Conclusion) : 請參閱下一頁 (Please refer to following pages.)

Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei

PIN CODE: 44C12BE2

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測試報告
Test Report

長春人造樹脂廠股份有限公司 (CHANG CHUN PLASTICS CO., LTD.)
長春化工(漳州)有限公司 (CHANG CHUN CHEMICAL (ZHANGZHOU) CO., LTD.)
長春化工(江蘇)有限公司 (CHANG CHUN CHEMICAL (JIANGSU) CO.,LTD.)
104-83 台灣台北市松江路301號7樓 (7TH FLOOR, NO. 301, SONGJIANG RD., ZHONGSHAN DISTRICT 10483, TAIPEI, TAIWAN)

結　　論(Conclusion) : (1) 根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS 2011/65/EU Annex II暨其修訂指令(EU) 2015/863之限值要求。 (Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)

(3) 根據客戶所提供的樣品，多環芳香烴測試結果符合德國產品安全委員會(AfPS) GS PAHs第 2 類「供14歲以下兒童使用的產品」之限值要求。(Based upon the performed tests on the submitted sample(s), the test results of PAHs (15 items) comply with the limits of PAHs requirement (Category 2)「Use by children under 14」 as set by German Committee on Product Safety (AfPS) GS PAHs.)

測試部位敘述 (Test Part Description)

No.1 : 黑色塑膠粒 (BLACK PLASTIC PELLETS)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
鎘 (Cd) (Cadmium (Cd))	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
鉛 (Pb) (Lead (Pb))		mg/kg	2	9.22	1000
汞 (Hg) (Mercury (Hg))	參考IEC 62321-4: 2013+ AMD1: 2017，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	1000
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI))	參考IEC 62321-7-2: 2017，以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.	1000

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測試報告
Test Report

長春人造樹脂廠股份有限公司 (CHANG CHUN PLASTICS CO., LTD.)
長春化工(漳州)有限公司 (CHANG CHUN CHEMICAL (ZHANGZHOU) CO., LTD.)
長春化工(江蘇)有限公司 (CHANG CHUN CHEMICAL (JIANGSU) CO.,LTD.)
104-83 台灣台北市松江路301號7樓 (7TH FLOOR, NO. 301, SONGJIANG RD., ZHONGSHAN DISTRICT 10483, TAIPEI, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000
一溴聯苯醚 (Monobromodiphenyl ether)		mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP))	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP))		mg/kg	50	n.d.	1000

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測試報告
Test Report

號碼(No.): ETR23C01968 日期(Date): 19-Dec-2023

長春人造樹脂廠股份有限公司 (CHANG CHUN PLASTICS CO., LTD.)
長春化工(漳州)有限公司 (CHANG CHUN CHEMICAL (ZHANGZHOU) CO., LTD.)
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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	-
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)		mg/kg	50	n.d.	-
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)		mg/kg	50	n.d.	-
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3)		mg/kg	50	n.d.	-
六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321: 2008，以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
紅磷 (Red phosphorus)	以熱裂解-氣相層析/質譜儀分析。(Analysis was performed by Pyrolyzer-GC/MS.)	mg/kg	500	n.d.	-
四溴雙酚-A (TBBP-A) (Tetrabromobisphenol A (TBBP-A)) (CAS No.: 79-94-7)	參考RSTS-E&E-121，以液相層析儀/質譜儀分析。(With reference to RSTS-E&E-121, analysis was performed by LC/MS.)	mg/kg	10	n.d.	-
苊烯 (Acenaphthylene) (CAS No.: 208-96-8)	參考AfPS GS 2019:01 PAK，以氣相層析儀/質譜儀分析。(With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.)	mg/kg	0.2	n.d.	-
苊 (Acenaphthene) (CAS No.: 83-32-9)		mg/kg	0.2	n.d.	-
芴 (Fluorene) (CAS No.: 86-73-7)		mg/kg	0.2	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
多環芳香烴 (Polycyclic Aromatic Hydrocarbons) (PAHs)					
苯駢(a)芘 (Benzo[a]pyrene) (CAS No.: 50-32-8)	參考AfPS GS 2019:01 PAK，以氣相層析儀/質譜儀分析。(With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.)	mg/kg	0.2	n.d.	Δ
苯駢(e)芘 (Benzo[e]pyrene) (CAS No.: 192-97-2)		mg/kg	0.2	n.d.	Δ
苯駢蒽 (Benzo[a]anthracene) (CAS No.: 56-55-3)		mg/kg	0.2	n.d.	Δ
苯(b)苯駢芴 (Benzo[b]fluoranthene) (CAS No.: 205-99-2)		mg/kg	0.2	n.d.	Δ
苯(j)苯駢芴 (Benzo[j]fluoranthene) (CAS No.: 205-82-3)		mg/kg	0.2	n.d.	Δ
苯(k)苯駢芴 (Benzo[k]fluoranthene) (CAS No.: 207-08-9)		mg/kg	0.2	n.d.	Δ
䓛 (Chrysene) (CAS No.: 218-01-9)		mg/kg	0.2	n.d.	Δ
二苯駢蒽 (Dibenzo[a,h]anthracene) (CAS No.: 53-70-3)		mg/kg	0.2	n.d.	Δ
苯駢苝 (Benzo[g,h,i]perylene) (CAS No.: 191-24-2)		mg/kg	0.2	n.d.	Δ
茚酮芘 (Indeno[1,2,3-c,d]pyrene) (CAS No.: 193-39-5)		mg/kg	0.2	n.d.	Δ
蒽 (Anthracene) (CAS No.: 120-12-7)		mg/kg	0.2	n.d.	Δ
苯駢芴 (Fluoranthene) (CAS No.: 206-44-0)		mg/kg	0.2	n.d.	Δ
菲 (Phenanthrene) (CAS No.: 85-01-8)		mg/kg	0.2	n.d.	Δ
芘 (Pyrene) (CAS No.: 129-00-0)		mg/kg	0.2	n.d.	Δ
萘 (Naphthalene) (CAS No.: 91-20-3)		mg/kg	0.2	n.d.	Δ
多環芳香烴15項總和 (Sum of 15 PAHs)		mg/kg	-	n.d.	Δ

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟辛烷磺酸 (PFOS) (Perfluorooctane sulfonates (PFOS)) (CAS No.: 1763-23-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛基磺酸鉀 (PFOS-K) (Potassium Perfluorooctanesulfonate (PFOS-K)) (CAS No.: 2795-39-3)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸鋰 (PFOS-Li) (Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)) (CAS No.: 29457-72-5)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸銨 (PFOS-NH4) (Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH4)) (CAS No.: 29081-56-9)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸二乙醇銨 (PFOS-NH(OH)2) (Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH)2)) (CAS No.: 70225-14-8)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸四乙基銨 (PFOS-N(C2H5)4) (Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-N(C2H5)4)) (CAS No.: 56773-42-3)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸二癸二甲基銨 (PFOS-DDA) (N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-DDA)) (CAS No.: 251099-16-8)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺醯氟 (POSF) (Perfluorooctane sulfonyl fluoride (POSF)) (CAS No.: 307-35-7)	由全氟辛烷磺酸測試結果計算得之。(Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-

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測試報告
Test Report

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟辛基磺酸鎂 (PFOS-Mg) (Perfluorooctanesulfonic acid, magnesium salt (PFOS-Mg)) (CAS No.: 91036-71-4)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸鈉 (PFOS-Na) (Perfluorooctanesulfonic acid, sodium salt (PFOS-Na)) (CAS No.: 4021-47-0)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
N-乙基全氟正辛磺醯胺 (EtFOSA) (N-ethylperfluoro-1-octanesulfonamide (EtFOSA)) (CAS No.: 4151-50-2)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-甲基全氟正辛磺醯胺 (N-Me-FOSA) (N-Methyl-Perfluorooctanesulfonamide (N-Me-FOSA)) (CAS No.: 31506-32-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-乙基全氟辛基磺醯胺乙醇 (N-Et-FOSE alcohol) (N-Ethyl-Perfluorooctanesulfonamidoethanol (N-Et-FOSE alcohol)) (CAS No.: 1691-99-2)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-甲基全氟辛基磺醯胺乙醇 (N-Me-FOSE alcohol) (N-Methyl-Perfluorooctanesulfonamidoethanol (N-Me-FOSE alcohol)) (CAS No.: 24448-09-7)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛基磺醯胺 (PFOSA) (Perfluorooctanesulfonamide (PFOSA)) (CAS No.: 754-91-6)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟辛酸(PFOA) (Perfluorooctanoic Acid (PFOA)) (CAS No.: 335-67-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸鈉 (PFOA-Na) (Sodium perfluorooctanoate (PFOA-Na)) (CAS No.: 335-95-5)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛酸鉀 (PFOA-K) (Potassium perfluorooctanoate (PFOA-K)) (CAS No.: 2395-00-8)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛酸銀 (PFOA-Ag) (Silver perfluorooctanote (PFOA-Ag)) (CAS No.: 335-93-3)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛氟 (PFOA-F) (Perfluorooctanoyl fluoride (PFOA-F)) (CAS No.: 335-66-0)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛酸銨 (APFO) (Ammonium pentadecafluorooctanoate (APFO)) (CAS No.: 3825-26-1)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
1H,1H,2H,2H-全氟癸磺酸 (8:2 FTS) (1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)) (CAS No.: 39108-34-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸甲酯 (Me-PFOA) (Methyl perfluorooctanoate (Me-PFOA)) (CAS No.: 376-27-2)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
全氟辛酸乙酯 (Et-PFOA) (Ethyl perfluorooctanoate (Et-PFOA)) (CAS No.: 3108-24-5)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
1H,1H,2H,2H-全氟-1-癸醇 (8:2 FTOH) (1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)) (CAS No.: 678-39-7)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟癸基丙烯酸酯 (8:2 FTA) (1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)) (CAS No.: 27905-45-9)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟癸基甲基丙烯酸酯 (8:2 FTMA) (1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)) (CAS No.: 1996-88-9)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
全氟辛基碘烷 (PFOI) (Perfluoro-1-iodooctane (PFOI)) (CAS No.: 507-63-1)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-

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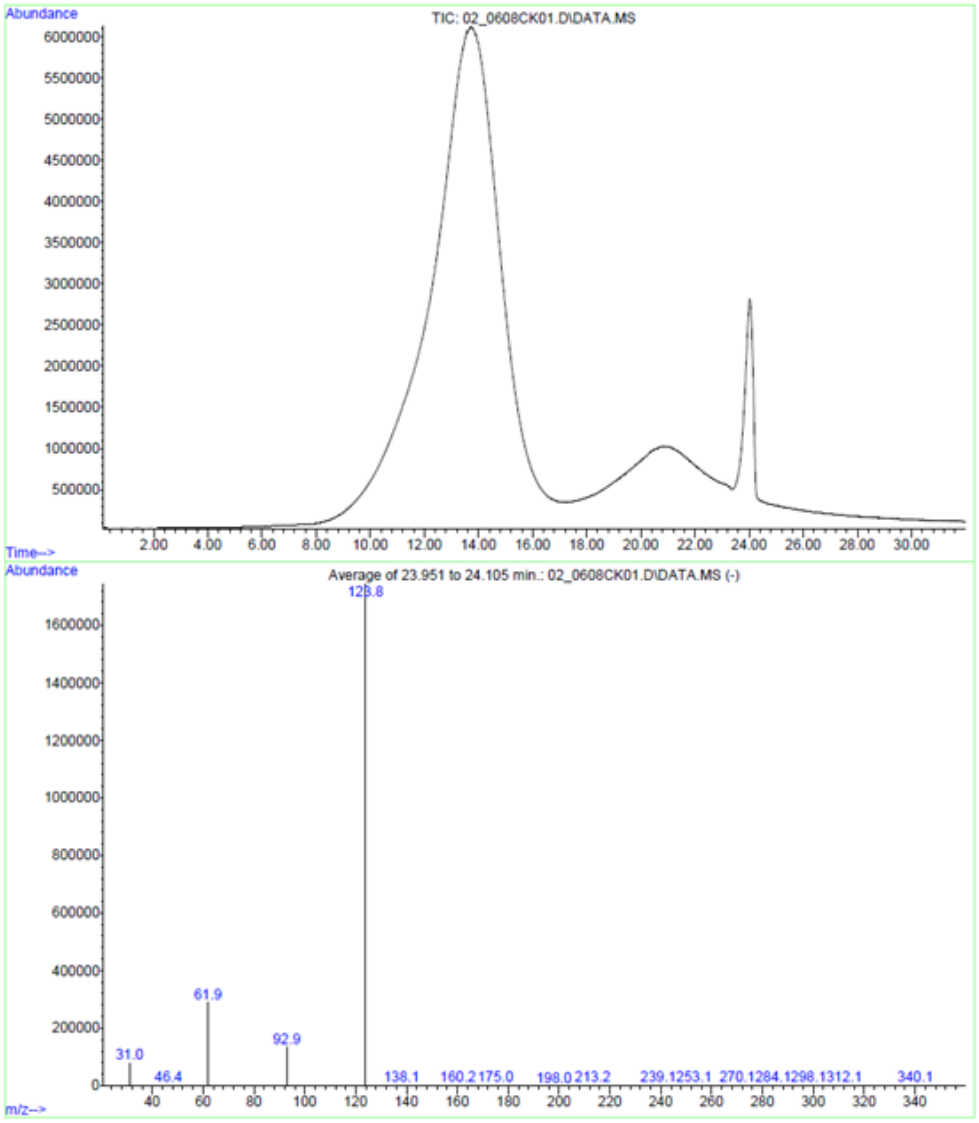
紅磷標準品Py-GCMS圖譜 (The Py-GCMS spectra of Red phosphorus standard)



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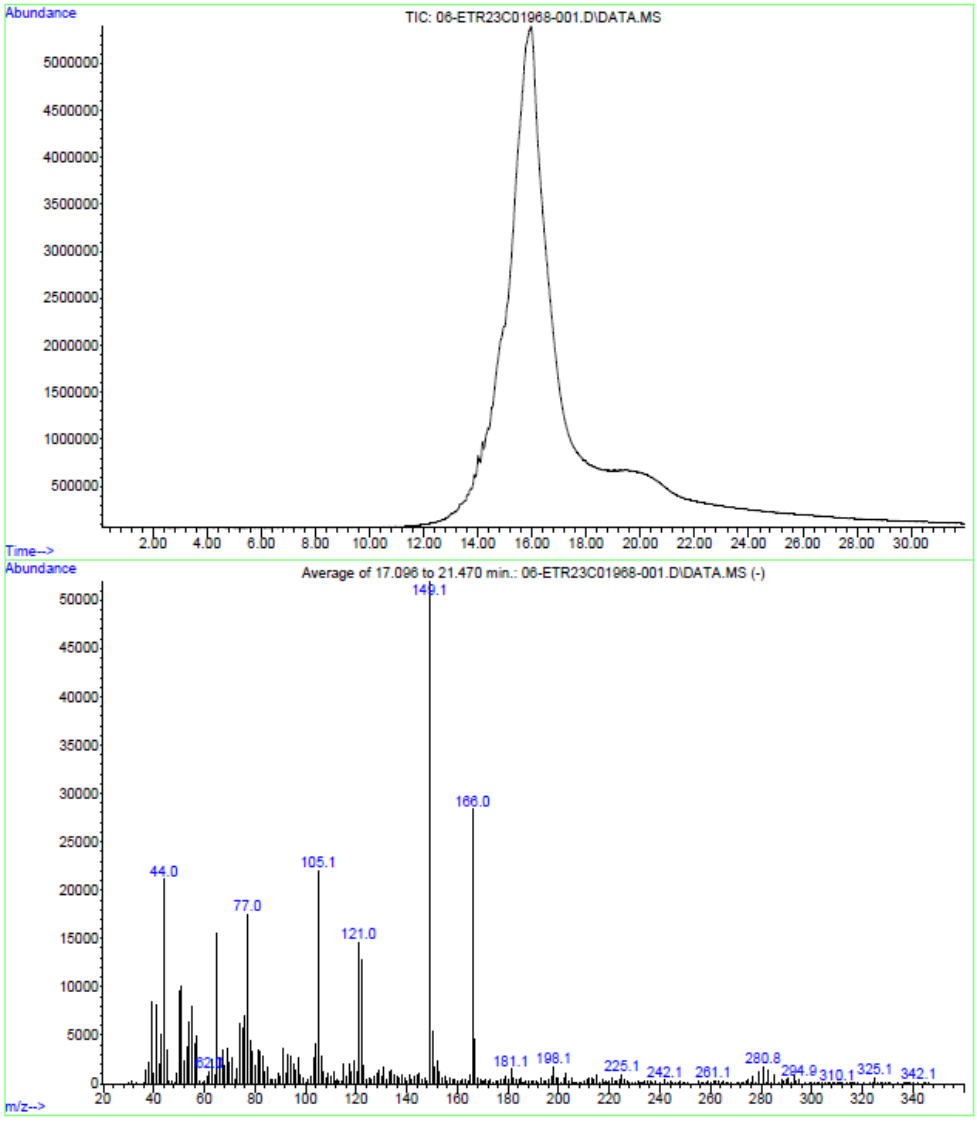
檢測樣品Py-GCMS圖譜 (The Py-GCMS spectra of test sample)



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備註(Note)：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出)；小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. **= Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. ▲：MDL是針對元素/測試化合物之評估。(The MDL was evaluated for element / tested substance.)
   參數換算表 (Parameter Conversion Table)：
   https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others
8. 除非另有說明，參照ILAC-G8:09/2019，採用簡單二元(w=0)允收規則進行符合性判定；根據此規則，符合性結果之判定係以測試結果與限值做比較。(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. According to this rule, the judgement of conformity is based on the comparing test results with limits.)

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PAHs Remark：

Δ 德國產品安全委員會(AfPS): GS PAHs 要求
AfPS (German commission for Product Safety): GS PAHs requirements

項目 (Parameter)	第 1 類(Category 1)	第 2 類(Category 2)		第 3 類(Category 3)	
	意圖放入口中的材料或者長時間接觸皮膚(超過 30 秒)的 2009/48/EC 定義的玩具材料和 3 歲以下兒童使用的產品(Materials intended to be placed in the mouth, or materials in toys (Directive 2009/48/EC) or articles for children up to 3 years of age with intended long-term skin contact (> 30 seconds))	不屬於第 1 類的材料，並意圖或可預見與皮膚接觸逾 30 秒(長期皮膚接觸)或重複的短時間接觸(Materials that are not in Category 1, with intended or foreseeable long-term skin contact (> 30 seconds) or short-term repetitive contact with the skin)		不屬於第 1 類或第 2 類的材料，並意圖或可預見與皮膚接觸不超過 30 秒(短期皮膚接觸)(Materials not covered by Category 1 or 2, with intended or foreseeable short-term skin contact (≦ 30 seconds))	
		a. 供 14 歲以下兒童使用的產品(Use by children under 14)	b. 其它產品(Other consumer products)	a. 供 14 歲以下兒童使用的產品(Use by children under 14)	b. 其它產品(Other consumer products)
Naphthalene	< 1	< 2		< 10	
Phenanthrene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Anthracene					
Fluoranthene					
Pyrene					
Benzo[a]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[j]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-c,d] pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo[a,h]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[g,h,i]perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
15 項 PAH 總濃度 (Sum of 15 PAH)	< 1	< 5	< 10	< 20	< 50

單位(Unit)：mg/kg

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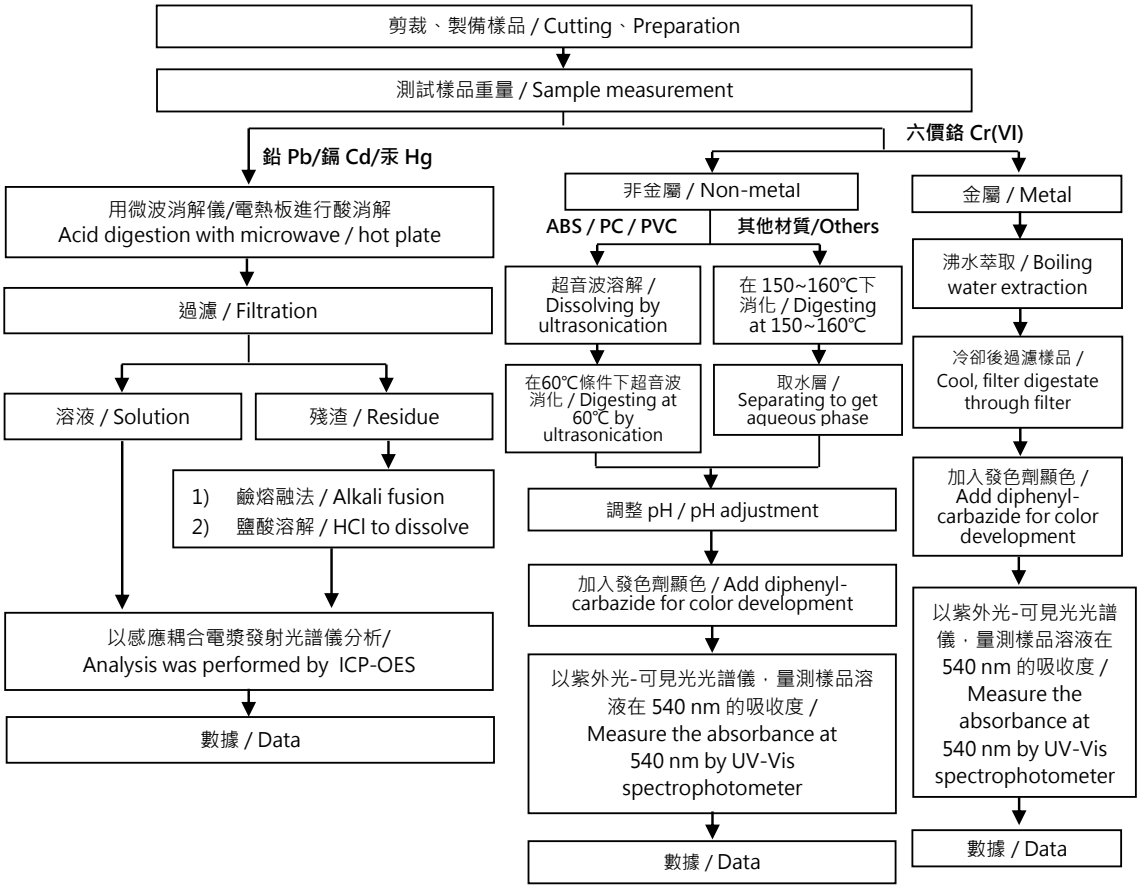
重金屬流程圖 / Analytical flow chart of heavy metal

根據以下的流程圖之條件，樣品已完全溶解。（六價鉻測試方法除外）

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

（Cr^{6+} test method excluded）



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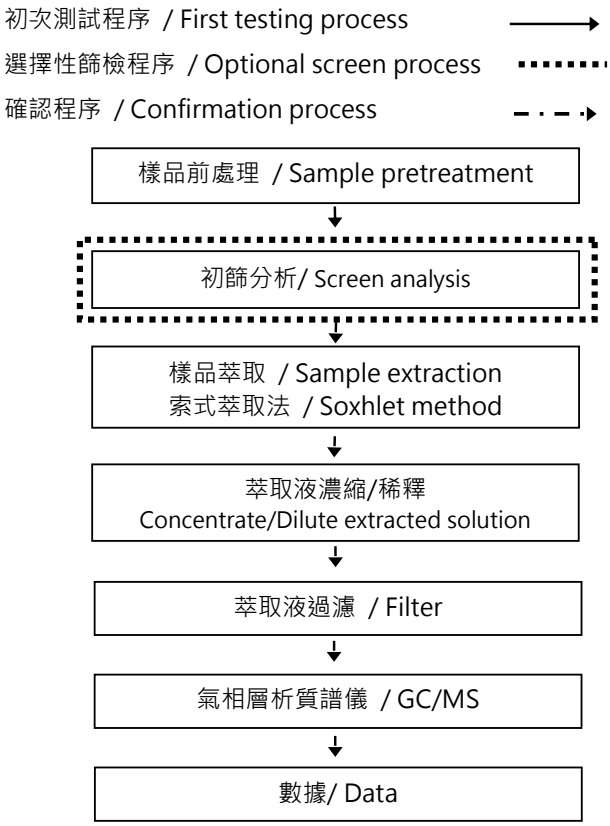
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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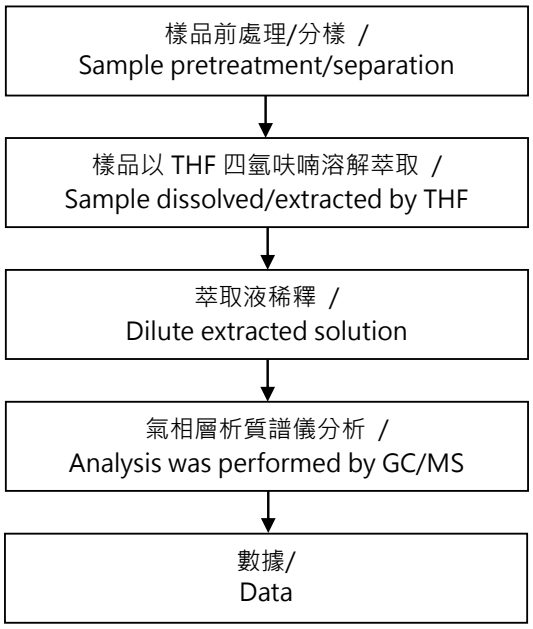
可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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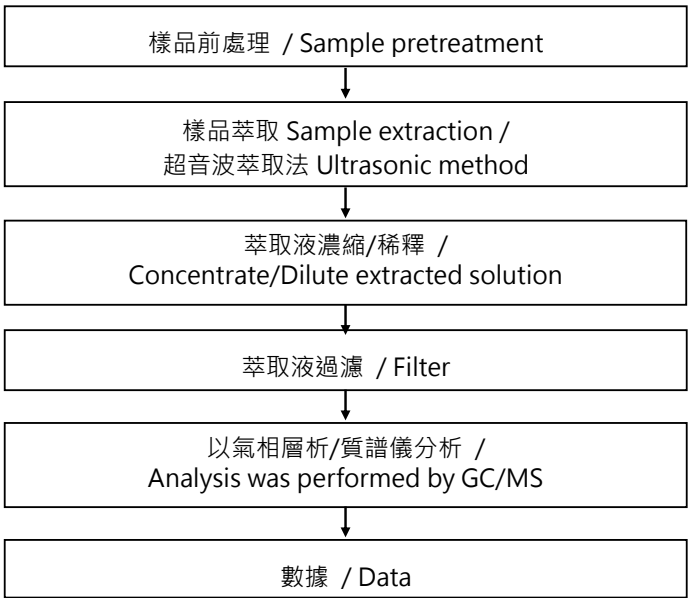
六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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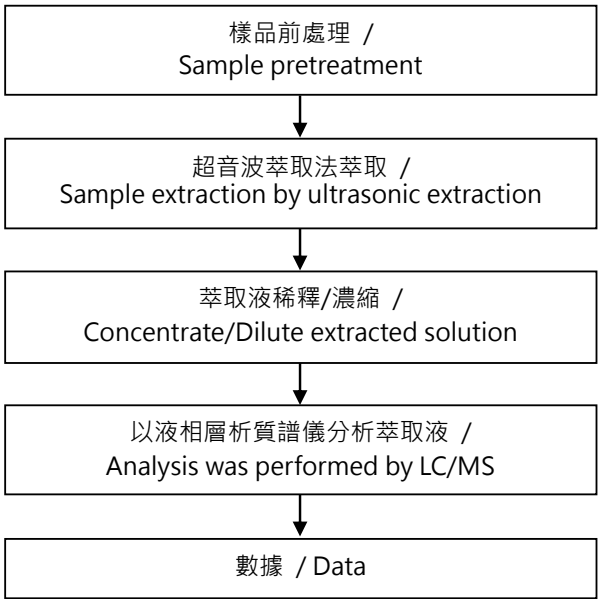
四溴雙酚-A 分析流程圖 / Analytical flow chart - TBBP-A



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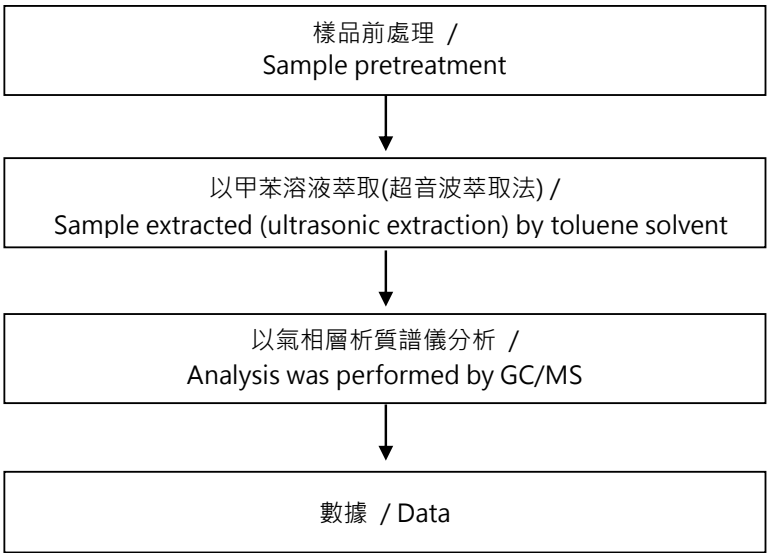
多環芳香烴分析流程圖 /
Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)



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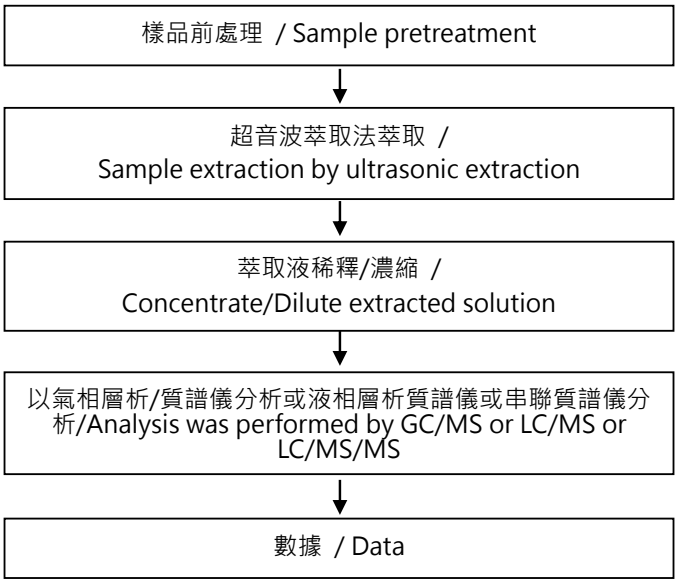
全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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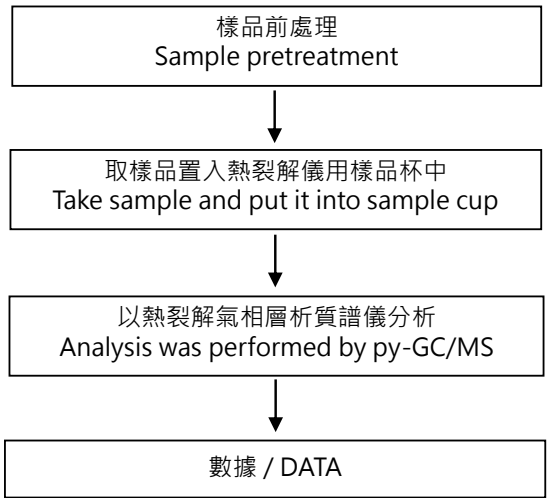
長春化工(漳州)有限公司 (CHANG CHUN CHEMICAL (ZHANGZHOU) CO., LTD.)
長春化工(江蘇)有限公司 (CHANG CHUN CHEMICAL (JIANGSU) CO.,LTD.)
104-83 台灣台北市松江路301號7樓 (7TH FLOOR, NO. 301, SONGJIANG RD., ZHONGSHAN DISTRICT 10483, TAIPEI, TAIWAN)

紅磷分析流程 / Analytical flow chart - Red phosphorus



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測試報告
Test Report

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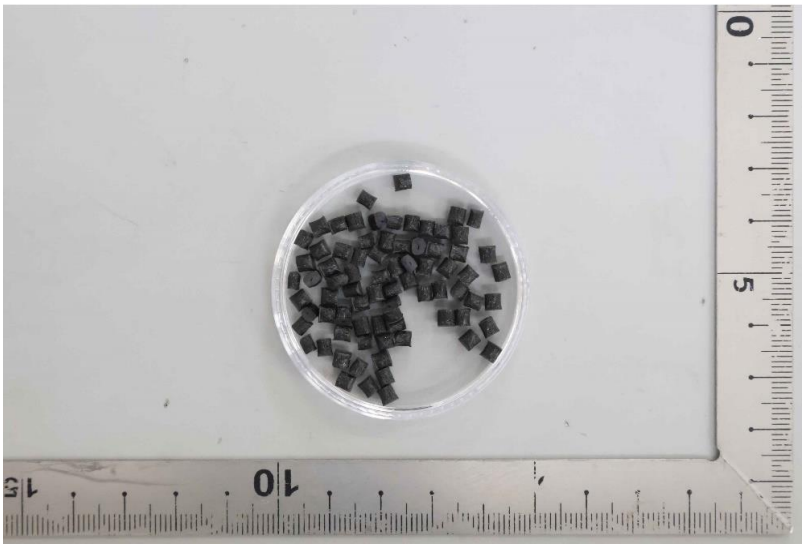
*** 照片中如有箭頭標示，則表示為實際檢測之樣品/部位. ***
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR23C01968



** 報告結尾 (End of Report) **

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Test Report

No.: SHAEC24010867901 **Date:** May 31, 2024

Client Name: Shandong Tansins Group Co., Ltd

Client Address: No.79 Huaihe Road,Dongying County,Dongying City

Sample Name: BRASS

Model No.: C2680

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

SGS Job No.: QDP24-002281

Sample Receiving Date: May 23, 2024

Testing Period: May 23, 2024 ~ May 31, 2024

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 (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
Element(s)	See Results
Halogen	See Results

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Annie Liu

Annie Liu
Approved Signatory

scan to see the report
65F0F532

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA24-0108679-0001.C001	yellow metal

Remarks:

(1) 1 mg/kg = 1 ppm = 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 (PBB), Polybrominated diphenyl ethers (PBDE), 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 62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analysis was performed by ICP-OES/AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A1
Lead (Pb)	1000	mg/kg	2	37
Mercury (Hg)	1000	mg/kg	2	ND
Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Polybromobiphenyl (PBB)	1000	mg/kg	-	ND
Monobrominated biphenyl (MonoBB)	-	mg/kg	5	ND
Dibrominated biphenyl (DiBB)	-	mg/kg	5	ND
Tribrominated biphenyl (TriBB)	-	mg/kg	5	ND
Tetrabrominated biphenyl (TetraBB)	-	mg/kg	5	ND
Pentabrominated biphenyl (PentaBB)	-	mg/kg	5	ND
Hexabrominated biphenyl (HexaBB)	-	mg/kg	5	ND
Heptabrominated biphenyl (HeptaBB)	-	mg/kg	5	ND
Octabrominated biphenyl (OctaBB)	-	mg/kg	5	ND
Nonabrominated biphenyl (NonaBB)	-	mg/kg	5	ND
Decabrominated biphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDE)	1000	mg/kg	-	ND
Monobrominated diphenyl ether (MonoBDE)	-	mg/kg	5	ND
Dibrominated diphenyl ether (DiBDE)	-	mg/kg	5	ND
Tribrominated diphenyl ether (TriBDE)	-	mg/kg	5	ND
Tetrabrominated diphenyl ether (TetraBDE)	-	mg/kg	5	ND
Pentabrominated diphenyl ether (PentaBDE)	-	mg/kg	5	ND
Hexabrominated diphenyl ether (HexaBDE)	-	mg/kg	5	ND
Heptabrominated diphenyl ether (HeptaBDE)	-	mg/kg	5	ND

检验检测专用章 Inspection & Testing Services
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. Testing Center-Chemical Laboratory

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Test Item(s)	Limit	Unit(s)	MDL	A1
Octabrominated diphenyl ether (OctaBDE)	-	mg/kg	5	ND
Nonabrominated diphenyl ether (NonaBDE)	-	mg/kg	5	ND
Decabrominated diphenyl ether (DecaBDE)	-	mg/kg	5	ND
Bis(2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Dibutyl phthalate (DBP)	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.

(3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI)concentration is greater than 0.13 μg/cm^2. The sample coating is considered to contain Cr(VI).

b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 μg/cm^2). The coating is considered a non-Cr(VI) based coating.

c. The result between 0.10 μg/cm^2 and 0.13 μg/cm^2 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 3052:1996, analysis was performed by ICP-OES/AAS.

Test Item(s)	Unit(s)	MDL	A1
Beryllium(Be)	mg/kg	5	ND
Antimony(Sb)	mg/kg	10	ND

Halogen

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

Test Item(s)	Unit(s)	MDL	A1
Fluorine(F)	mg/kg	20	ND
Chlorine(Cl)	mg/kg	50	ND
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

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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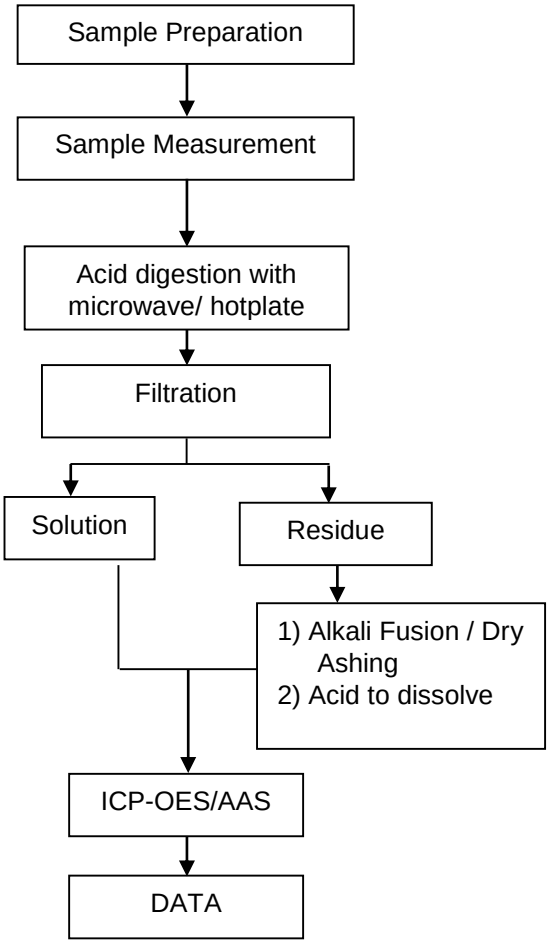
Elements Testing Flow Chart

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



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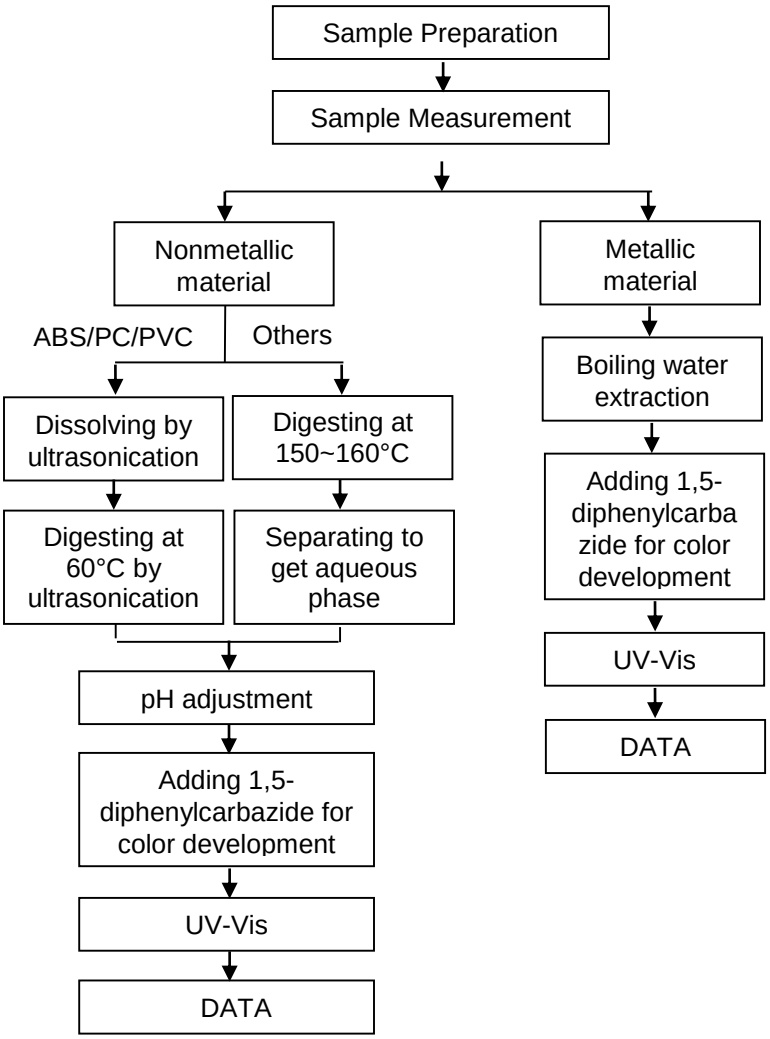
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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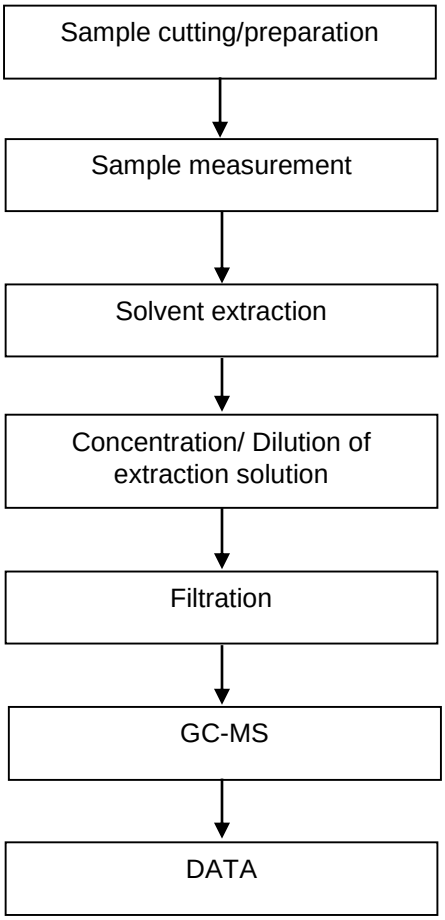
PBB/PBDE Testing Flow Chart



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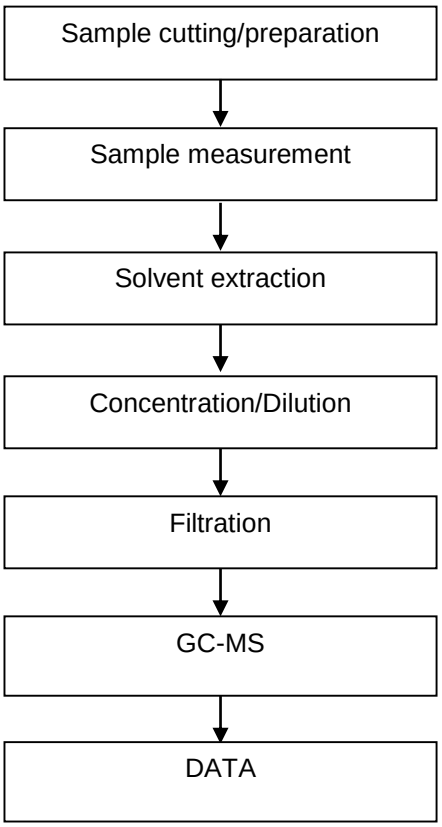
Phthalates Testing Flow Chart



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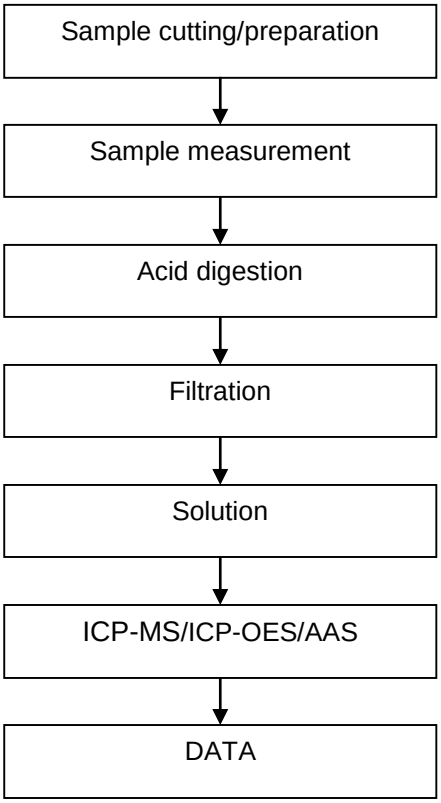
Elements Testing Flow Chart



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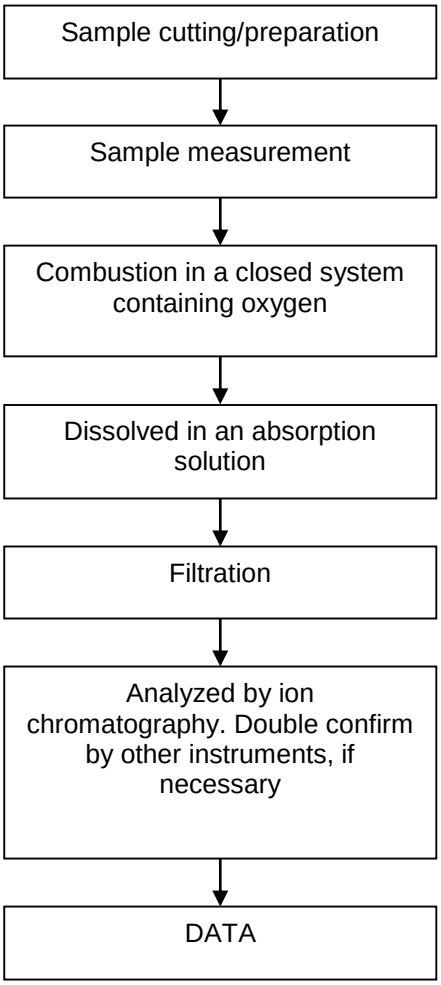
Halogen Testing Flow Chart



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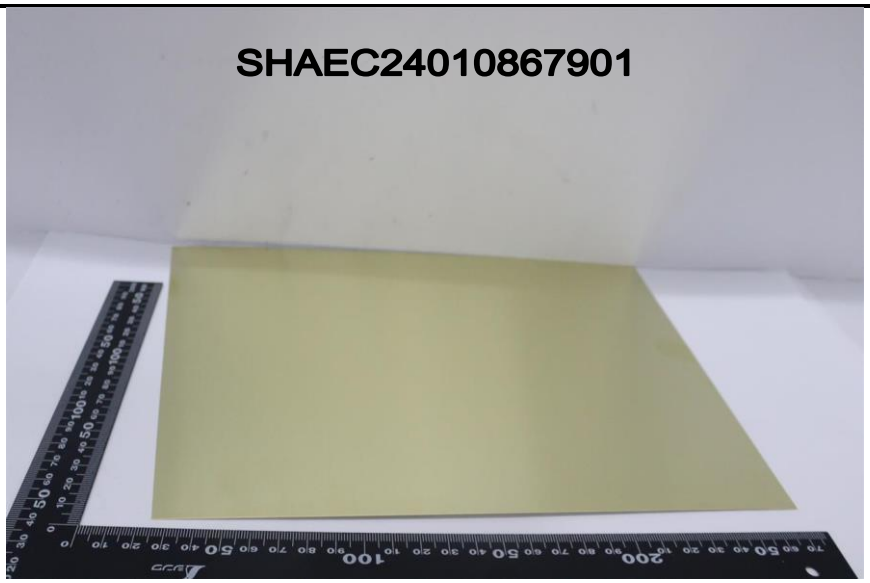
Sample Photo:



SHA24-0108679-0001.C001

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Test Report

No.: CANEC24000977303 **Date:** Jan 22, 2024

Client Name: FUJIAN ZIJIN COPPER CO.,LTD

Client Address: NAN GANG DEVELOPMENT PARK SHANGHANG FUJIAN

Sample Name: BRONZE:C5191(Cusn6)

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

SGS Job No.: XMP24-000173

Sample Receiving Date: Jan 12, 2024

Testing Period: Jan 12, 2024 ~ Jan 19, 2024

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 (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
Halogen	See Results
Element(s)	See Results

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

Kelly Qu
Approved Signatory

scan to see the report
1BB71618

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A2	CAN24-0009773-0001.C002	Copper-colored metal 2#

Remarks:

(1) 1 mg/kg = 1 ppm = 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 (PBB), Polybrominated diphenyl ethers (PBDE), 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 62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analysis was performed by ICP-OES/AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A2
Lead (Pb)	1000	mg/kg	2	4
Mercury (Hg)	1000	mg/kg	2	ND
Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Polybrominated biphenyls (PBB)	1000	mg/kg	-	ND
Monobrominated biphenyl (MonoBB)	-	mg/kg	5	ND
Dibrominated biphenyl (DiBB)	-	mg/kg	5	ND
Tribrominated biphenyl (TriBB)	-	mg/kg	5	ND
Tetrabrominated biphenyl (TetraBB)	-	mg/kg	5	ND
Pentabrominated biphenyl (PentaBB)	-	mg/kg	5	ND
Hexabrominated biphenyl (HexaBB)	-	mg/kg	5	ND
Heptabrominated biphenyl (HeptaBB)	-	mg/kg	5	ND
Octabrominated biphenyl (OctaBB)	-	mg/kg	5	ND
Nonabrominated biphenyl (NonaBB)	-	mg/kg	5	ND
Decabrominated biphenyl (DecaBB)	-	mg/kg	5	ND
Polybrominated diphenyl ethers (PBDE)	1000	mg/kg	-	ND
Monobrominated diphenyl ether (MonoBDE)	-	mg/kg	5	ND
Dibrominated diphenyl ether (DiBDE)	-	mg/kg	5	ND
Tribrominated diphenyl ether (TriBDE)	-	mg/kg	5	ND
Tetrabrominated diphenyl ether (TetraBDE)	-	mg/kg	5	ND
Pentabrominated diphenyl ether (PentaBDE)	-	mg/kg	5	ND
Hexabrominated diphenyl ether (HexaBDE)	-	mg/kg	5	ND
Heptabrominated diphenyl ether (HeptaBDE)	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit(s)	MDL	A2
Octabrominated diphenyl ether (OctaBDE)	-	mg/kg	5	ND
Nonabrominated diphenyl ether (NonaBDE)	-	mg/kg	5	ND
Decabrominated diphenyl ether (DecaBDE)	-	mg/kg	5	ND
Bis(2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Dibutyl phthalate (DBP)	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.
(3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI)concentration is greater than 0.13 μg/cm^2. The sample coating is considered to contain Cr(VI).
b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 μg/cm^2). The coating is considered a non-Cr(VI) based coating.
c. The result between 0.10 μg/cm^2 and 0.13 μg/cm^2 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.
(4) PBBs/PBDEs, DBP, BBP, DEHP, DIBP is/are not accredited by CNAS.

Halogen

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

Test Item(s)	Unit(s)	MDL	A2
Fluorine(F)	mg/kg	20	ND
Chlorine(Cl)	mg/kg	50	ND
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

Notes:
(1) Method(s) is/are not accredited by CNAS.

Element(s)

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

Test Item(s)	Unit(s)	MDL	A2
Beryllium(Be)	mg/kg	5	ND
Antimony(Sb)	mg/kg	10	ND

Notes:
(1) Method(s) is/are not accredited by CNAS.

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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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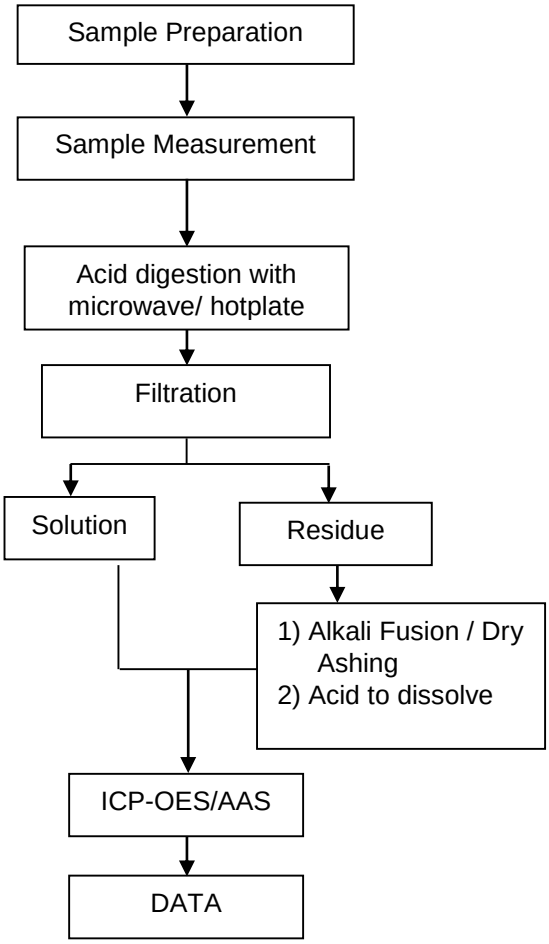
Elements Testing Flow Chart

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



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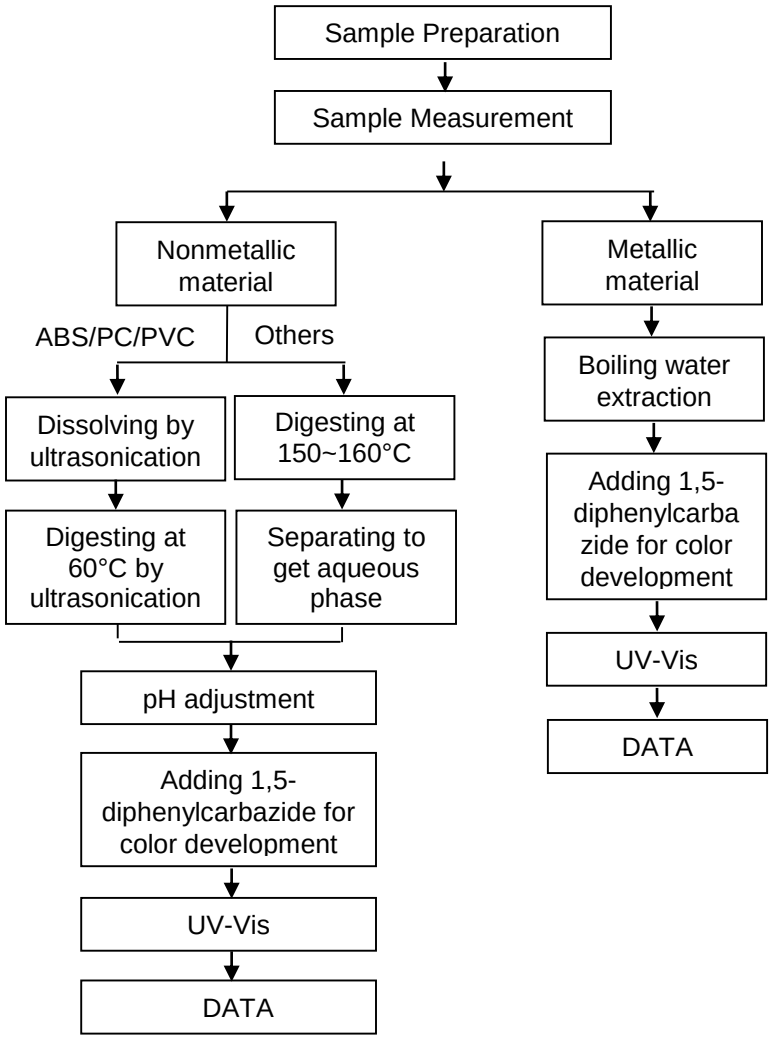
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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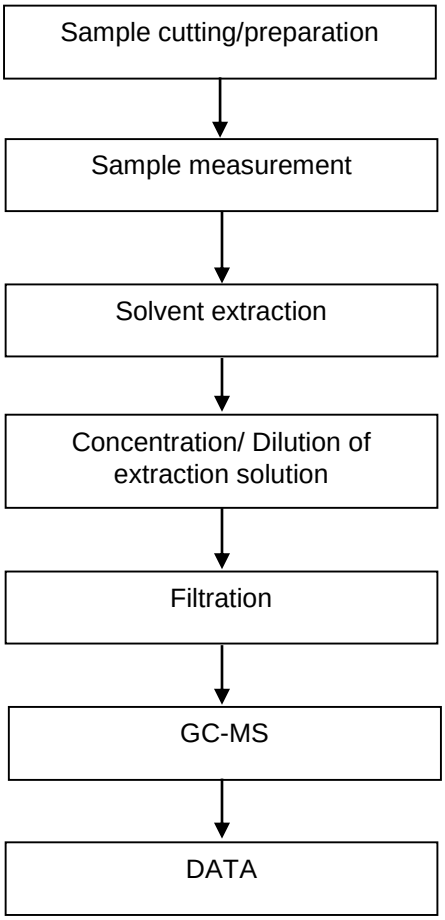
PBBs/PBDEs Testing Flow Chart



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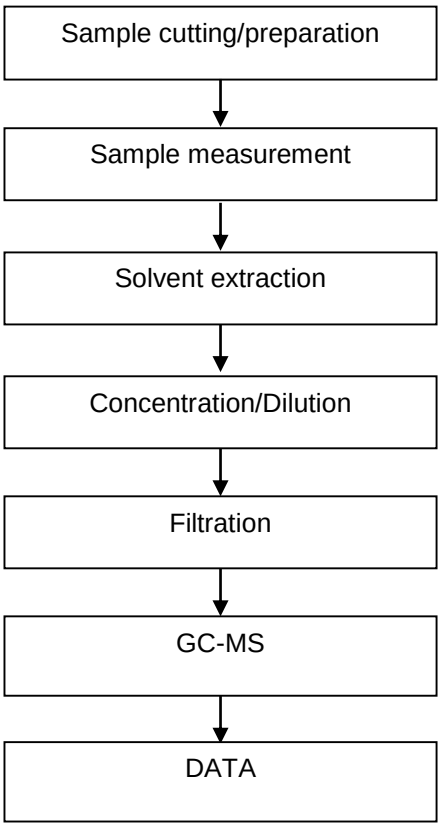
Phthalates Testing Flow Chart



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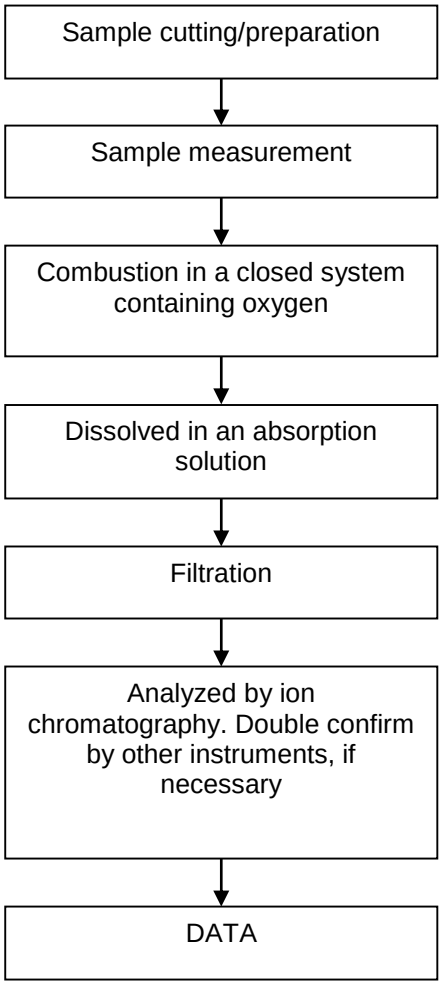

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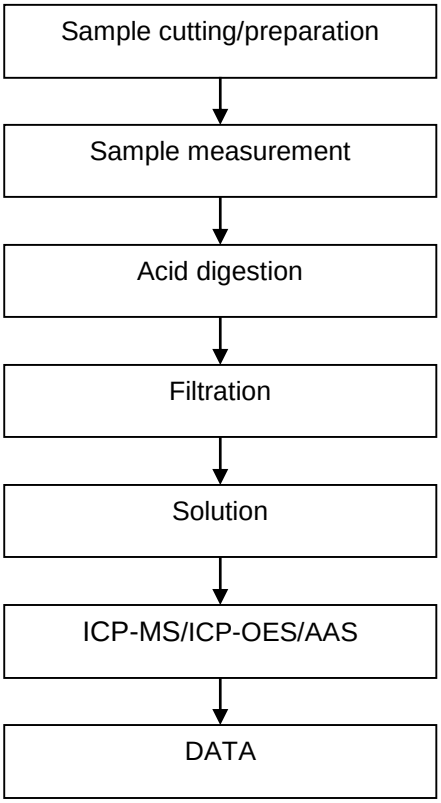

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Test Report

No.: CANEC23007545627 **Date:** Aug 14, 2023

Client Name: RIJING METAL ENTERPRISE CO.,LTD

Client Address: TANGBIAN INDUSTRIAL DISTRICT SHISHAN TOWN NANHAI AREA FOSHAN CITY GUANGDONG PROVINCE CHINA

Sample Name: Hpb59-2 Lead-low-Cadmium Environmental copper(C3604)

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

SGS Job No.: GZP23-009501

Sample Receiving Date: Aug 04, 2023

Testing Period: Aug 04, 2023 ~ Aug 10, 2023

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 Co., Ltd. Guangzhou Branch

Arsene Ye

Arsene Ye
Approved Signatory

scan to see the report
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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A13	CAN23-0075456-0001.C013	Brassy metal

Remarks:

(1) 1 mg/kg = 1 ppm = 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 62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A13
Cadmium(Cd)	100	mg/kg	2	21
Lead(Pb)	1000	mg/kg	2	24580▲
Mercury(Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI)) ▼	-	μg/cm²	0.10	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
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
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
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND

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Test Item(s)	Limit	Unit(s)	MDL	A13
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.

(3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI)concentration is greater than 0.13 μg/cm². The sample coating is considered to contain Cr(VI)

b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 μg/cm²). The coating is considered a non-Cr(VI) 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.

(4)▲: 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.

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

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

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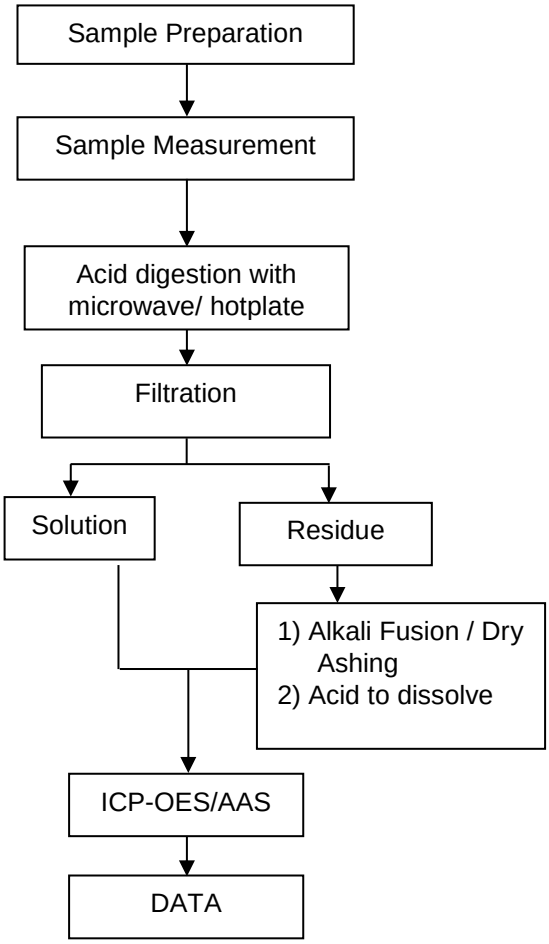
Elements Testing Flow Chart

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



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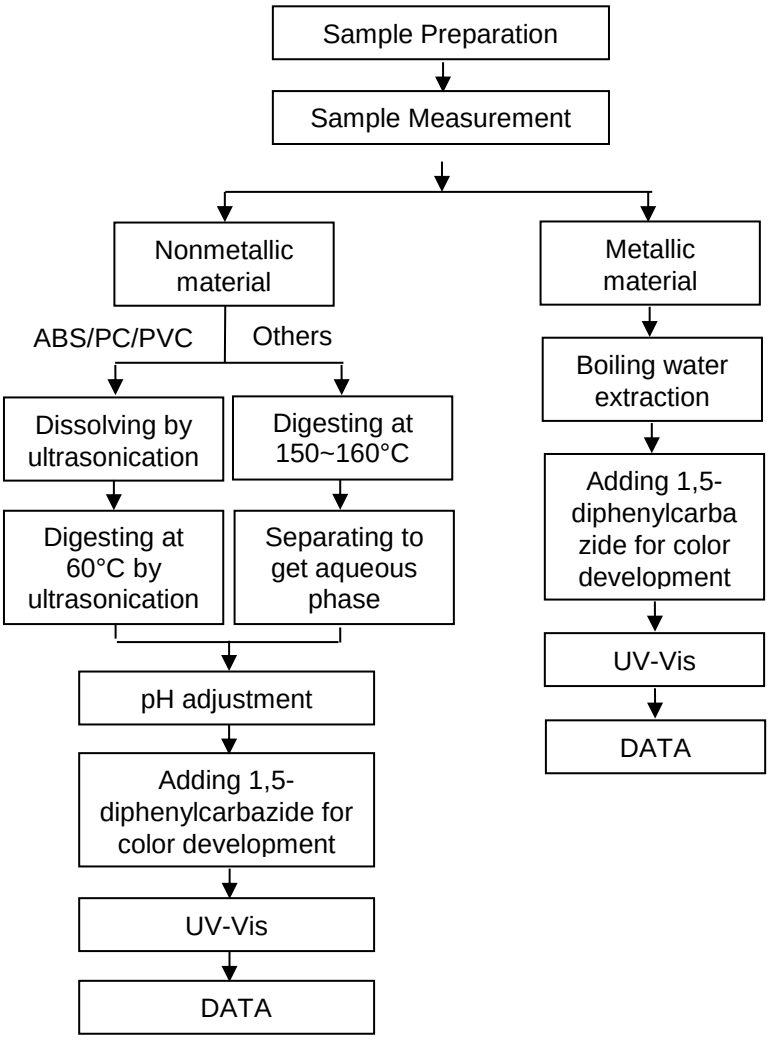
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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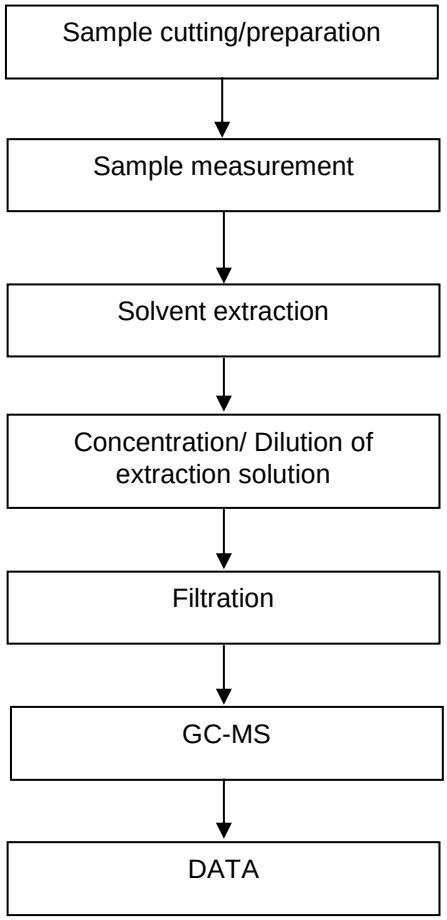
PBBs/PBDEs Testing Flow Chart



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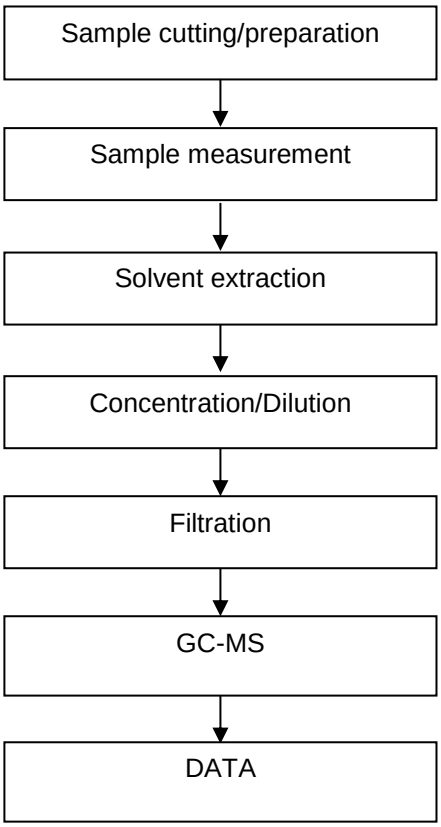
Phthalates Testing Flow Chart



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Sample Photo:



CAN23-0075456-0001.C013

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No.: CANEC23015097301 **Date:** Dec 01, 2023

Client Name: FOSHAN SHUNDE ZIHE TRADE CO.,LTD

Client Address: LUZHOU LNDUSTRIAL DEVELOPMENT ZONE,LECONG TOWN, SHUNDE DISTRICT,FOSHAN

Sample Name: SPCC

Client Ref. Information: SPCD SPCE SPCEN

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

SGS Job No.: GZP23-020471

Sample Receiving Date: Nov 27, 2023

Testing Period: Nov 27, 2023 ~ Dec 01, 2023

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 Co., Ltd. Guangzhou Branch

Dongyu Xie
Approved Signatory

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN23-0150973-0001.C001	Silvery metal sheet

Remarks:

(1) 1 mg/kg = 1 ppm = 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 62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	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)) ▼	-	μg/cm²	0.10	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
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
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
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND

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Test Item(s)	Limit	Unit(s)	MDL	A1
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.

(3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI)concentration is greater than 0.13 μg/cm². The sample coating is considered to contain Cr(VI)

b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 μg/cm²). The coating is considered a non-Cr(VI) based coating

c. The result between 0.10 μg/cm² and 0.13 μg/cm² is considered to be inconclusive-unavoidable coating variations may influence the determination.

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

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

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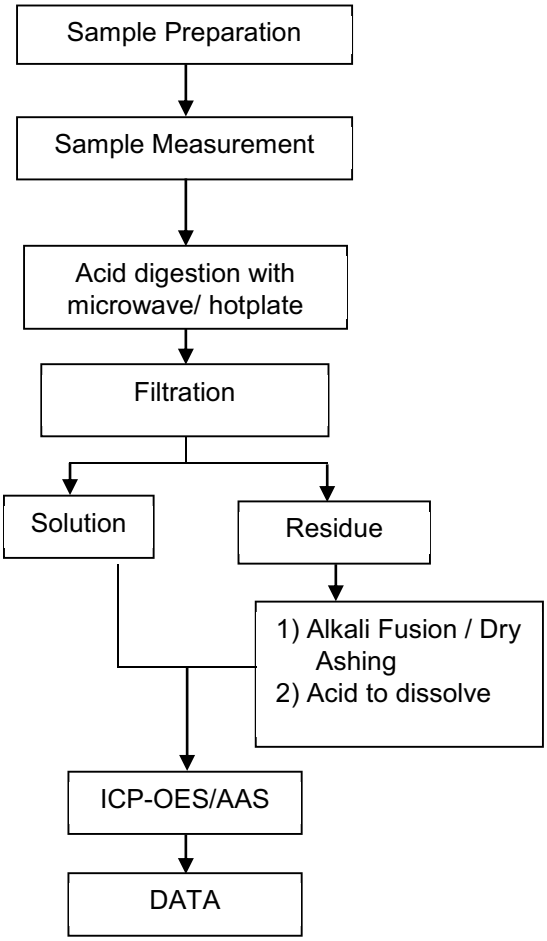
Elements Testing Flow Chart

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



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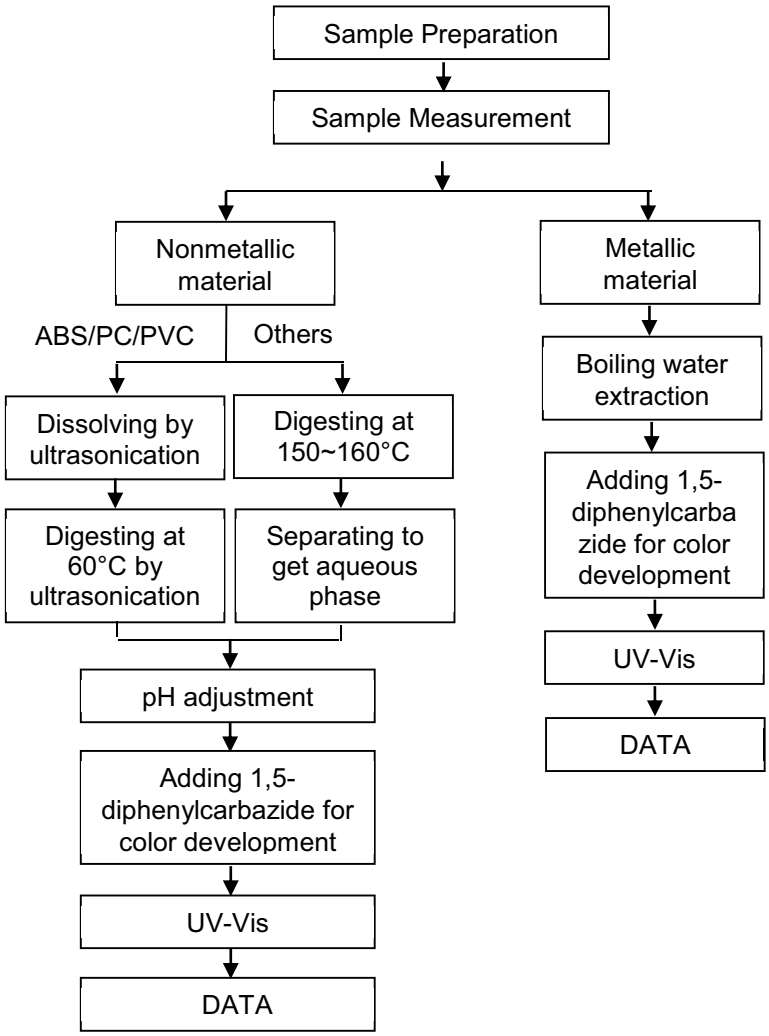
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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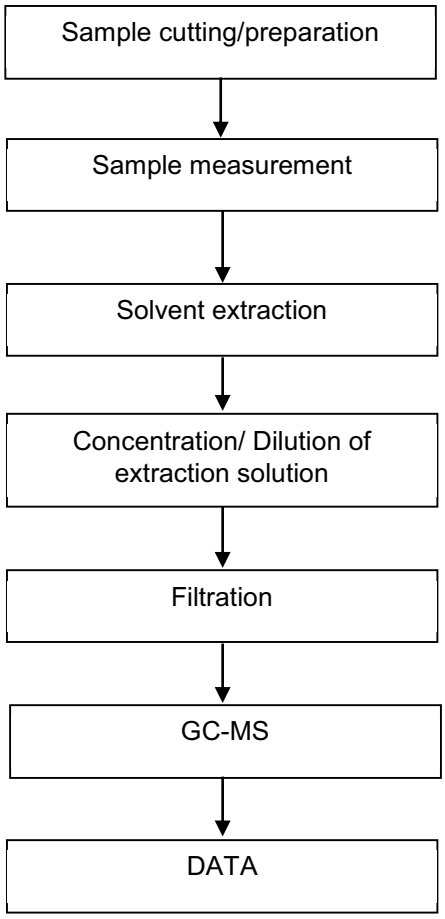
PBBs/PBDEs Testing Flow Chart



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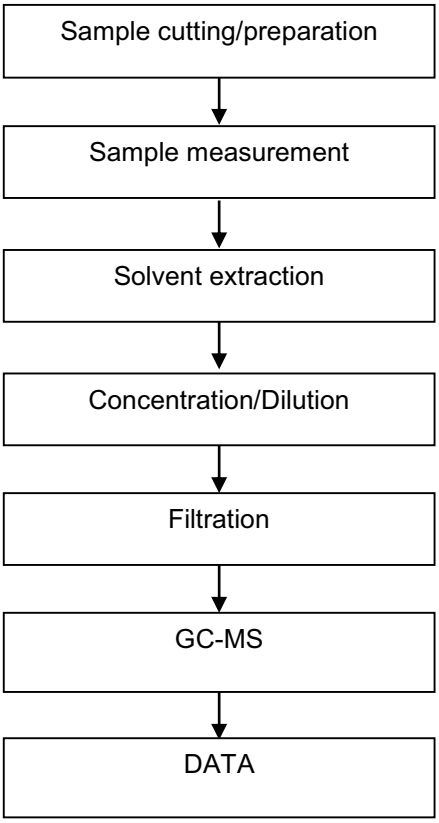
Phthalates Testing Flow Chart



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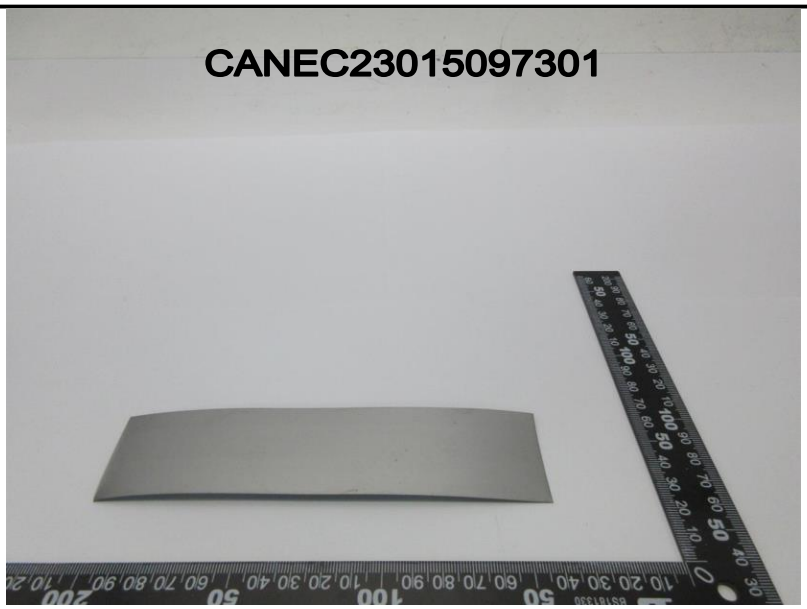
Sample Photo:



CAN23-0150973-0001.C001

SGS authenticate the photo on original report only

*** End of Report ***

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检测报告
Test Report

报告编号 A2230531169101003E
Report No. A2230531169101003E

报告抬头公司名称 温州聚友表面处理有限公司
Company Name shown on Report WENZHOU JUYOU SURFACE TREATMENT CO.,LTD.
地 址 浙江省温州市乐清经济开发区环保产业园B4栋
Address B4 ENVIRONMENTAL PROTECTION INDUSTRIAL PARK OF YUEQING ECONOMIC DEVELOPMENT ZONE, WENZHOU CITY, ZHEJIANG 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	铜锡镀层
Sample Name	Copper tin plating
样品颜色	光亮
Color	Bright
材料名称	CuSn
Material	CuSn
样品接收日期	2023.10.16
Sample Received Date	Oct. 16, 2023
样品检测日期	2023.10.16-2023.10.19
Testing Period	Oct. 16, 2023 to Oct. 19, 2023

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).

批准 Approved by: 印迟
印迟
授权签字人 Lab Authorized Signatory

日 期 Date 2023.10.19

No. R465021576

宁波市华测检测技术有限公司
Centre Testing International (Ningbo) Co.,Ltd.
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

****

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

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

检测报告
Test Report

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
	003		
铅 Lead (Pb)	27 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
	003		
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
	003		
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

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
	003		
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)			
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg
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

样品/部位描述Sample/Part Description

序号 No.	CTI样品ID CTI Sample ID	描述 Description
1	003	银色镀层 Silvery plating

备注: **对于检测铅，镉，汞之样品已消解完全。**

-N.D. = 未检出（小于方法检出限或定量限）

-mg/kg = ppm = 百万分之一

-1000 mg/kg = 0.1%

-LOQ = 定量限，六价铬的定量限为0.10 μg/cm²

-▼六价铬浓度小于0.10 μg/cm²，样品未检出六价铬。由于未获知样品的存储条件和生产日期，样品的六价铬测试结果仅能代表测试时样品含六价铬的状态。

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

-MDL = Method Detection Limit

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

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

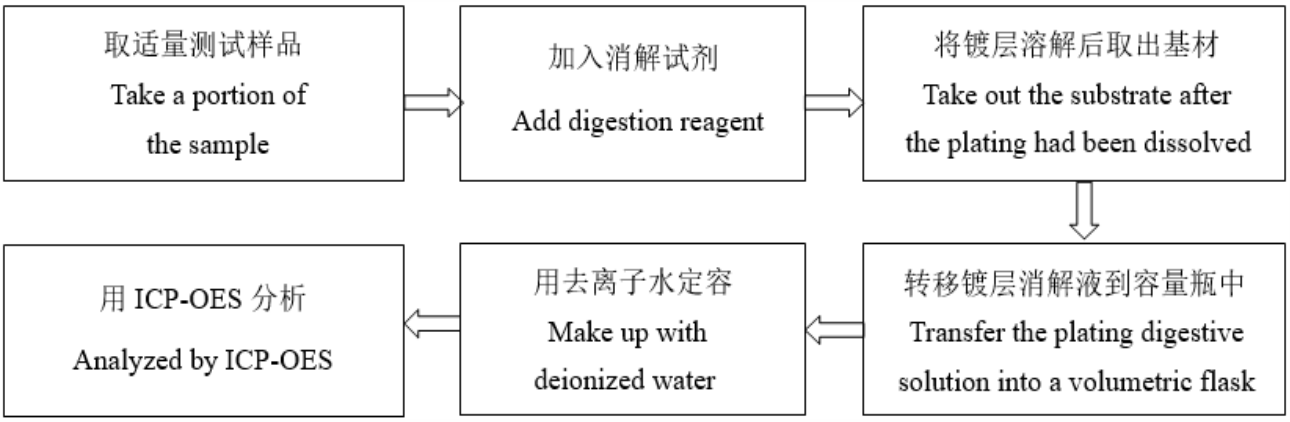
-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm²

-▼The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10 μg/cm². The coating is considered a non-Cr(VI) based coating. 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.

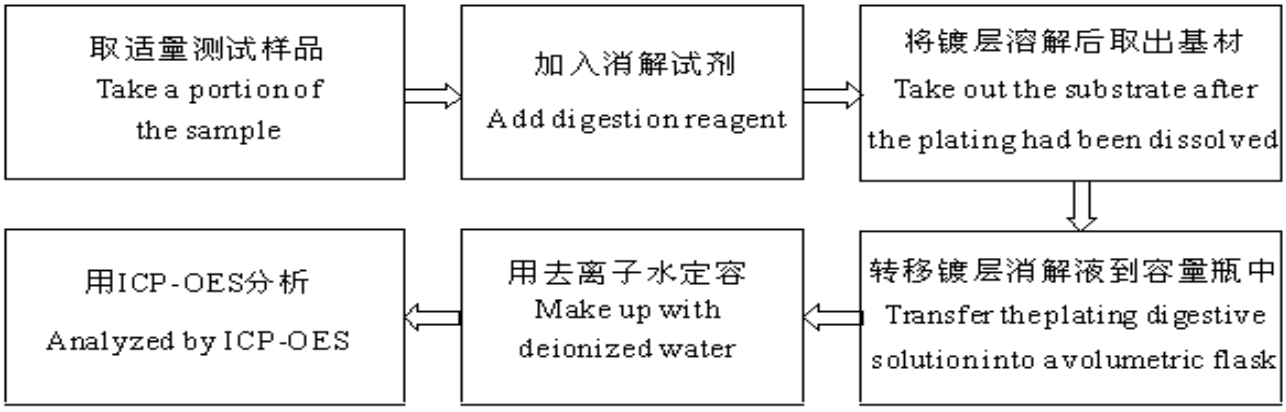
检测报告
Test Report

检测流程 Test Process

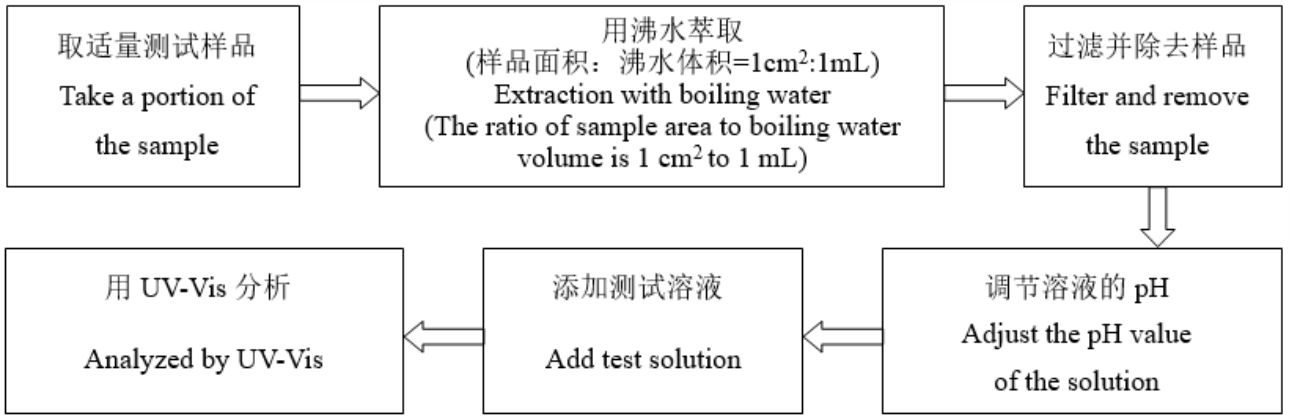
1. 铅(Pb)， 镉(Cd)
   Lead (Pb), Cadmium (Cd)



2. 汞(Hg)
   Mercury (Hg)

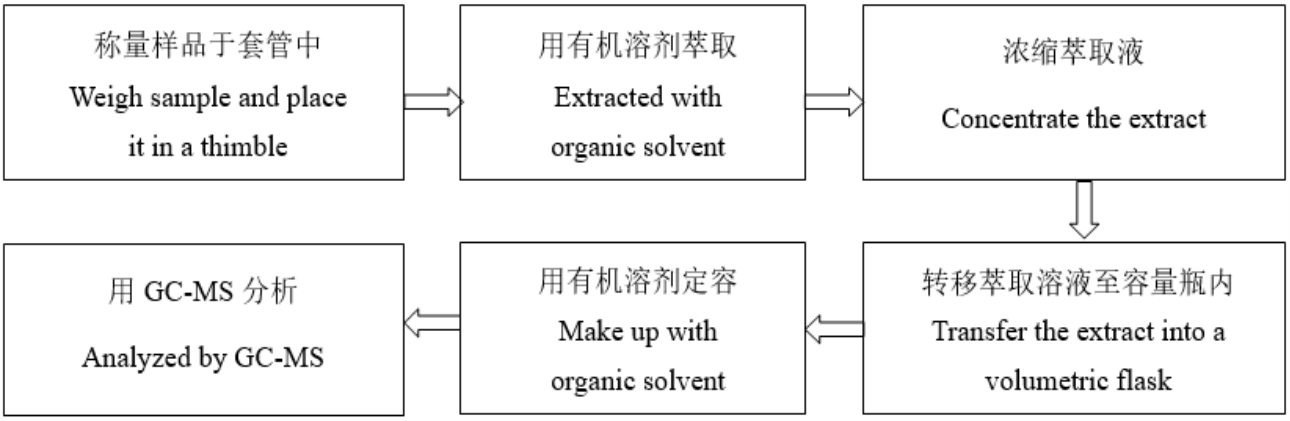


3. 六价铬(Cr(VI))
   Hexavalent Chromium (Cr(VI))



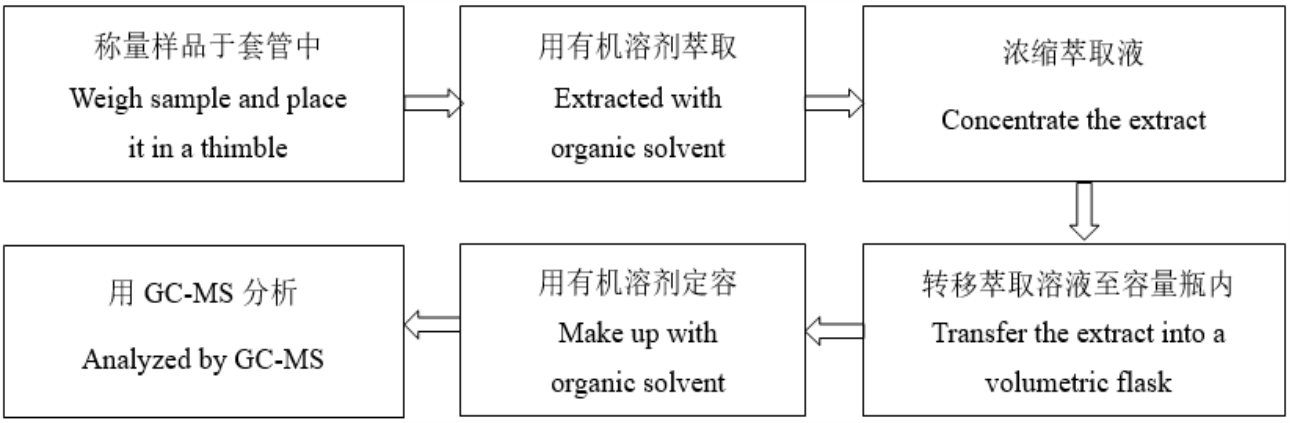
4. 多溴联苯(PBBs)， 多溴二苯醚(PBDEs)

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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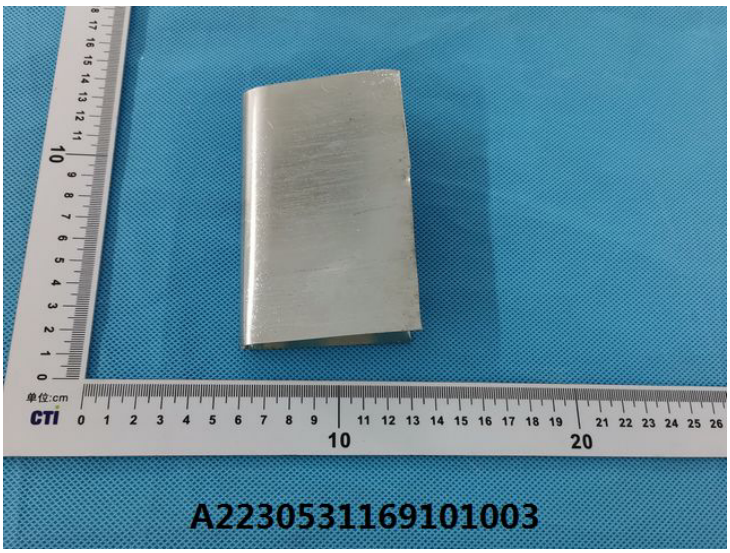
Test Report

样品图片
Photo(s) of the sample(s)



声明Statement：

1. 检测报告无批准人签字、“专用章”及报告骑缝章无效；
   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 ***

Test Report

No.: SZXPC24000425701 **Date:** Mar 05, 2024

Client Name: SHEN ZHEN SHUN YI FENG INDUSTRIAL CO, LTD

Client Address: 2ND FLOOR, BLOCK A, NO.183 CHUANGYE 6TH ROAD,JIANGBIAN FIRST INDUSTRIAL ZONE,SONGGANGSTREET,BAOAN DISTRICT,SHENZHEN CITY

Sample Name: Bright tin products

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

SGS Job No.: SZPC2402000815

Sample Receiving Date: Feb 28, 2024

Testing Period: Feb 28, 2024 ~ Mar 05, 2024

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 (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
Element(s)	See Results

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

Fay Yuan
Approved Signatory

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	001	SZX24-0004257-0001.C001	Silvery plated metal

Remarks:

(1) 1 mg/kg = 1 ppm = 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 (PBB), Polybrominated diphenyl ethers (PBDE), 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 62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analysis was performed by ICP-OES/AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	001
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	0.10	ND
Polybromobiphenyl (PBB)	1000	mg/kg	-	ND
Monobrominated biphenyl (MonoBB)	-	mg/kg	5	ND
Dibrominated biphenyl (DiBB)	-	mg/kg	5	ND
Tribrominated biphenyl (TriBB)	-	mg/kg	5	ND
Tetrabrominated biphenyl (TetraBB)	-	mg/kg	5	ND
Pentabrominated biphenyl (PentaBB)	-	mg/kg	5	ND
Hexabrominated biphenyl (HexaBB)	-	mg/kg	5	ND
Heptabrominated biphenyl (HeptaBB)	-	mg/kg	5	ND
Octabrominated biphenyl (OctaBB)	-	mg/kg	5	ND
Nonabrominated biphenyl (NonaBB)	-	mg/kg	5	ND
Decabrominated biphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDE)	1000	mg/kg	-	ND
Monobrominated diphenyl ether (MonoBDE)	-	mg/kg	5	ND
Dibrominated diphenyl ether (DiBDE)	-	mg/kg	5	ND
Tribrominated diphenyl ether (TriBDE)	-	mg/kg	5	ND
Tetrabrominated diphenyl ether (TetraBDE)	-	mg/kg	5	ND
Pentabrominated diphenyl ether (PentaBDE)	-	mg/kg	5	ND
Hexabrominated diphenyl ether (HexaBDE)	-	mg/kg	5	ND
Heptabrominated diphenyl ether (HeptaBDE)	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit(s)	MDL	001
Octabrominated diphenyl ether (OctaBDE)	-	mg/kg	5	ND
Nonabrominated diphenyl ether (NonaBDE)	-	mg/kg	5	ND
Decabrominated diphenyl ether (DecaBDE)	-	mg/kg	5	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND
Dibutyl Phthalate(DBP)	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.

(3) ▼ =
a. The sample is positive for Cr(VI) if the Cr(VI)concentration is greater than 0.13 μg/cm^2. The sample coating is considered to contain Cr(VI).
b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 μg/cm^2). The coating is considered a non-Cr(VI) based coating.
c. The result between 0.10 μg/cm^2 and 0.13 μg/cm^2 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 3050B:1996, analysis was performed by ICP-OES/AAS.

Test Item(s)	Unit(s)	MDL	001
Beryllium(Be)	mg/kg	5	ND

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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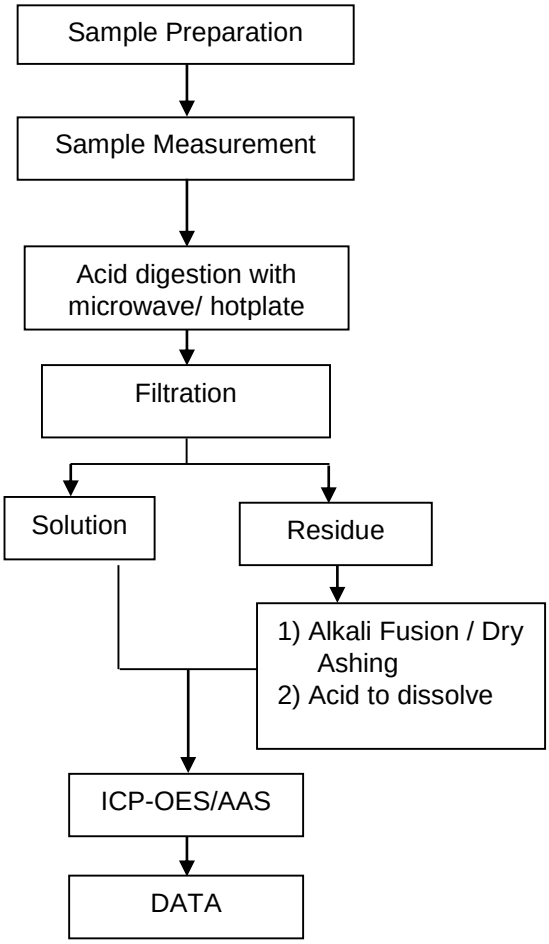
Elements Testing Flow Chart

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



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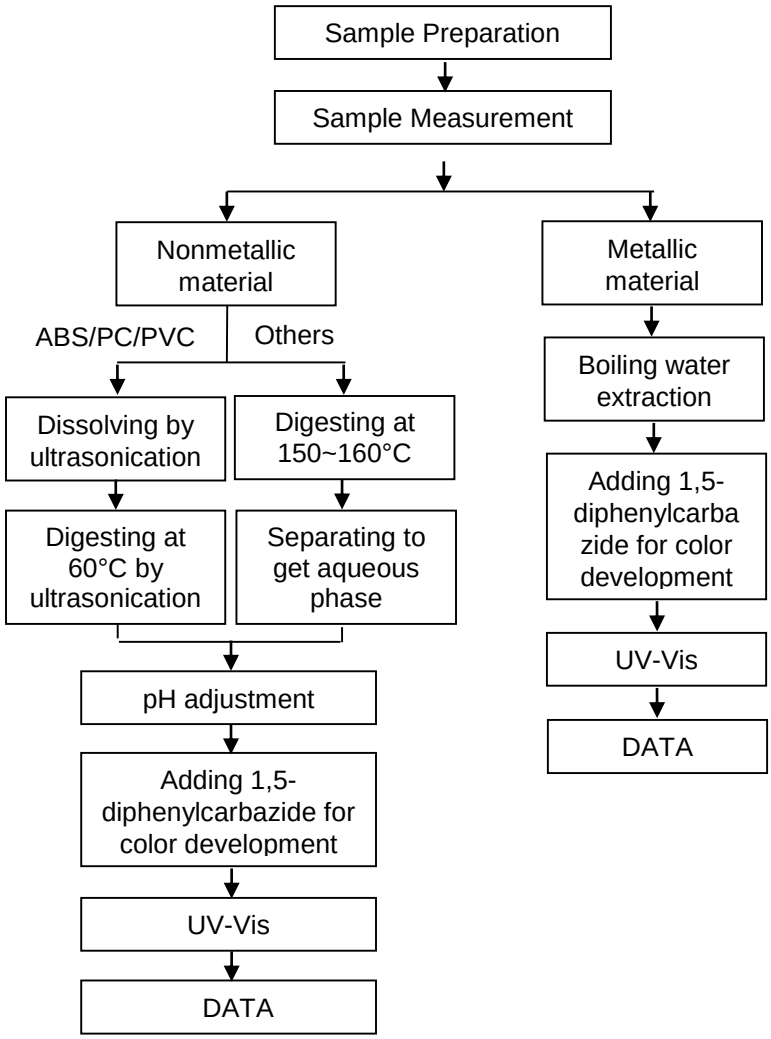
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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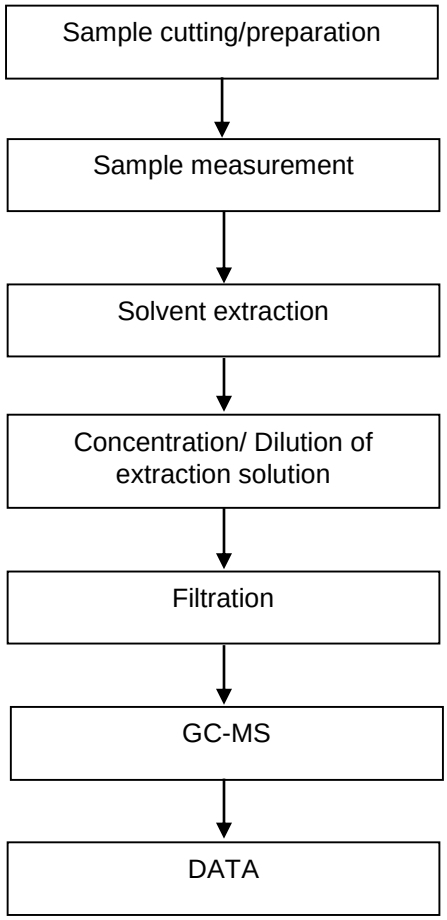
PBB/PBDE Testing Flow Chart



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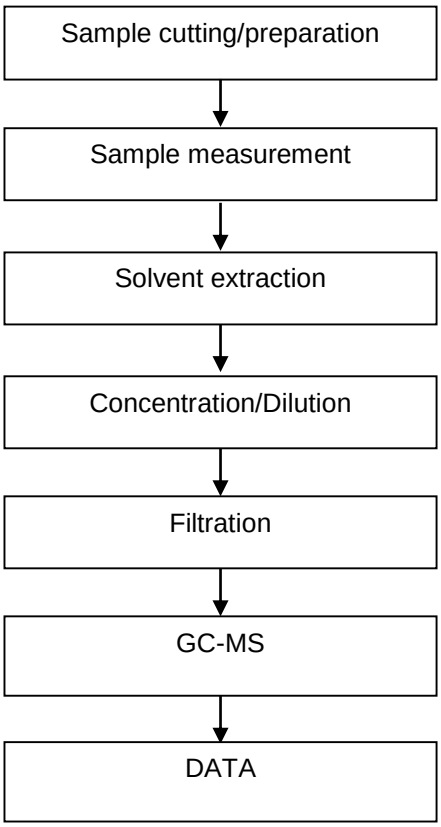
Phthalates Testing Flow Chart



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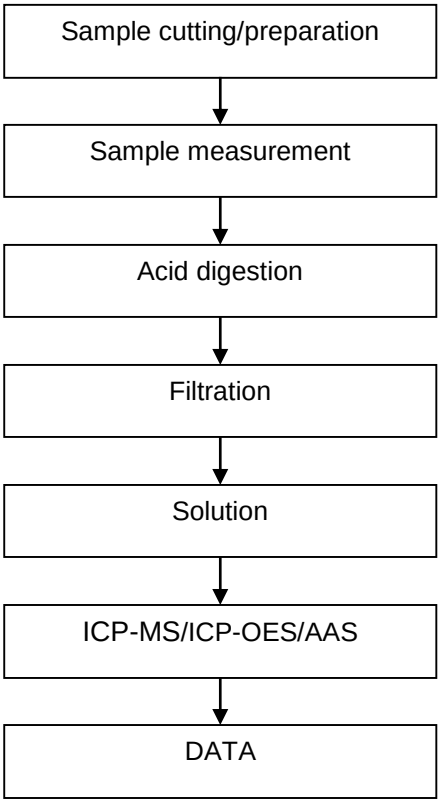

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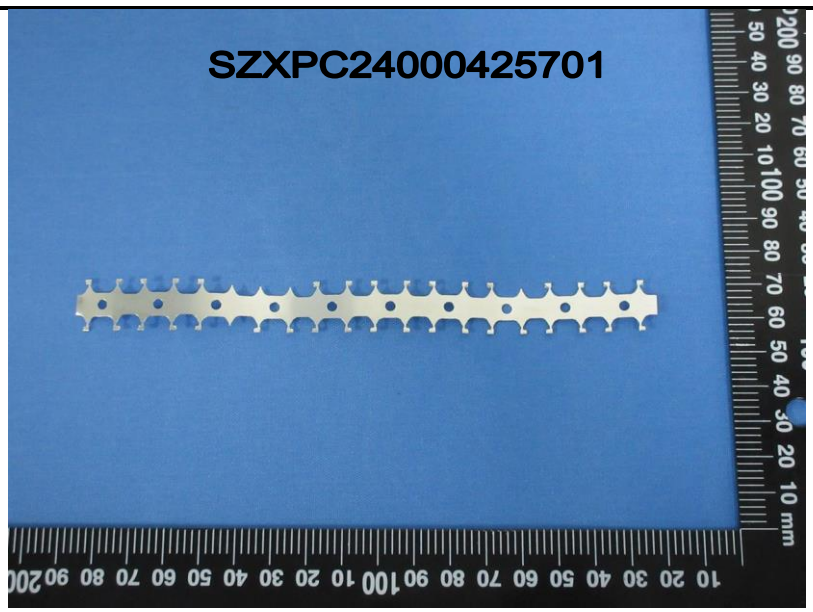

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