



台灣安潔電子股份有限公司
Taiwan Anjie Electronics Co., Ltd

承認書

APPROVAL SHEET

Customer: 仲琦

Customer Model No.: 393000029498

Part No.: AJWF2J-B0001

Product Description: Antenna Internal WiFi 5G 1.37/250mm(Black)IPEX_I
Low Loss Cable

Issue Date: 20220223

REV.: A

客戶承認用印	安潔承認用印

核准	審核	承辦
		Anders

Taiwan Anjie Electronics Co., Ltd

台灣安潔電子股份有限公司

ADD: 1F,No.236,Sec.3,Huanbei Rd.,Jubei City,Hsinchu County,30265,Taiwan

地址:新竹線竹北市環北路三段236號1樓

TEL: 886-3-5543399 FAX:886-3-5543062

電話:886-3-5543399 傳真:886-3-5543062



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- Electrical test
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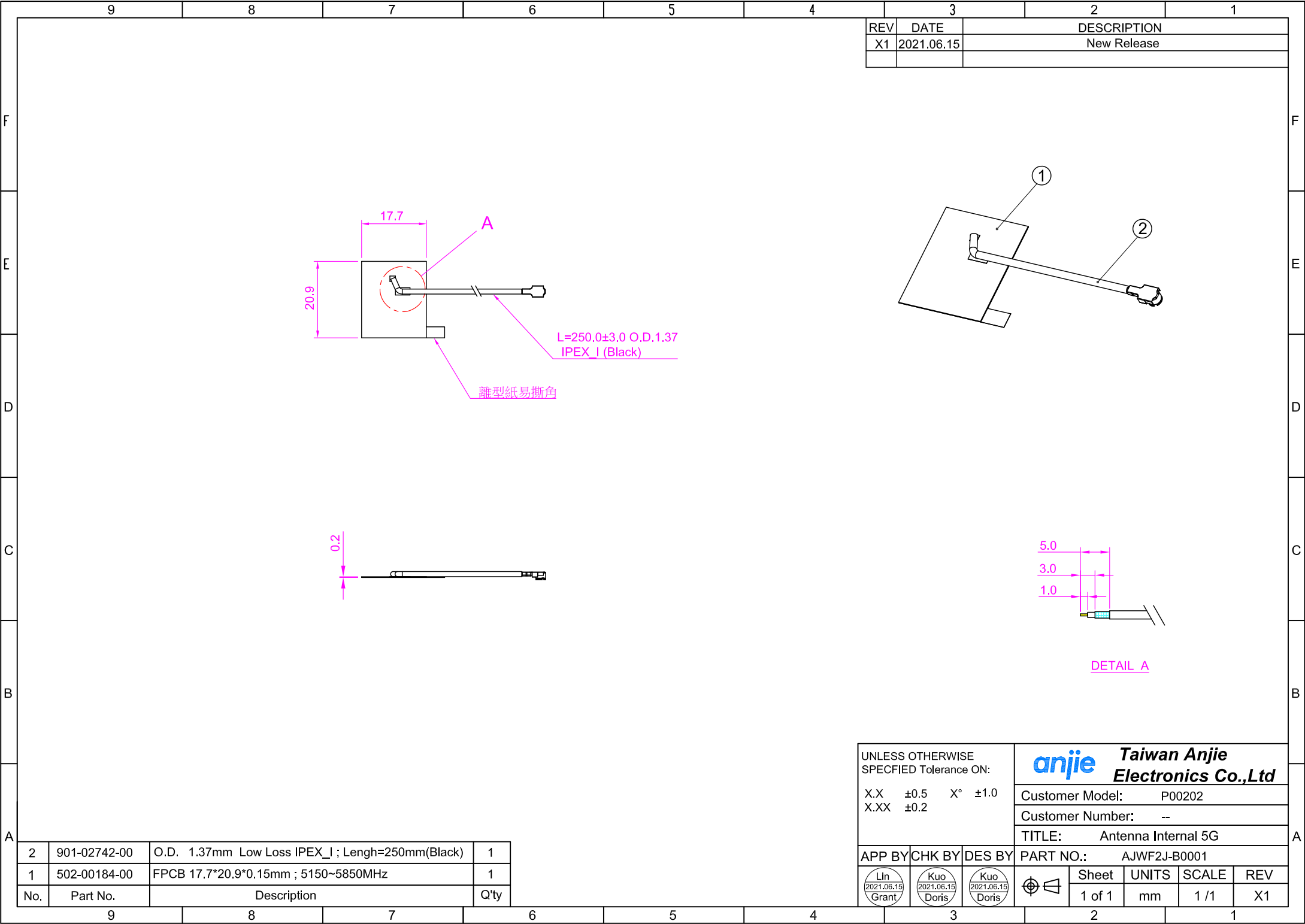
3. Material Certifications

- Antenna
 - Connector
-



台灣安潔電子股份有限公司
Taiwan Anjie Electronics Co., Ltd

SPECIFICATION	
Frequency Range	5150~5850MHz
Impedance	50Ω
V.S.W.R	5150~5850MHz≤2.5
Radiation	Omni
Gain	5150~5850MHz ≤4.65 dBi
Polarization	Vertical
Mechanical Properties	
Connector	I-PEX_I



REV	DATE	DESCRIPTION
X1	2021.06.15	New Release

2	901-02742-00	O.D. 1.37mm Low Loss IPEX_I ; Lengh=250mm(Black)	1
1	502-00184-00	FPCB 17.7*20.9*0.15mm ; 5150~5850MHz	1
No.	Part No.	Description	Q'ty

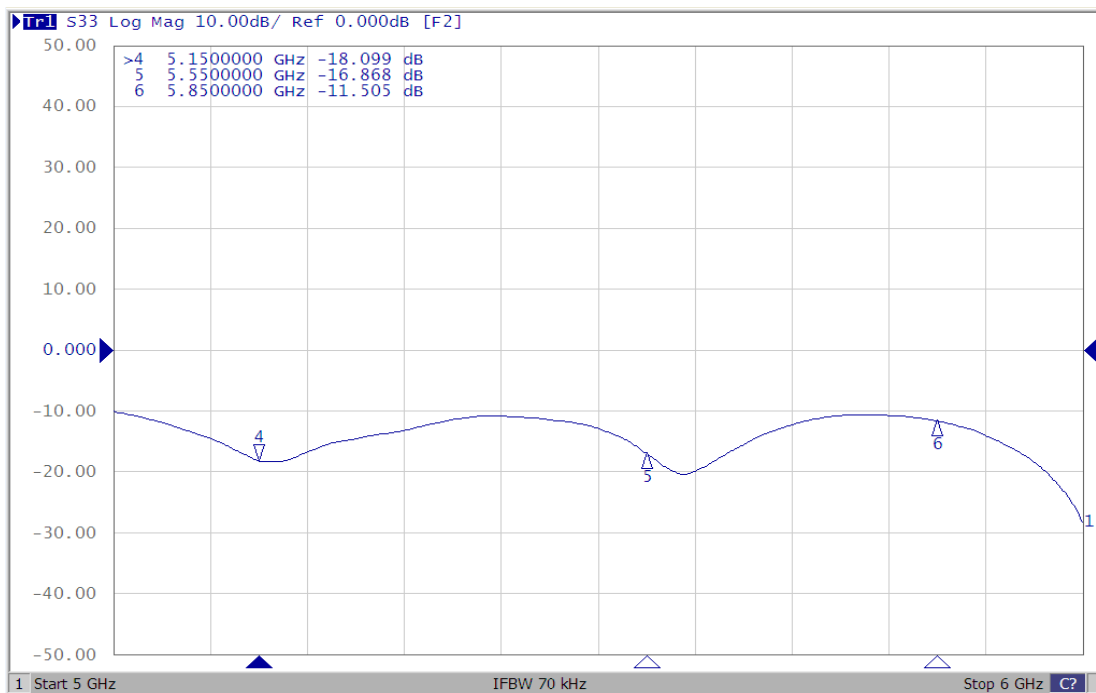
UNLESS OTHERWISE SPECIFIED Tolerance ON: X.X ±0.5 X° ±1.0 X.XX ±0.2			anjie Taiwan Anjie Electronics Co.,Ltd				
			Customer Model: P00202				
			Customer Number: --				
			TITLE: Antenna Internal 5G				
APP BY	CHK BY	DES BY	PART NO.: AJWF2J-B0001				
Lin 2021.06.15 Grant	Kuo 2021.06.15 Doris	Kuo 2021.06.15 Doris		Sheet	UNITS	SCALE	REV
				1 of 1	mm	1 / 1	X1



台灣安潔電子股份有限公司

Taiwan Anjie Electronics Co., Ltd

Electrical test





台灣安潔電子股份有限公司
Taiwan Anjie Electronics Co., Ltd

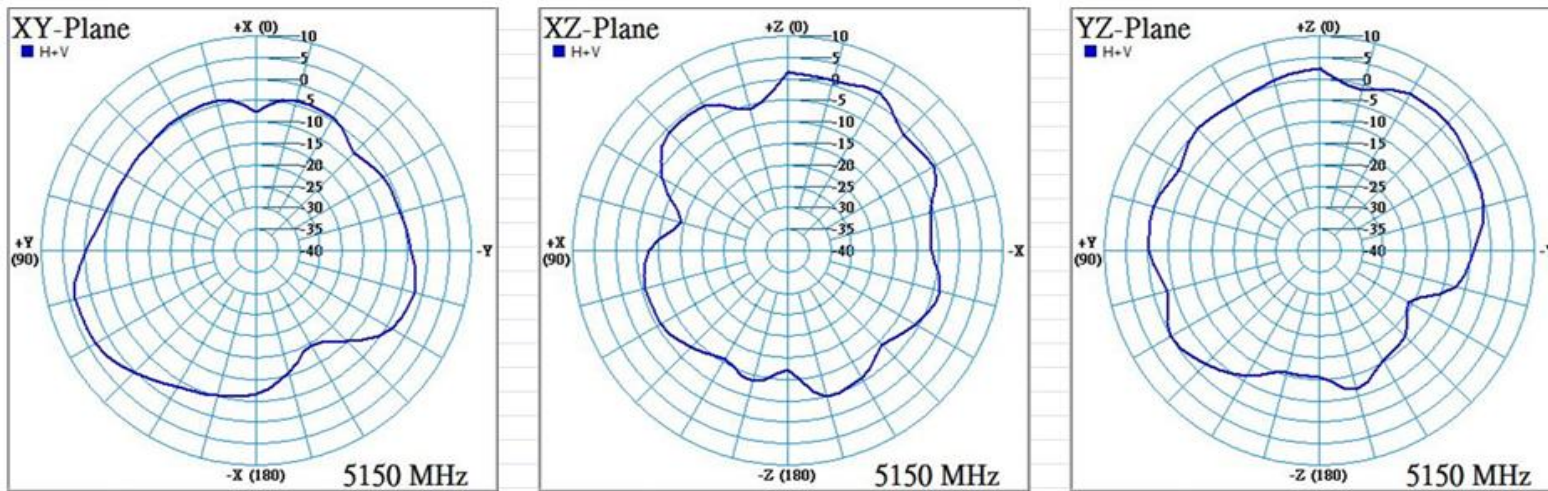
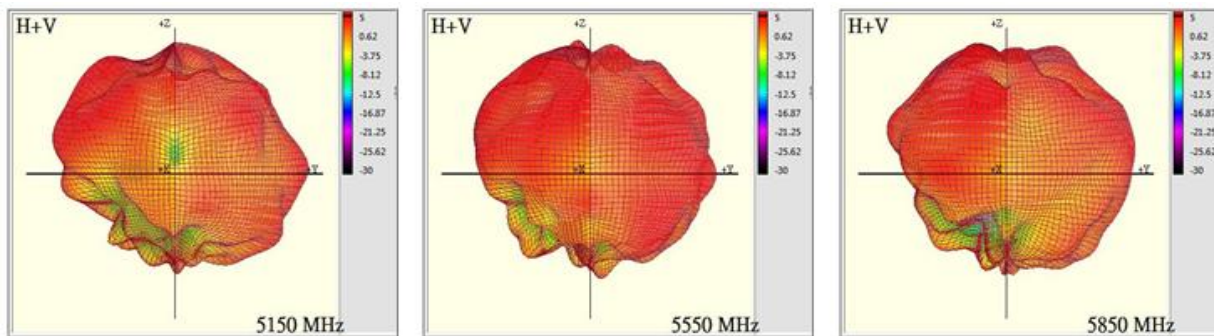
Antenna Gain and Efficiency

Frequency(MHz)	5150	5250	5350	5450	5550	5650	5750	5850
Gain (dBi)	3.51	2.67	2.41	2.34	3.06	2.75	4.65	4.05
Directivity (dBi)	5.85	5.08	4.94	4.86	4.82	5.71	6.78	5.99
Efficiency (dB)	-2.34	-2.41	-2.53	-2.52	-1.76	-2.95	-2.13	-1.94
Efficiency (%)	58.35	57.36	55.87	55.99	66.68	50.67	61.27	63.94



台灣安潔電子股份有限公司
Taiwan Anjie Electronics Co., Ltd

Antenna 3D & 2D Pattern



ANTENNA SPECIFICATION

P/N : AJWF2J-B0001

ApplicationDate:2022/02/11
Editor:

Rev: R:A1
Page 9 of 12

6. 产品实物照片



CPK TESTING

客戶	仲琦	料號:	393000029498(AJWF2J-B0001)	填表人:	Anders	日期:	2022.03.03
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5.GHz Return Loss (貼機殼內)

規格中心	14.00
上限值	15.00
下限值	13.00

樣本數	30
最小值	13.66
最大值	14.36

序號	1	13.96
	2	13.95
	3	14.16
	4	14.18
	5	13.69
	6	14.03
	7	14.36
	8	13.99
	9	13.73
	10	14.28
	11	14.24
	12	14.01
	13	14.35
	14	14.08
	15	13.88
	16	13.98
	17	13.99
	18	13.76
	19	14.29
	20	14.33
	21	14.27
	22	14.36
	23	13.99
	24	13.83
	25	14.12
	26	14.00
	27	14.36
	28	13.66
	29	14.17
	30	14.03
	31	
	32	

X-Bar	14.07	樣本平均值
Range	0.7	樣本波動範圍
Std. Dev	0.209530787	樣本標準偏差
Ca	0.07	准确度 當[Ca] < 0.125, 則為A級
Cp	1.59	精密度 當Cp > 1.33時, 制程良好
Cpk	1.48	精确度 當Cpk > 1.33時, 制程良好



Test Report

No.: ETR21803361M01

Date: 02-Sep-2021

Page: 1 of 4

JX NIPPON MINING & METALS CORPORATION
3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

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

Sample Submitted By : JX NIPPON MINING & METALS CORPORATION
Sample Name : COPPER ALLOY
Style/Item No. : C5210

Sample Receiving Date : 16-Aug-2021
Testing Period : 16-Aug-2021 to 02-Sep-2021

Test Requested : As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI) contents in the submitted sample(s).

Test Results : Please refer to following pages.

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



PIN CODE: 9B2F6465

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Test Report

No.: ETR21803361M01

Date: 02-Sep-2021

Page: 2 of 4

JX NIPPON MINING & METALS CORPORATION

3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

Test Part Description

No.1 : COPPER COLORED METAL

Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Cadmium (Cd) (CAS No.: 7440-43-9)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Lead (Pb) (CAS No.: 7439-92-1)		mg/kg	2	18.4
Mercury (Hg) (CAS No.: 7439-97-6)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	µg/cm ²	0.1	n.d.

Note :

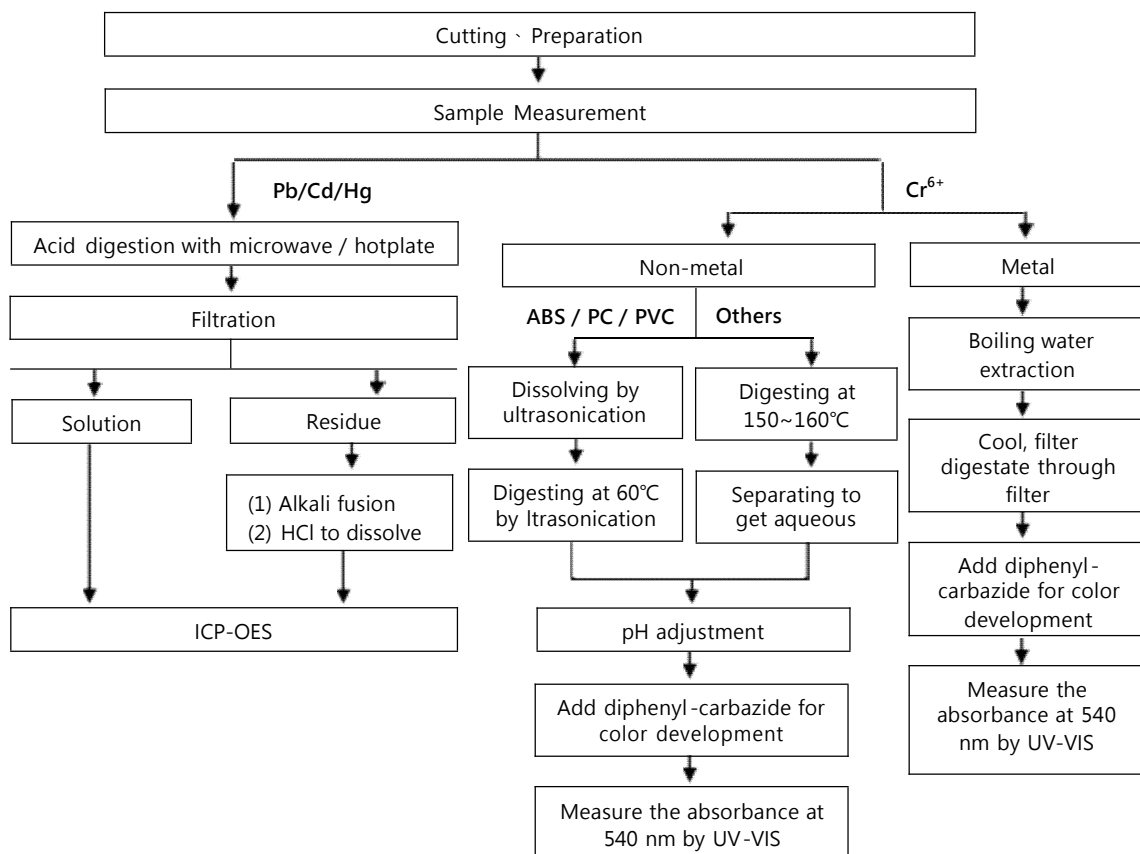
1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. (#2) =
 - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).
 - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (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.
5. This is the additional test report of ETR21803361.

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JX NIPPON MINING & METALS CORPORATION
3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr^{6+} test method excluded)



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Test Report

No.: ETR21803361M01

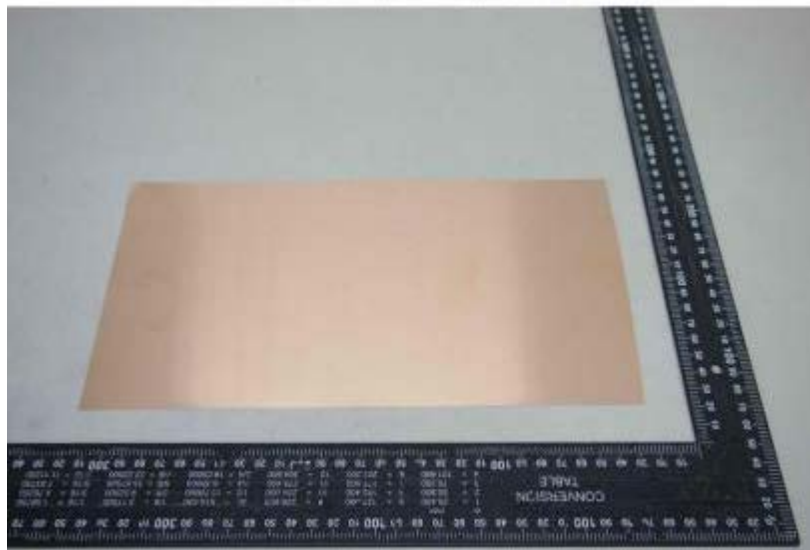
Date: 02-Sep-2021

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JX NIPPON MINING & METALS CORPORATION
3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

ETR21803361



** End of Report **

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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司

新北市五股區新北產業園區五權七路 25 號 t+886(02)2299 3939 f+886(02)2299 3237
25, Wu Chyuan 7th Road, New Taipei Industrial Park, Wu Ku District, New Taipei City, Taiwan



Test Report

No: 10522551(1) R1

Date: 07-Oct-2021

Page 1 of 5

I-Pex Singapore Pte Ltd
55 Yishun Industrial Park A Singapore 768728

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.: 10522551(1) DATED 09-Sep-2021

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

Sample Name : D line Au

Sample Receiving Date : 01-Sep-2021

Testing Period : 01-Sep-2021 to 09-Sep-2021

Test Requested : In accordance with the RoHS Directive 2011/65/EU Annex II.

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

Signed for and on behalf of
SGS Testing & Control Services Singapore Pte Ltd

Y.C. Tham
Technical Manager, Multi-Lab



Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Test Report

No: 10522551(1) R1

Date: 07-Oct-2021

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Test Result(s):

Sample Description : Gold coloured flakes

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC62321-5 :2013. Analysis was performed by ICP/OES	n.d.	2	100
Lead (Pb)	mg/kg	With reference to IEC62321-5 :2013. Analysis was performed by ICP/OES	17.5	2	1000
Mercury (Hg)	mg/kg	With reference to IEC62321-4 :2013+A1:2017. Analysis was performed by ICP/OES	n.d.	2	1000
Hexavalent Chromium (Cr(VI)) #	µg/cm2	With reference to IEC62321-7-1 :2015. Analysis was performed by UV-Vis Spectrometry.	n.d.	0.1	-

Note:

- (1) mg/kg = ppm ; 0.1wt% = 1000ppm
- (2) n.d.= Not Detected
- (3) MDL = Method Detection Limit
- (4) “-“ = Not regulated
- (5) * : Exceeds limit
- (6) # = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13µg/cm2.
The sample coating is considered to contain Cr(VI)
b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10µg/cm2.
The coating is considered a non-Cr(VI) based coating
c. The result between 0.10µg/cm2 and 0.13µg/cm2 is considered to be inconclusive
- unavoidable coating variations may influence the determination

Remarks: Sample received was totally dissolved by preconditioning methods.

Lab Analyst(s): AQ and Joela

Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Sample photo:

Sample Description : Gold coloured flakes

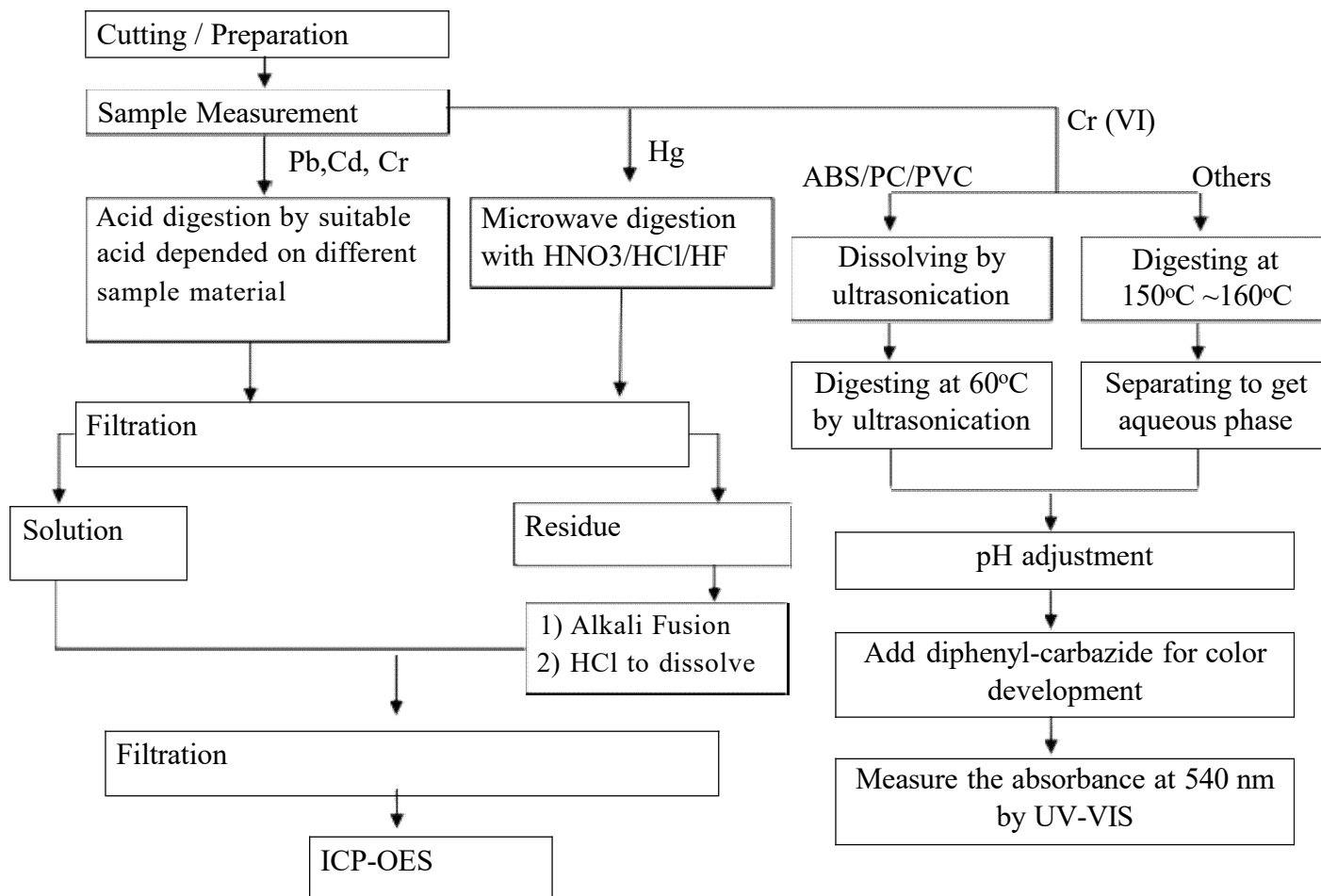
SGS authenticate the photo on original report only



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Process Flow of IEC 62321 (Pb, Cd, Hg, Cr & Cr(VI))

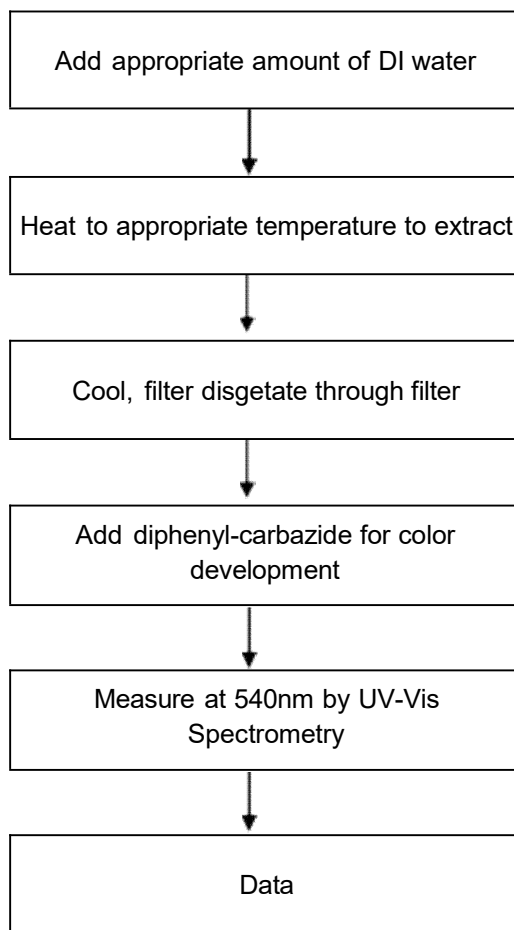


Remarks: Sample received was totally dissolved by preconditioning method. (CrVI method excluded)

Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Process Flow of Cr(VI) by Boiling Water Extraction (IEC62321)



End of Report

Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Test Report

No: 10522551(2) R1

Date: 07-Oct-2021

Page 1 of 5

I-Pex Singapore Pte Ltd
55 Yishun Industrial Park A Singapore 768728

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.: 10522551(2) DATED 09-Sep-2021

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

Sample Name : D line Ni

Sample Receiving Date : 01-Sep-2021

Testing Period : 01-Sep-2021 to 09-Sep-2021

Test Requested : In accordance with the RoHS Directive 2011/65/EU Annex II.

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

Signed for and on behalf of
SGS Testing & Control Services Singapore Pte Ltd



Y.C. Tham
Technical Manager, Multi-Lab



Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Test Report

No: 10522551(2) R1

Date: 07-Oct-2021

Page 2 of 5

Test Result(s):

Sample Description : Silver coloured flakes

Test Item(s):	Unit	Method	Results	MDL	RoHS Limit
Cadmium(Cd)	mg/kg	With reference to IEC62321-5 :2013. Analysis was performed by ICP/OES	n.d.	2	100
Lead (Pb)	mg/kg	With reference to IEC62321-5 :2013. Analysis was performed by ICP/OES	n.d.	2	1000
Mercury (Hg)	mg/kg	With reference to IEC62321-4 :2013+A1:2017. Analysis was performed by ICP/OES	n.d.	2	1000
Hexavalent Chromium (Cr(VI)) #	µg/cm2	With reference to IEC62321-7-1 :2015. Analysis was performed by UV-Vis Spectrometry.	n.d.	0.1	-

Note:

- (1) mg/kg = ppm ; 0.1wt% = 1000ppm
- (2) n.d.= Not Detected
- (3) MDL = Method Detection Limit
- (4) “-“ = Not regulated
- (5) * : Exceeds limit
- (6) # = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13µg/cm2.
The sample coating is considered to contain Cr(VI)
b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10µg/cm2.
The coating is considered a non-Cr(VI) based coating
c. The result between 0.10µg/cm2 and 0.13µg/cm2 is considered to be inconclusive
- unavoidable coating variations may influence the determination

Remarks: Sample received was totally dissolved by preconditioning methods.

Lab Analyst(s): AQ and Joela

Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Sample photo:

Sample Description : Silver coloured flakes

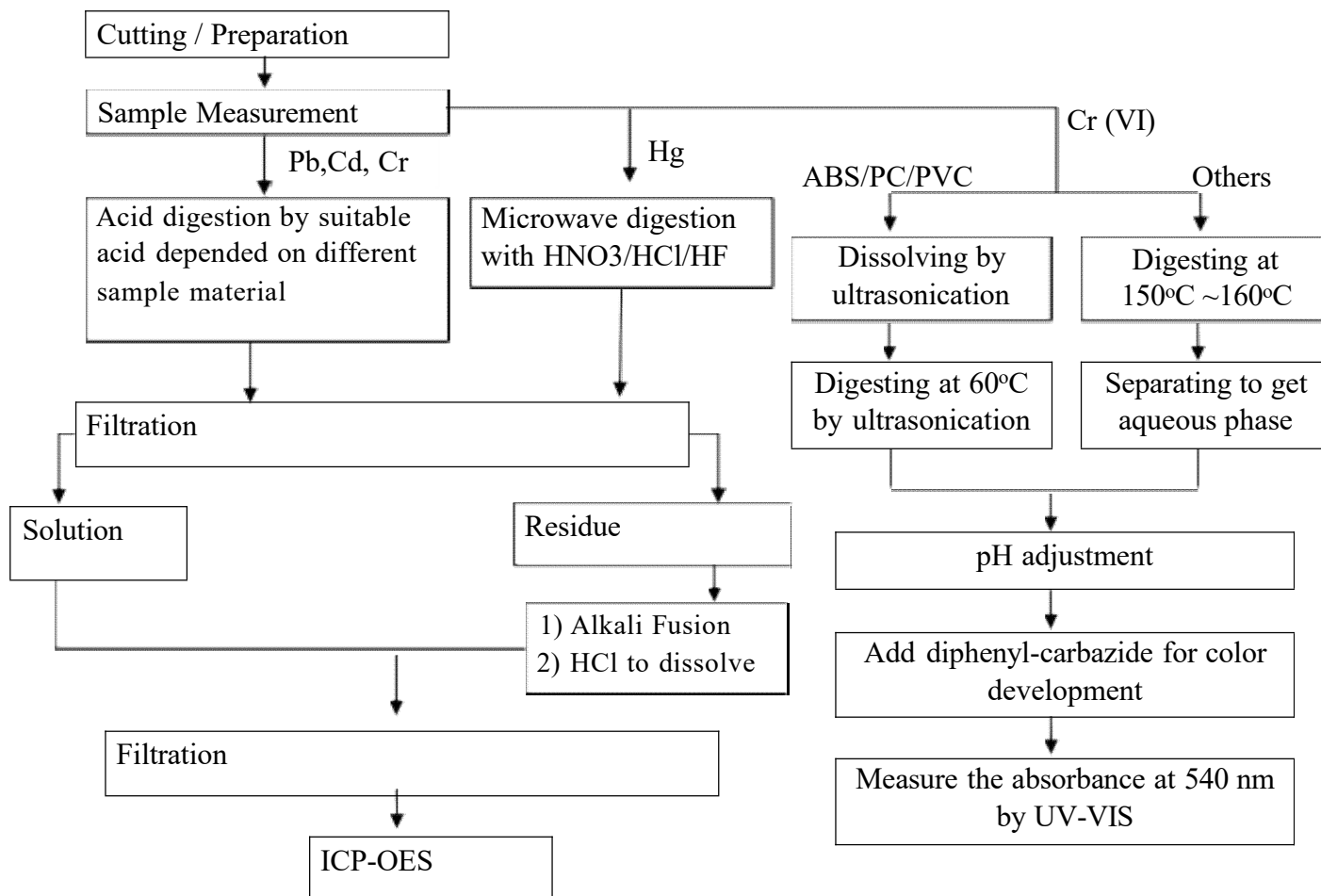
SGS authenticate the photo on original report only



Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Process Flow of IEC 62321 (Pb, Cd, Hg, Cr & Cr(VI))

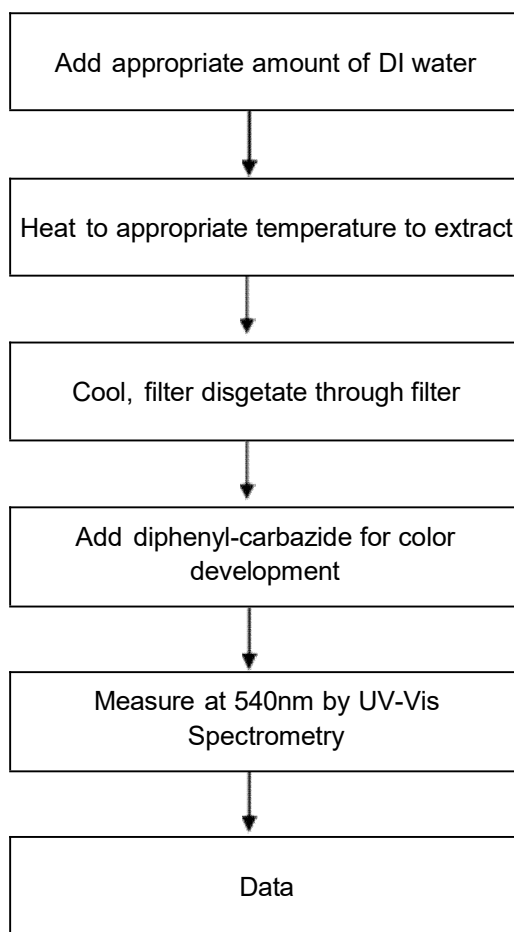


Remarks: Sample received was totally dissolved by preconditioning method. (CrVI method excluded)

Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Process Flow of Cr(VI) by Boiling Water Extraction (IEC62321)



End of Report

Test Location: 30 Boon Lay Way, #02-02, Singapore 609957

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Test Report

No.: ETR21800701

Date: 10-Aug-2021

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I-PEX INC.

1-33-10 MORINO, MACHIDA-CITY, TOKYO 194-0022, JAPAN

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

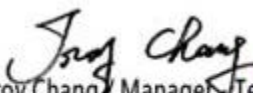
Sample Submitted By : I-PEX INC.
Sample Name : PLASTIC (1844-013-01)
Style/Item No. : DURANEX 310NF

Sample Receiving Date : 04-Aug-2021
Testing Period : 04-Aug-2021 to 10-Aug-2021

Test Requested : (1) 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) Please refer to next pages for the other item(s).

Test Results : Please refer to following pages.

Conclusion : (1) 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.


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



PIN CODE: 53503427

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Test Report

No.: ETR21800701

Date: 10-Aug-2021

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I-PEX INC.

1-33-10 MORINO, MACHIDA-CITY, TOKYO 194-0022, JAPAN

Test Part Description

No.1 : WHITE PLASTIC PELLETS

Test Result(s)

Test Item(s)	Method	Unit	MDL	Result No.1	Limit
Cadmium (Cd) (CAS No.: 7440-43-9)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	100
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Mercury (Hg) (CAS No.: 7439-97-6)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	1000
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.	1000
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.	-
Dibromobiphenyl		mg/kg	5	n.d.	-
Tribromobiphenyl		mg/kg	5	n.d.	-
Tetrabromobiphenyl		mg/kg	5	n.d.	-
Pentabromobiphenyl		mg/kg	5	n.d.	-
Hexabromobiphenyl		mg/kg	5	n.d.	-
Heptabromobiphenyl		mg/kg	5	n.d.	-
Octabromobiphenyl		mg/kg	5	n.d.	-
Nonabromobiphenyl		mg/kg	5	n.d.	-
Decabromobiphenyl		mg/kg	5	n.d.	-
Sum of PBBs		mg/kg	-	n.d.	1000
Monobromodiphenyl ether		mg/kg	5	n.d.	-
Dibromodiphenyl ether		mg/kg	5	n.d.	-
Tribromodiphenyl ether		mg/kg	5	n.d.	-
Tetrabromodiphenyl ether		mg/kg	5	n.d.	-
Pentabromodiphenyl ether		mg/kg	5	n.d.	-
Hexabromodiphenyl ether		mg/kg	5	n.d.	-
Heptabromodiphenyl ether		mg/kg	5	n.d.	-
Octabromodiphenyl ether		mg/kg	5	n.d.	-
Nonabromodiphenyl ether		mg/kg	5	n.d.	-
Decabromodiphenyl ether		mg/kg	5	n.d.	-
Sum of PBDEs		mg/kg	-	n.d.	1000

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I-PEX INC.

1-33-10 MORINO, MACHIDA-CITY, TOKYO 194-0022, JAPAN

Test Item(s)	Method	Unit	MDL	Result	Limit
				No.1	
Butyl benzyl phthalate (BBP) (CAS No.: 85-68-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Dibutyl phthalate (DBP) (CAS No.: 84-74-2)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP) (CAS No.: 117-81-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Diisobutyl phthalate (DIBP) (CAS No.: 84-69-5)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	1000
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	-
Phosphorus (P) (CAS No.: 7723-14-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	28100	-

Note :

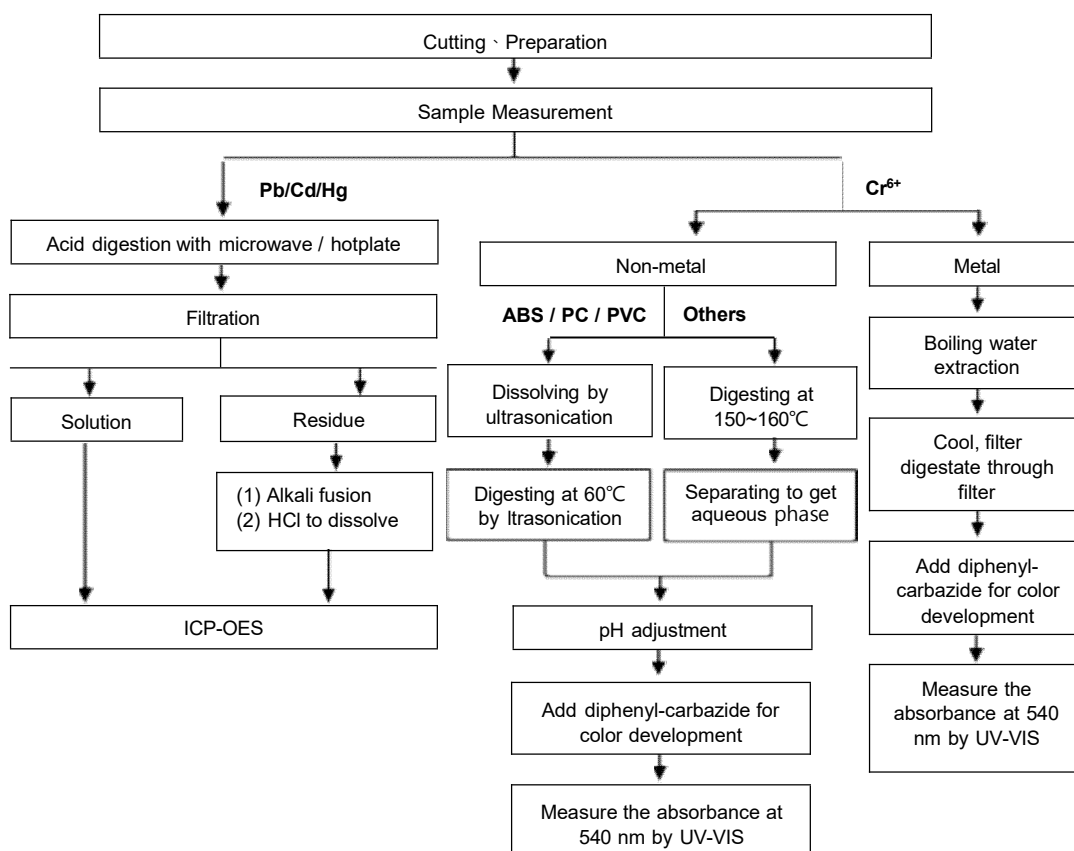
1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated
5. The statement of compliance conformity is based on comparison of testing results and limits.

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Analytical flow chart of Heavy Metal

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

(Cr⁶⁺ test method excluded)



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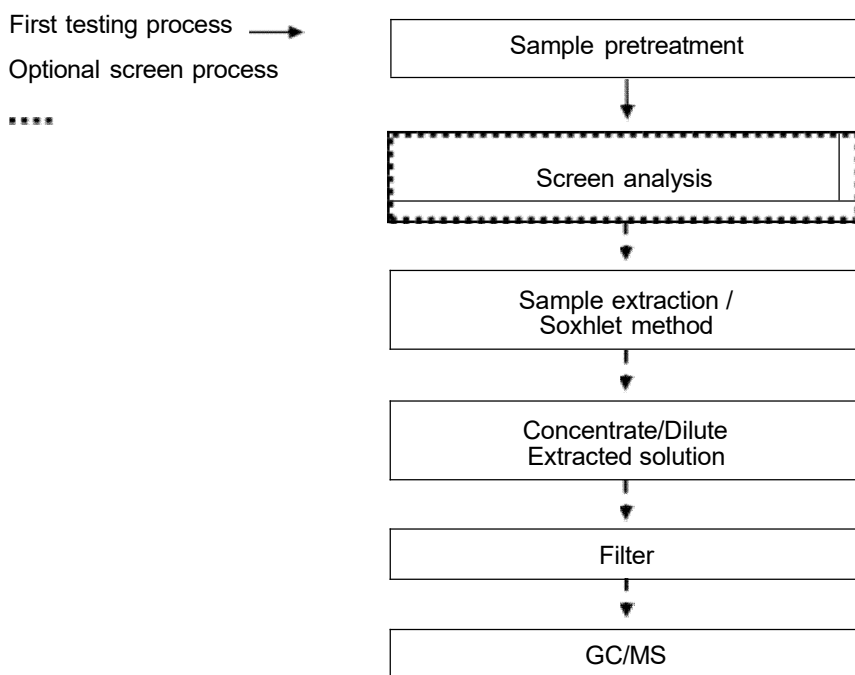
Date: 10-Aug-2021

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I-PEX INC.

1-33-10 MORINO, MACHIDA-CITY, TOKYO 194-0022, JAPAN

Analytical flow chart – PBBs / PBDEs



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Date: 10-Aug-2021

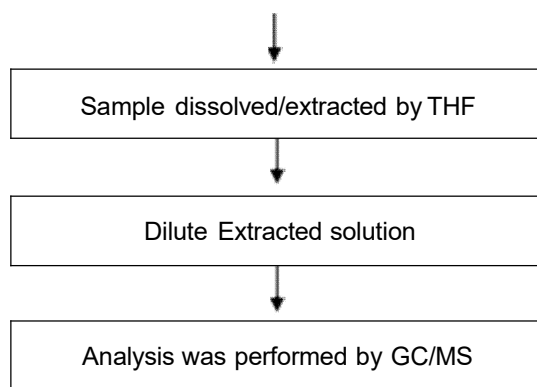
Page: 6 of 9

I-PEX INC.

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Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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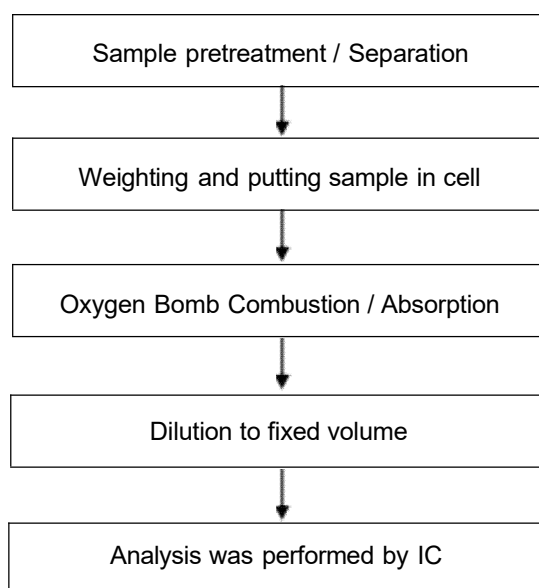
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Analytical flow chart - Halogen



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Test Report

No.: ETR21800701

Date: 10-Aug-2021

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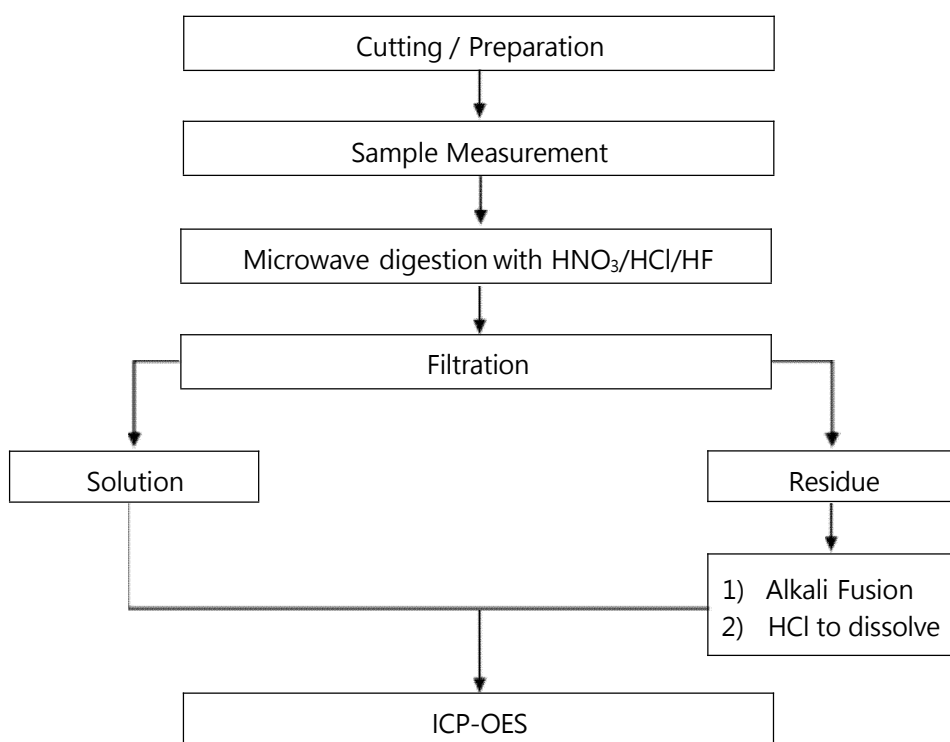
I-PEX INC.

1-33-10 MORINO, MACHIDA-CITY, TOKYO 194-0022, JAPAN

Analytical flow chart of Heavy Metal

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

【Reference method : US EPA 3051A · US EPA 3052】



* US EPA 3051A method does not add HF.

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Test Report

No.: ETR21800701

Date: 10-Aug-2021

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I-PEX INC.

1-33-10 MORINO, MACHIDA-CITY, TOKYO 194-0022, JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *

ETR21800701



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Test Report

No. SHAEC2127051115

Date: 16 Dec 2021

Page 1 of 14

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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Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
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Member of the SGS Group (SGS SA)

Test Report

No. SHAEC2127051115

Date: 16 Dec 2021

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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	Q26
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	Q25
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/cm²	0.10	ND

Notes :

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



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(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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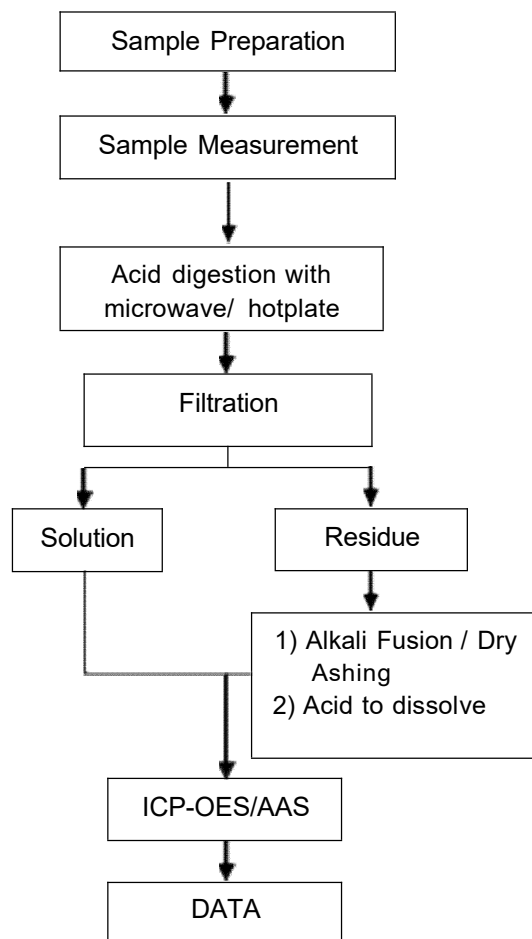
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Elements (IEC62321) Testing Flow Chart

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



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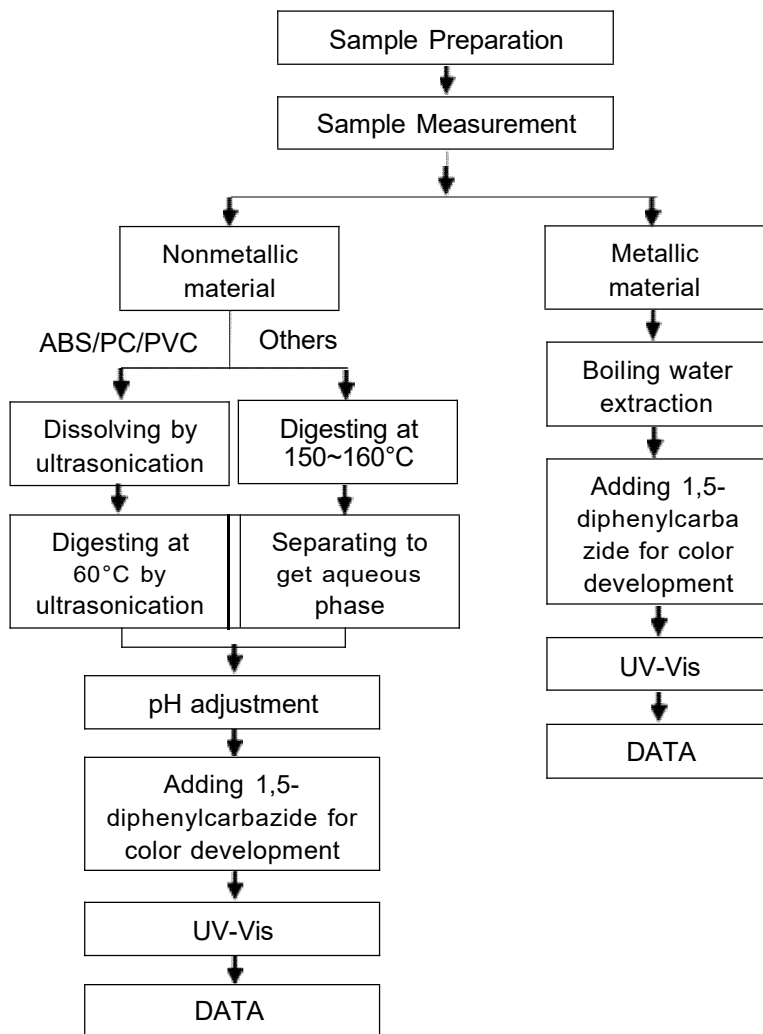
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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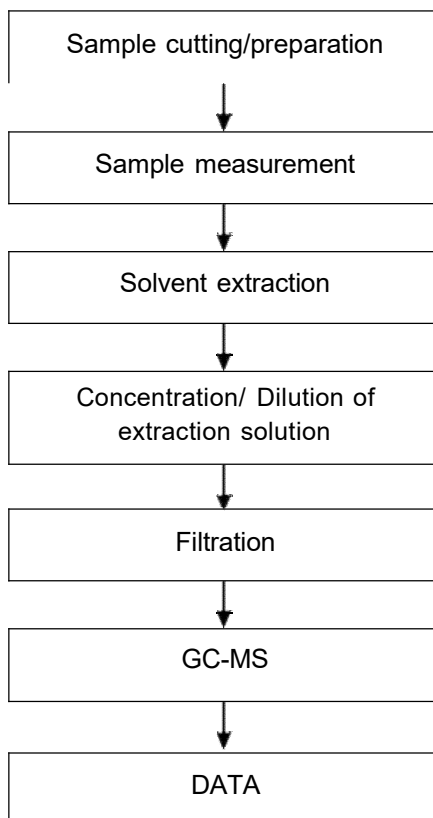
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PBBs/PBDEs Testing Flow Chart



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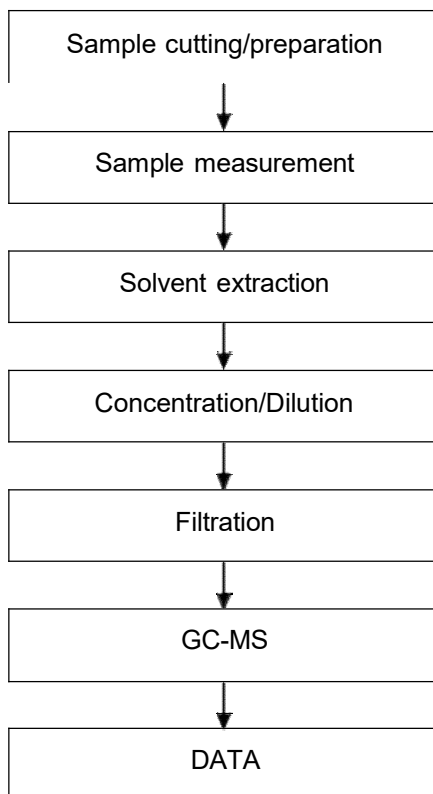
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Phthalates Testing Flow Chart



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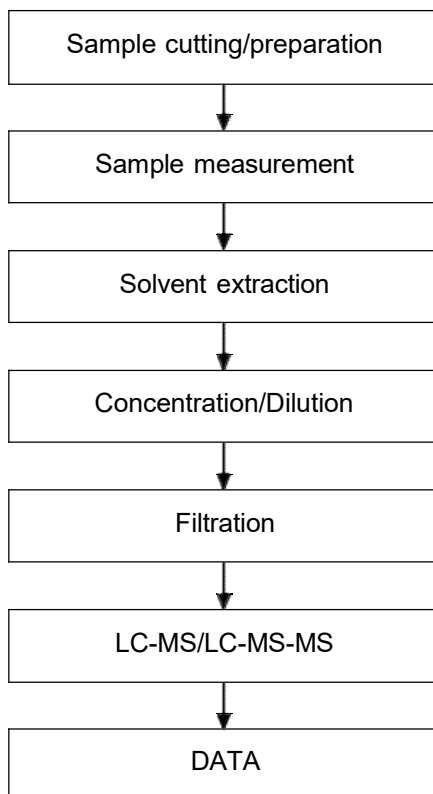
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PFASs/ PFOS/PFOA Testing Flow Chart



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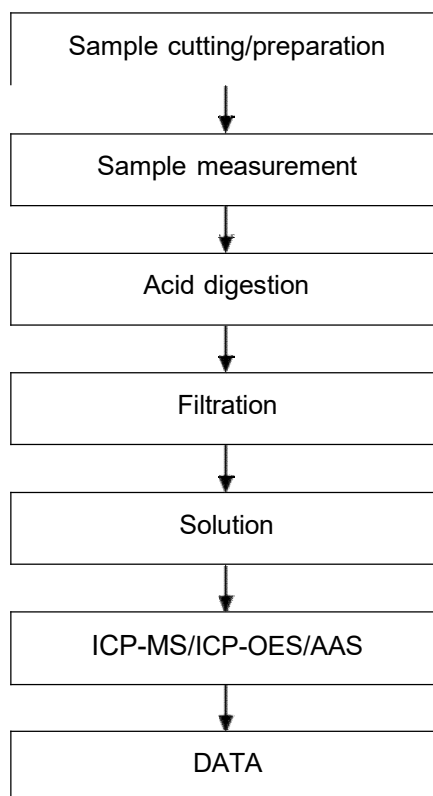
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Elements Testing Flow Chart



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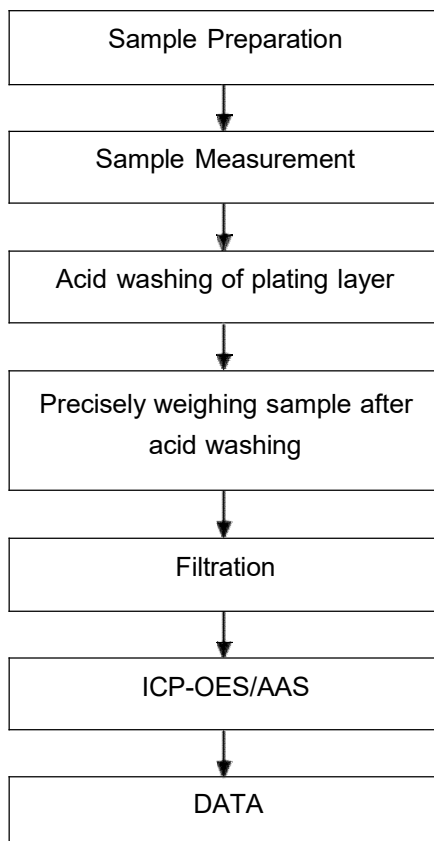
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Plating Pb/Cd/Hg Testing Flow Chart



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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.

Test Item(s)	Limit	Unit	MDL	001
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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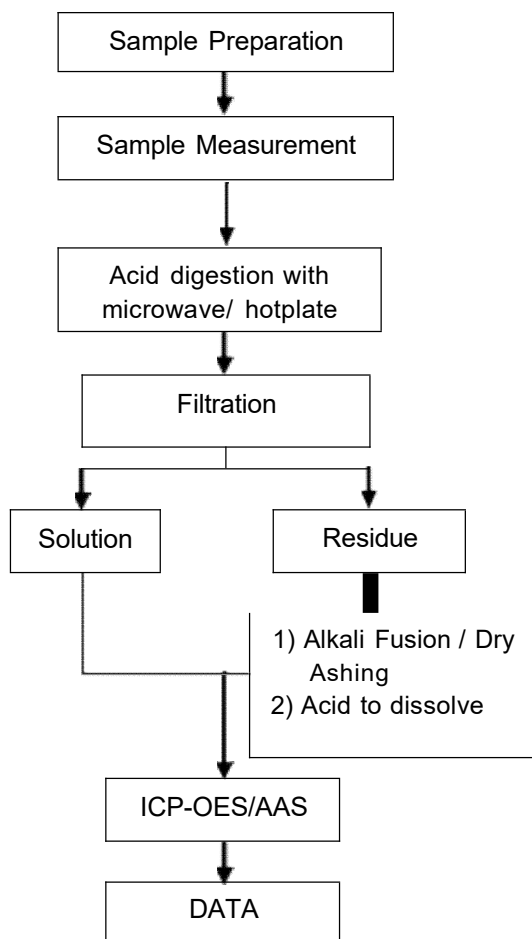
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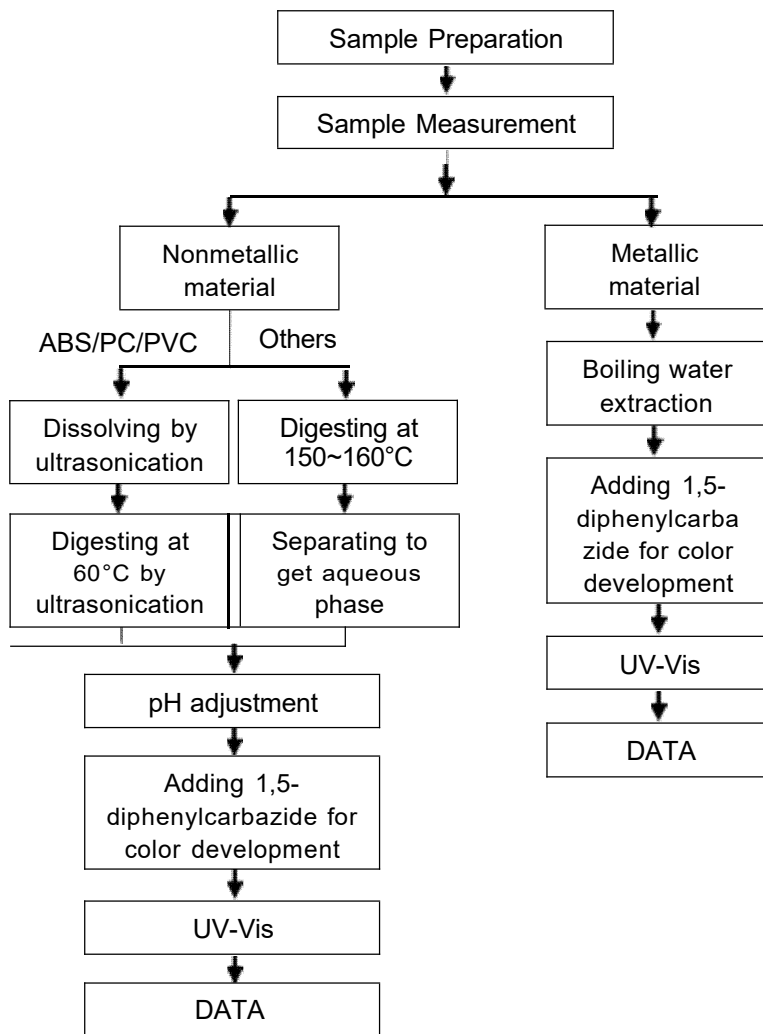
Elements (IEC62321) Testing Flow Chart

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



Test Report

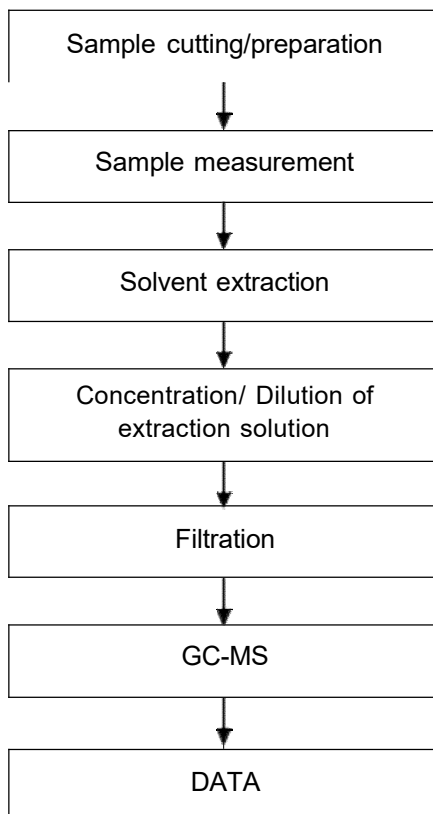
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PBBs/PBDEs Testing Flow Chart

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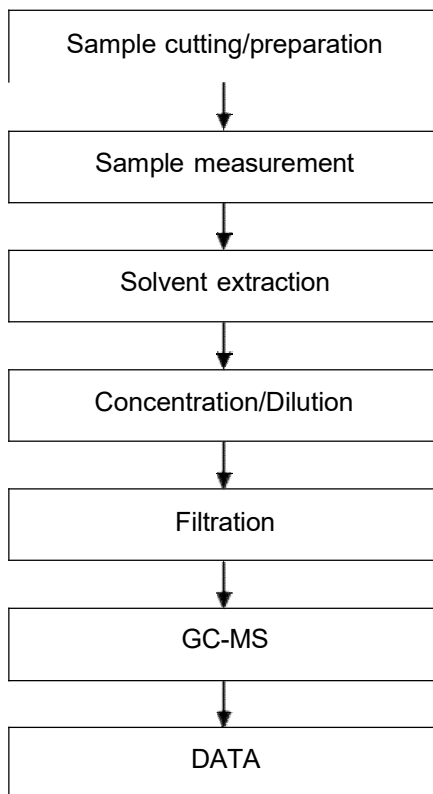
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Phthalates Testing Flow Chart



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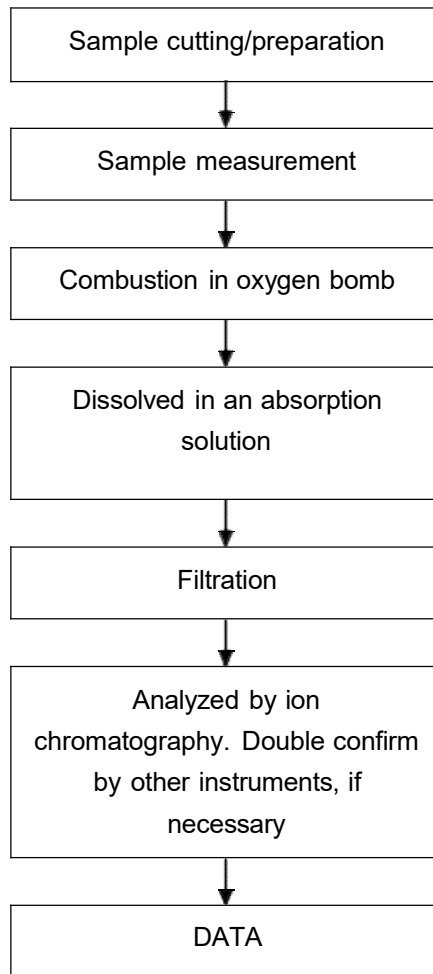
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Halogen Testing (oxygen bomb) Flow Chart

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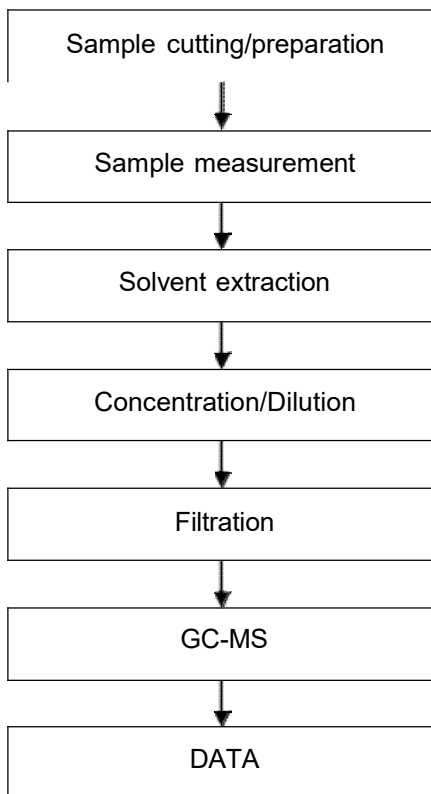
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PAHs Testing Flow Chart

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Test Report

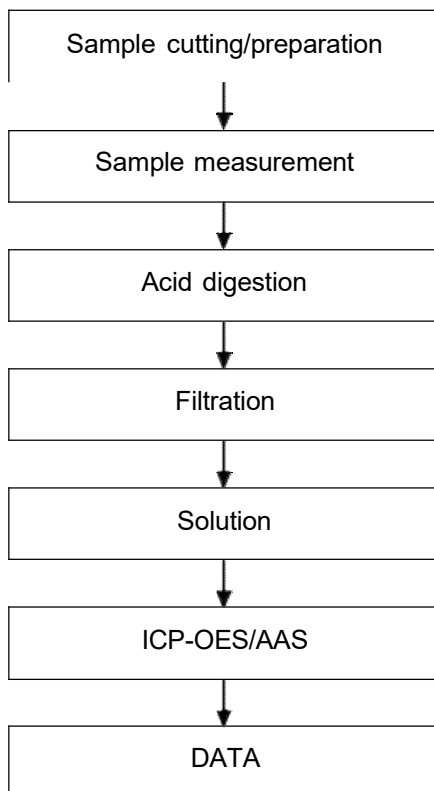
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Date: 27 Jan 2022

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Elements Testing Flow Chart

SGS-CSI Standards Technical Services Co., Ltd.
Ningbo Branch Chemical Laboratory

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Sample photo:



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Test Report

No. SZXEC2100593919

Date: 17 Mar 2021

Page 1 of 6

DONGGUAN HECHUAN NEW MATERIAL TECHNOLOGY CO., LTD.

ROOM 103, BUILDING 3, NO.20 XIBAO ROAD, HOUJIE TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

DONGGUAN PENG TAO NEW MATERIAL CO., LTD.

NO.2, 1/F, BUILDING A, NO.20 XIBAO ROAD, HOUJIE TOWN, DONGGUAN CITY, GUANGDONG PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as : Hot melt copper foil Mylar/copper foil Mylar/copper plated Mylar(in Chinese as 热融铜箔麦拉/铜箔麦拉/镀铜麦拉)

SGS Job No. : RP21-004481 - SZ
Date of Sample Received : 11 Mar 2021
Testing Period : 11 Mar 2021 - 17 Mar 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).

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

Ford

Ford Shi
Approved Signatory



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Date: 17 Mar 2021

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX21-005939.006	A#Copper-colored material+B#Copper-colored material+C#Copper-colored material

Remarks :

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

Elementary analysis. Hexavalent Chromium(Cr(VI)). Flame Retardants. Phthalates

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	006
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



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No. SZXEC2100593919

Date: 17 Mar 2021

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Test Item(s)	Limit	Unit	MDL	006
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl Phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl Phthalate (BBP)	1000	mg/kg	50	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate (DIBP)	1000	mg/kg	50	ND

Remark1: Results shown are of the total weight of mixed samples.

Remark2: The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value and only for reference.

Remark3: The limit(s) was/were submitted by applicant.



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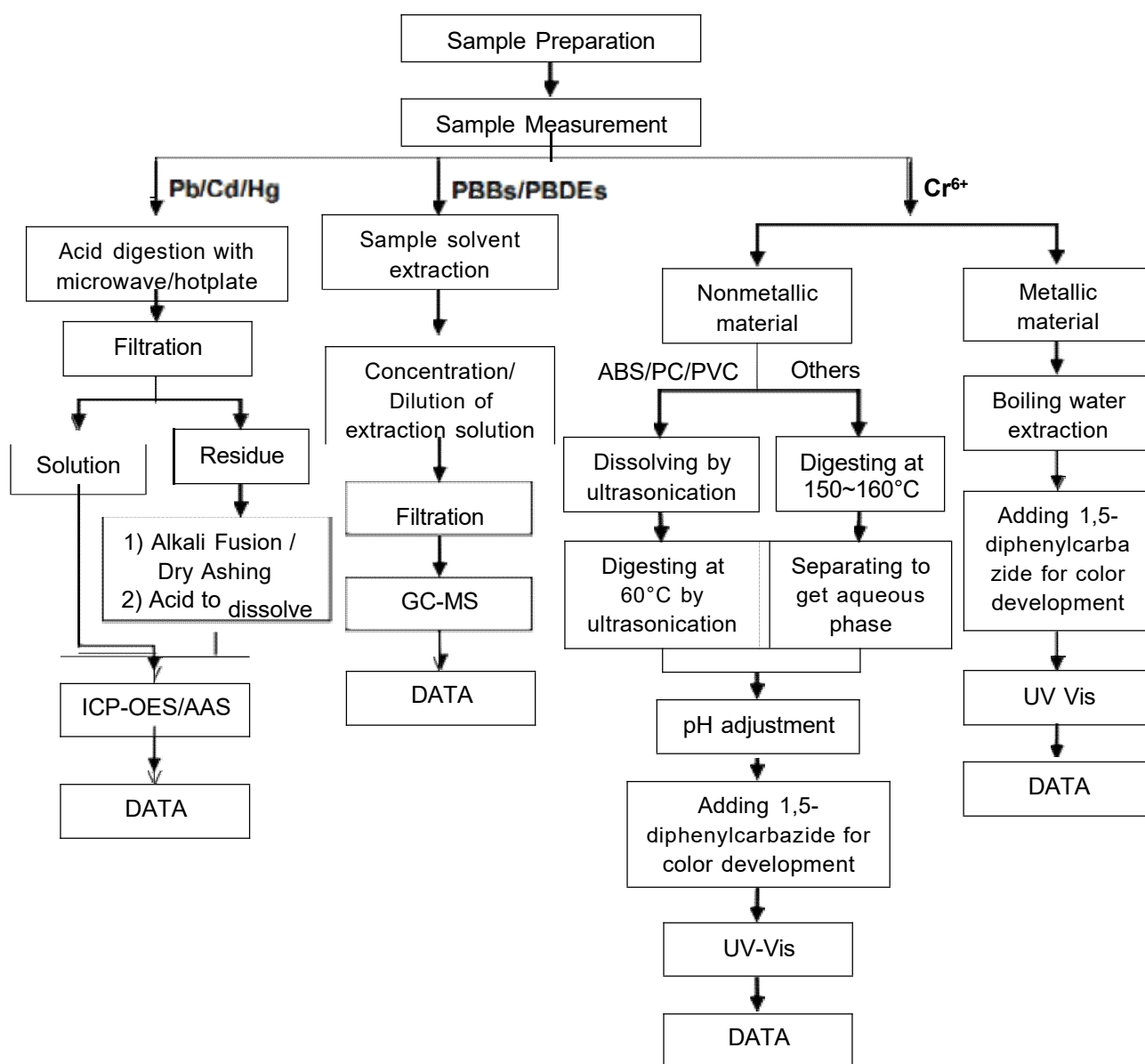
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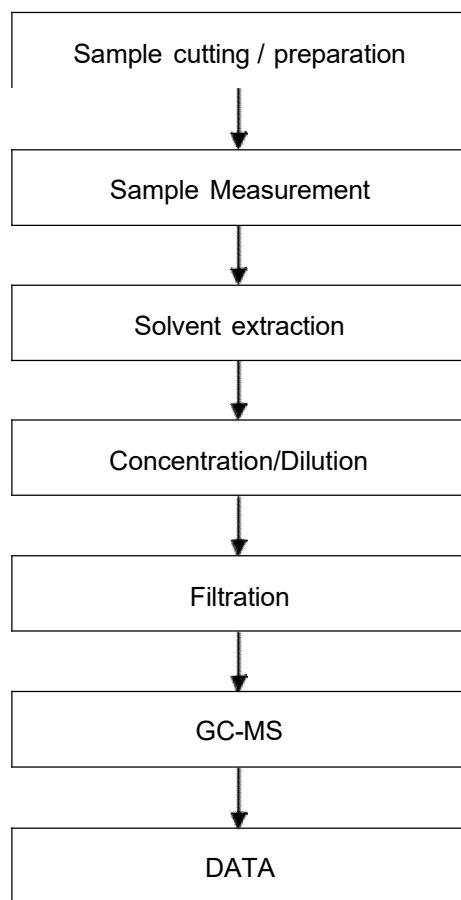
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

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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Phthalates Testing Flow Chart



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No. SZXEC2100593919

Date: 17 Mar 2021

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Sample photo:



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Test Report

No. SHAEC2118552905

Date: 30 Aug 2021

Page 1 of 8

ZHEN XIONG COPPER GROUP CO,LTD

NO.299,HUAYUAN ROAD.HUAQIAO TOWN.KUNSHAN CITY.JIANGSU PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as : Tinned round copper wire

SGS Job No. : SP21-027177 - SH

Date of Sample Received : 26 Aug 2021

Testing Period : 26 Aug 2021 - 30 Aug 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. SHAEC2118552905

Date: 30 Aug 2021

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA21-185529.003	Silvery 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+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	003
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
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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No. SHAEC2118552905

Date: 30 Aug 2021

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Test Item(s)	Limit	Unit	MDL	003
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.



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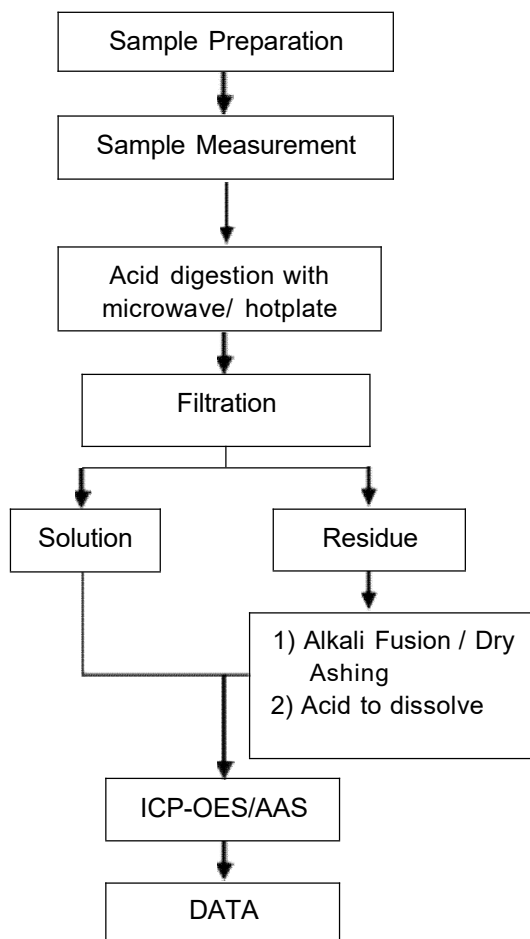
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Elements (IEC62321) Testing Flow Chart

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



SGS-CSI Technical Services (Shanghai) Co., Ltd.
Testing Center - China

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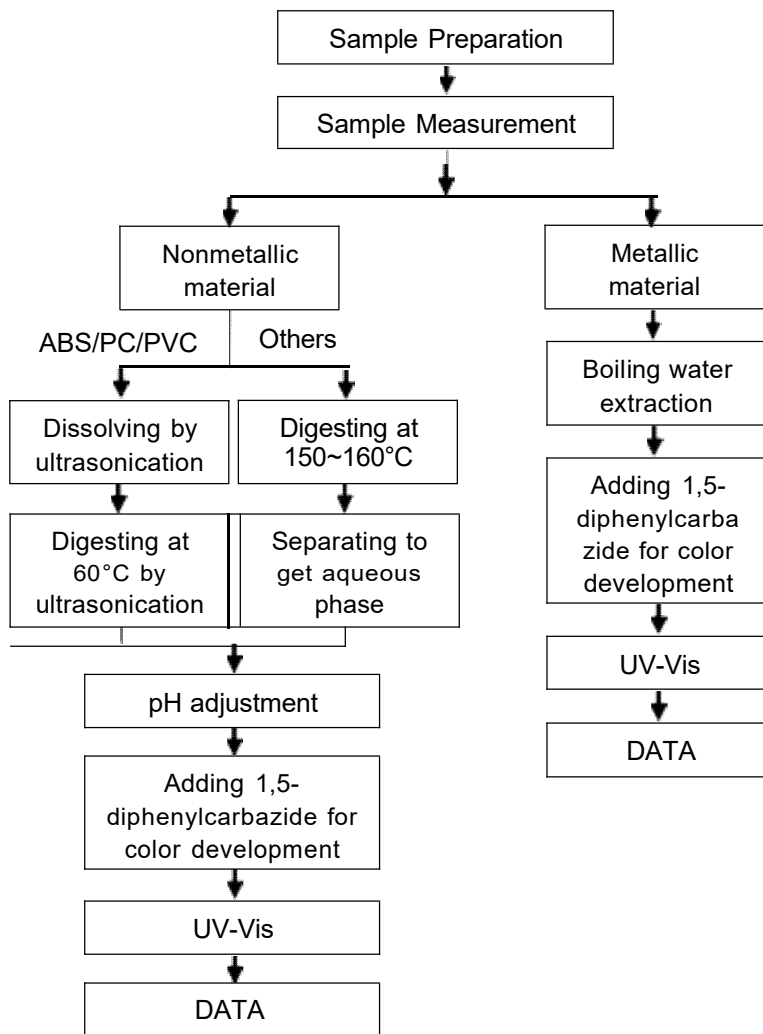
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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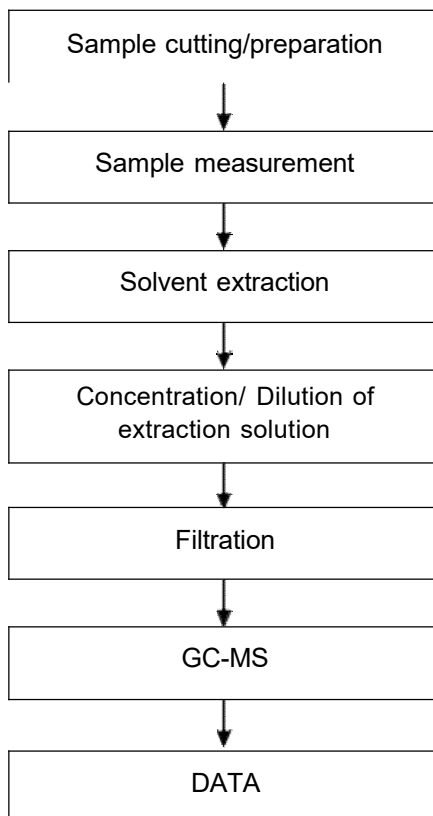
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PBBs/PBDEs Testing Flow Chart



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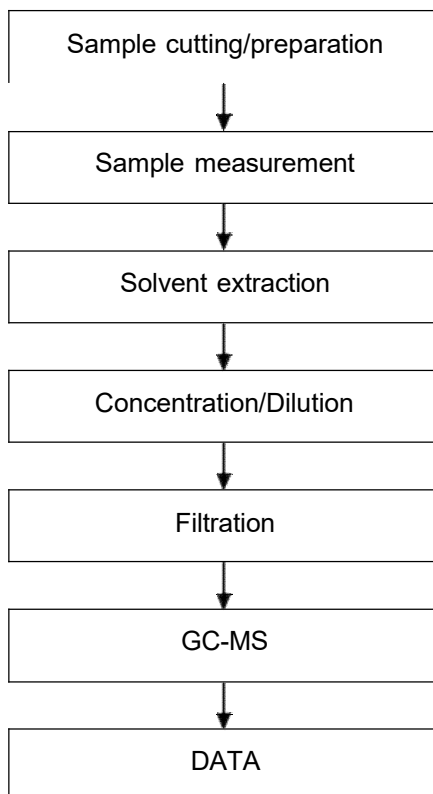
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Phthalates Testing Flow Chart



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检测报告
Test Report报告编号 A2210198983101001ER2
Report No. A2210198983101001ER2第 1 页 共 8 页
Page 1 of 8报告抬头公司名称 台州见龙科技有限公司
Company Name TAIZHOU JIANLONG TECHNOLOGY CO. LTD
shown on Report地 址 台州市路桥区峰江街道葛家村
Address GE JIA VILLAGE, FENGJIANG STREET, LUQIAO DISTRICT, TAIZHOU CITY

以下测试之样品及样品信息由申请者提供并确认

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

样品名称	FEP色母
Sample Name	FEP Color Master Batch
样品颜色	黑色
Color	BLACK
样品接收日期	2021.05.26
Sample Received Date	May 26, 2021
样品检测日期	2021.05.26-2021.05.29
Testing Period	May 26, 2021 to May 29, 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).

主 检

Tested by

批 准

Approved by

陈雪静

张琳

张琳

技术经理 Technical Manager

审 核

Reviewed by

日 期

Date

陈沙

2021.07.07

No. R465025889

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

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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)	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

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

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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
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 黑色塑料颗粒
Sample/Part Description Black 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%

注释: 本报告于原报告(报告编号A2210198983101001ER1)基础上修改了“样品名称”。本报告替换原报告A2210198983101001ER1, 自本报告签发之日起, 原报告A2210198983101001ER1作废。

Note This testing report revised “Sample Name” based on the original report of No. A2210198983101001ER1. This testing report displaces the original one which was invalid since the date of this testing report released.

检测报告 Test Report

报告编号 A2210198983101001ER2

Report No. A2210198983101001ER2

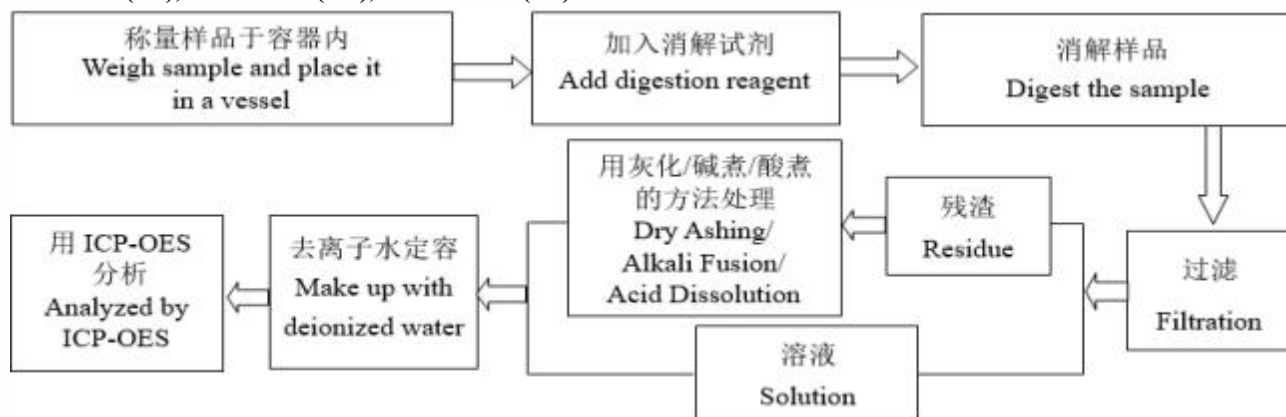
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检测流程 Test Process

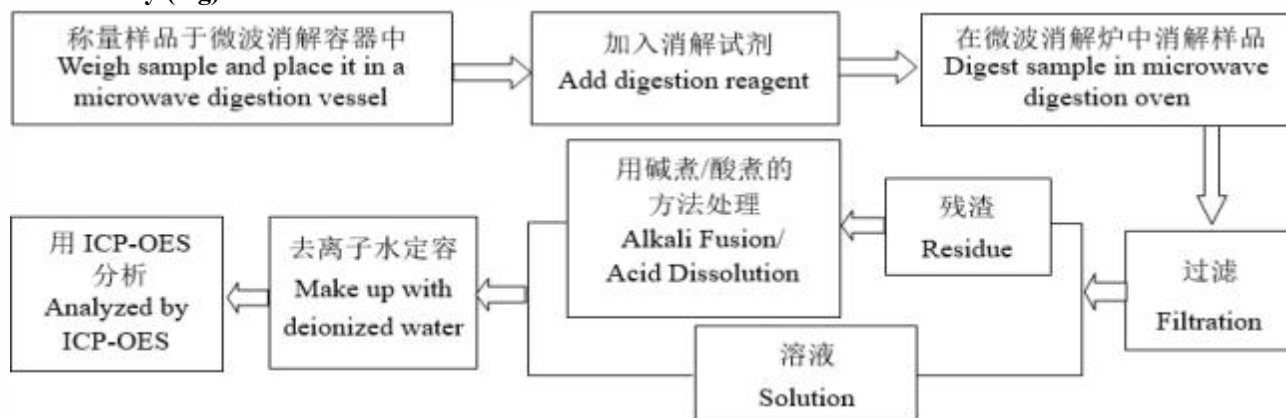
1. 铅(Pb), 镉(Cd), 铬(Cr)

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



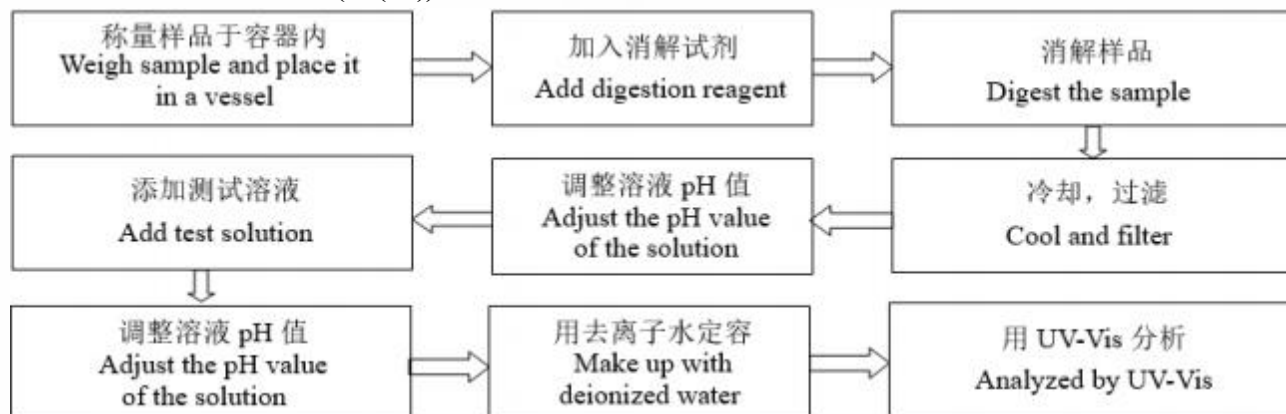
2. 汞(Hg)

Mercury (Hg)



3. 六价铬(Cr(VI))

Hexavalent Chromium (Cr(VI))



检测报告 Test Report

报告编号 A2210198983101001ER2

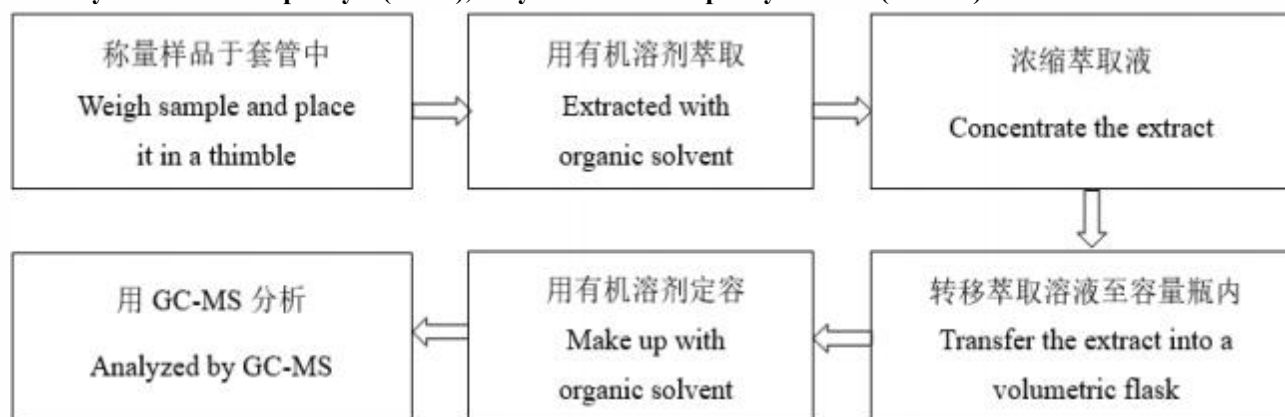
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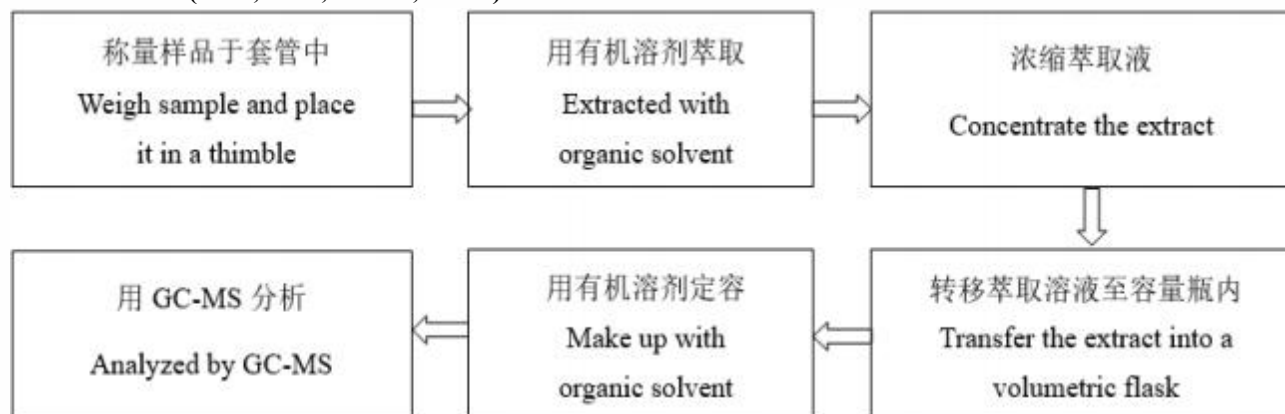
4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

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



5. 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)



检测报告 Test Report

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样品图片 Photo(s) of the sample(s)



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测试报告

No. SHAEC2103249004

日期: 2021年03月03日 第1页,共9页

苏州蔡伦格蒂电子材料有限公司

江苏省太仓市太平北路168号

以下测试之样品是由申请者所提供及确认: 电解柔性覆铜箔基材

SGS工作编号: SP21-004880 - SH

样品接收日期: 2021年03月01日

测试周期: 2021年03月01日 - 2021年03月03日

测试要求: 根据客户要求测试

测试方法: 请参见下一页

测试结果: 请参见下一页

结论: 基于所送样品进行的测试, 镉、铅、汞、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)、邻苯二甲酸酯(如邻苯二甲酸二丁酯(DBP)、邻苯二甲酸丁苄酯(BBP)、邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP))的测试结果符合欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863的限值要求。

通标标准技术服务(上海)有限公司
授权签名

罗萍

Carol Luo罗萍
批准签署人



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测试报告

No. SHAEC2103249004

日期: 2021年03月03日 第2页,共9页

测试结果:

测试样品描述:

样品编号	SGS样品ID	描述
SN1	SHA21-032490.002	棕色/铜色固体片

备注:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = 方法检测限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863

测试方法: 参考IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015和IEC 62321-8:2017, 采用ICP-OES, UV-Vis和GC-MS进行分析。

测试项目	限值	单位	MDL	002
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	ND
汞(Hg)	1000	mg/kg	2	ND
六价铬 (Cr(VI))	1000	mg/kg	8	ND
多溴联苯之和(PBBs)	1000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND



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测试报告

No. SHAEC2103249004

日期: 2021年03月03日 第3页,共9页

测试项目	限值	单位	MDL	002
五溴二苯醚	-	mg/kg	5	ND
六溴二苯醚	-	mg/kg	5	ND
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND
邻苯二甲酸二丁酯 (DBP)	1000	mg/kg	50	ND
邻苯二甲酸丁苄酯(BBP)	1000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1000	mg/kg	50	ND

备注:

(1) 最大允许极限值引用自RoHS指令(EU) 2015/863。
IEC 62321系列等同于 EN 62321系列

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

(2) 2021年7月22号开始, DEHP, BBP, DBP 和 DIBP的限制适用于医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

卤素

测试方法: 参照EN 14582: 2016方法 测定, 采用 IC进行分析。

测试项目	单位	MDL	002
氟 (F)	mg/kg	50	ND
氯 (Cl)	mg/kg	50	103
溴 (Br)	mg/kg	50	ND
碘 (I)	mg/kg	50	ND

除非另有说明, 此报告结果仅对测试的样品负责。本报告未经本公司书面许可, 不可部分复制。
检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



SGS-CTC (Shanghai) Technical Services Co., Ltd.
Testing Center - China Laboratory

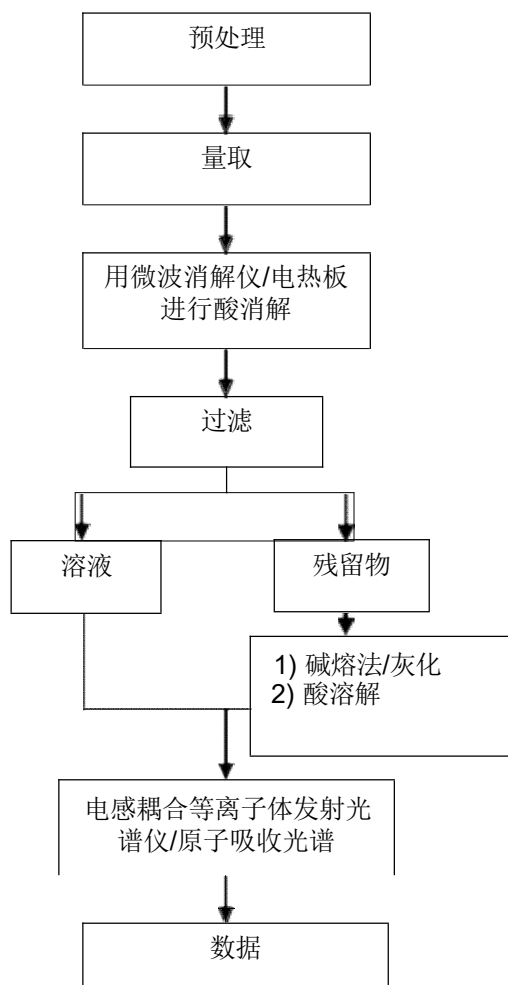
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元素(IEC62321) 测试流程图

1)样品按照下述流程被完全消解

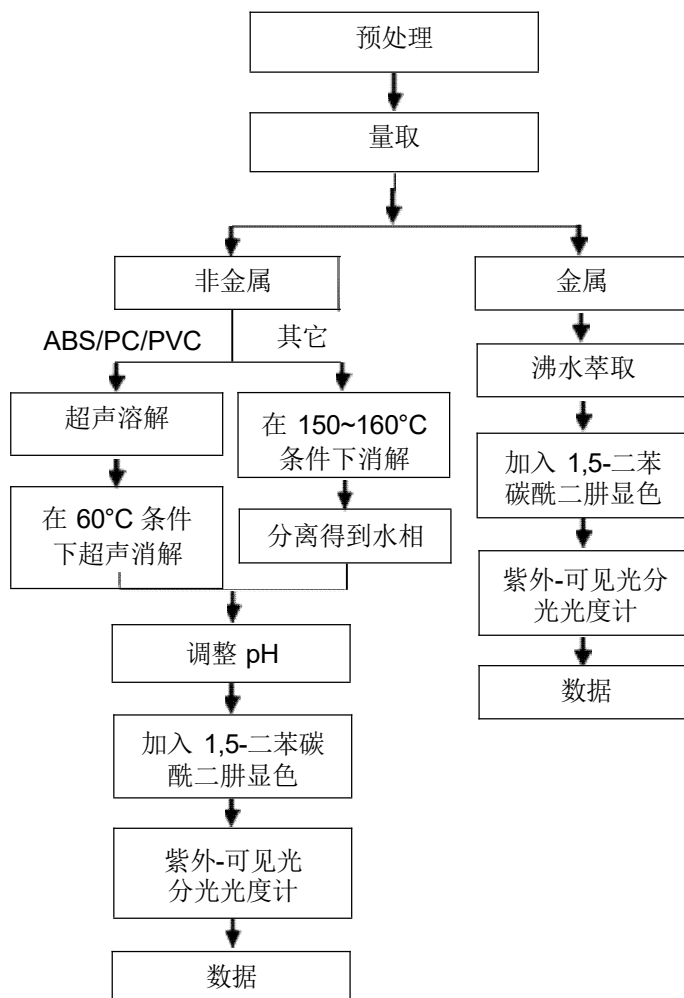


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六价铬测试流程图



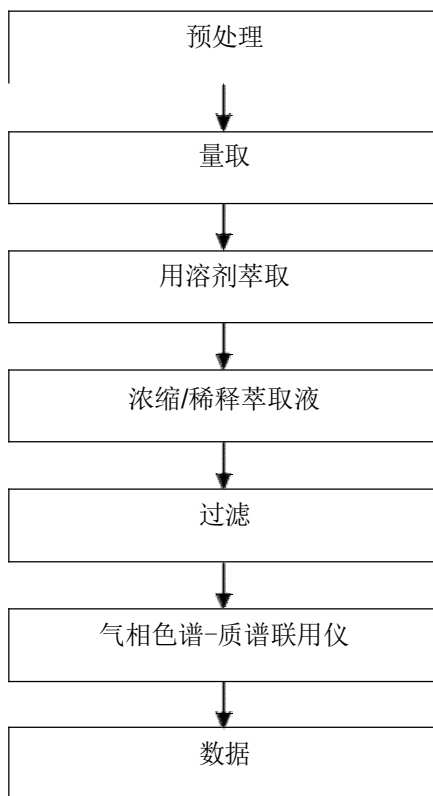
SGS-CSTC 检测技术服务有限公司 (上海) 有限公司
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PBBs/PBDEs 测试流程图



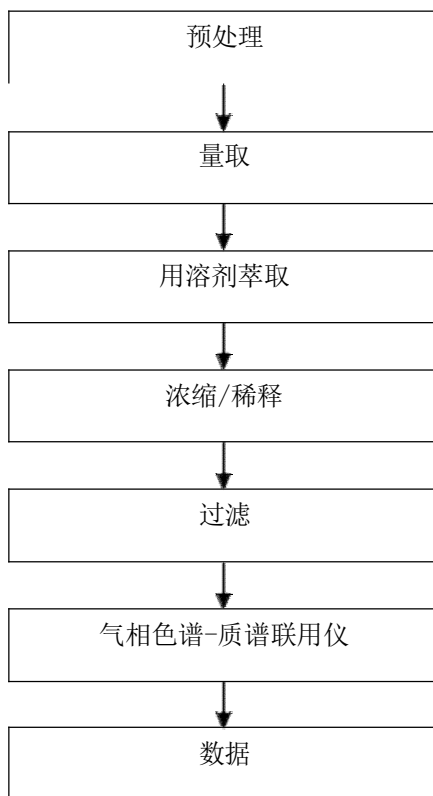
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Phthalates 测试流程图



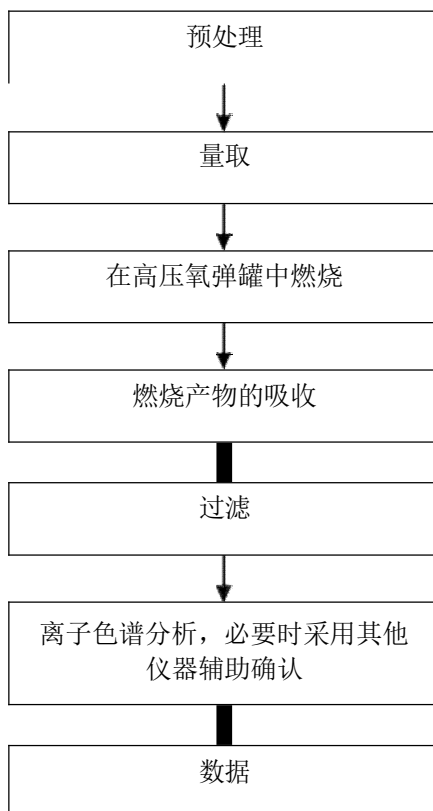
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Halogen(氧弹法)测试流程图



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测试报告

No. SHAEC2103249004

日期: 2021年03月03日 第9页,共9页

样品照片:



此照片仅限于随SGS正本报告使用

*** 报告完 ***



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測試報告 Test Report

號碼(No.): ETR21805816

日期(Date): 06-Sep-2021

頁數(Page): 1 of 11

優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, 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/on behalf of the applicant as) :

送樣廠商(Sample Submitted By) : 優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)
樣品名稱(Sample Name) : 防焊油墨(黑色系列)
樣品型號(Style/Item No.) : PSM-800/SMH-800/BK5/BK6/BK7/BK8/BK8A/DM3/DM6
DM7/ER-506/FBK/FBK5/FBK7/FDM/FMBL3/FMBL5
FMBL6/FMBL7/FMBL8/FMBL9/FSBK/FSBK5/FSDM/FSDM9
FSDM-A/FSDM-B/FSDM-C/FSDM-D/FSDM-F/FSMBL2
FSMBL5/FSMBL6/FSMBL7/FSMBL8/FSMBL9/FSUK
顏色(Color) : 黑色 (BLACK INK)

收件日(Sample Receiving Date) : 27-Aug-2021
測試期間(Testing Period) : 27-Aug-2021 to 03-Sep-2021

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) 其他測試項目請見下一頁。 (Please refer to next pages for the other item(s).)
測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

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



PIN CODE: 354DB4E3

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新北市五股區新北產業園區五權七路 25 號 t+886(02)2299 3939 f+886(02)2299 3237
25, Wu Chyuan 7th Road, New Taipei Industrial Park, Wu Ku District, New Taipei City, Taiwan

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測試報告

Test Report

號碼(No.): ETR21805816

日期(Date): 06-Sep-2021

頁數(Page): 2 of 11

優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

測試部位敘述 (Test Part Description)

No.1 : 黑色片狀 (BLACK SHEET)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	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.
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)		mg/kg	2	n.d.
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	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.
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI)) (CAS No.: 18540-29-9)	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.
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.

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25, Wu Chyuan 7th Road, New Taipei Industrial Park, Wu Ku District, New Taipei City, Taiwan

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測試報告

Test Report

號碼(No.): ETR21805816

日期(Date): 06-Sep-2021

頁數(Page): 3 of 11

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桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
一溴聯苯醚 (Monobromodiphenyl ether)	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.
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)	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.
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)		mg/kg	50	n.d.
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)		mg/kg	50	n.d.
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)		mg/kg	50	n.d.
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)		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.
全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	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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測試報告

Test Report

號碼(No.): ETR21805816

日期(Date): 06-Sep-2021

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優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
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.
全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)	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.
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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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司

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25, Wu Chyuan 7th Road, New Taipei Industrial Park, Wu Ku District, New Taipei City, Taiwan

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測試報告

Test Report

號碼(No.): ETR21805816

日期(Date): 06-Sep-2021

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優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				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鹽 (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.
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	參考US EPA 3052: 1996 · 以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 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. 全氟辛烷磺酸及其鹽類包含 (PFOS and its salts including) :
CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
6. 全氟辛酸及其鹽類包含 (PFOA and its salts including) :
CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.

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測試報告

Test Report

號碼(No.): ETR21805816

日期(Date): 06-Sep-2021

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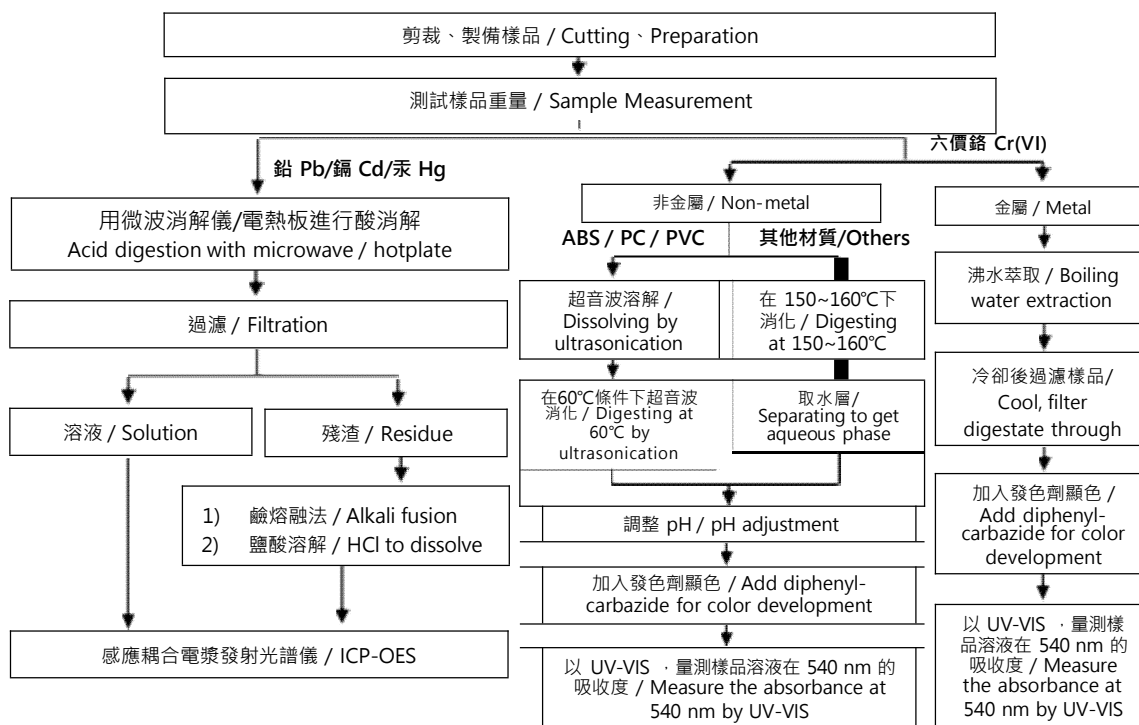
優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

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.
(Cr⁶⁺ test method excluded)



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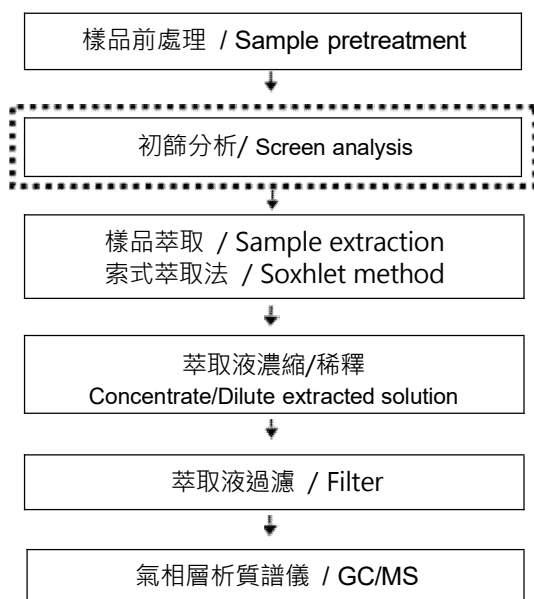
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多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs

初次測試程序 / First testing process →
選擇性篩檢程序 / Optional screen process
確認程序 / Confirmation process - - - →



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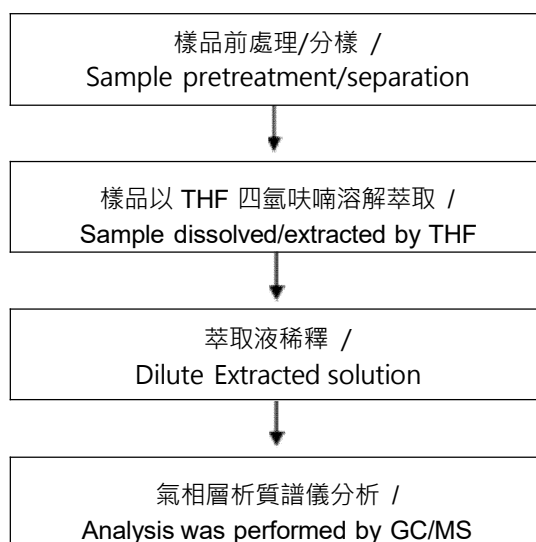
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桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

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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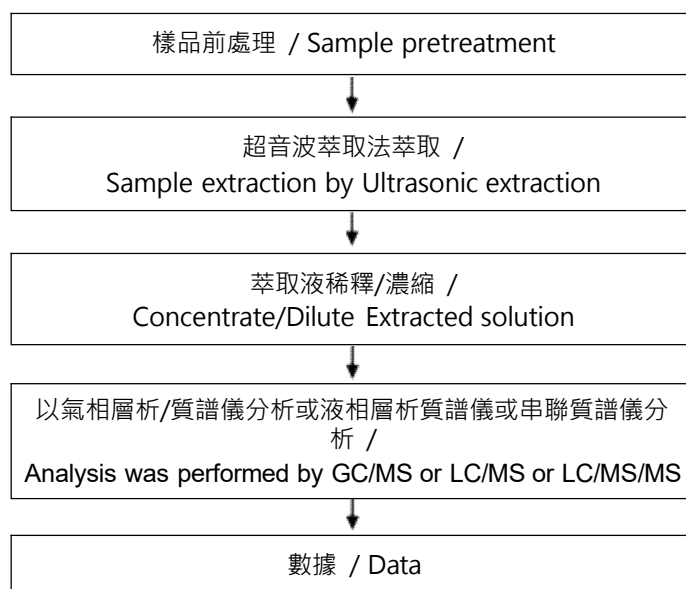
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優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

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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測試報告

Test Report

號碼(No.): ETR21805816

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優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

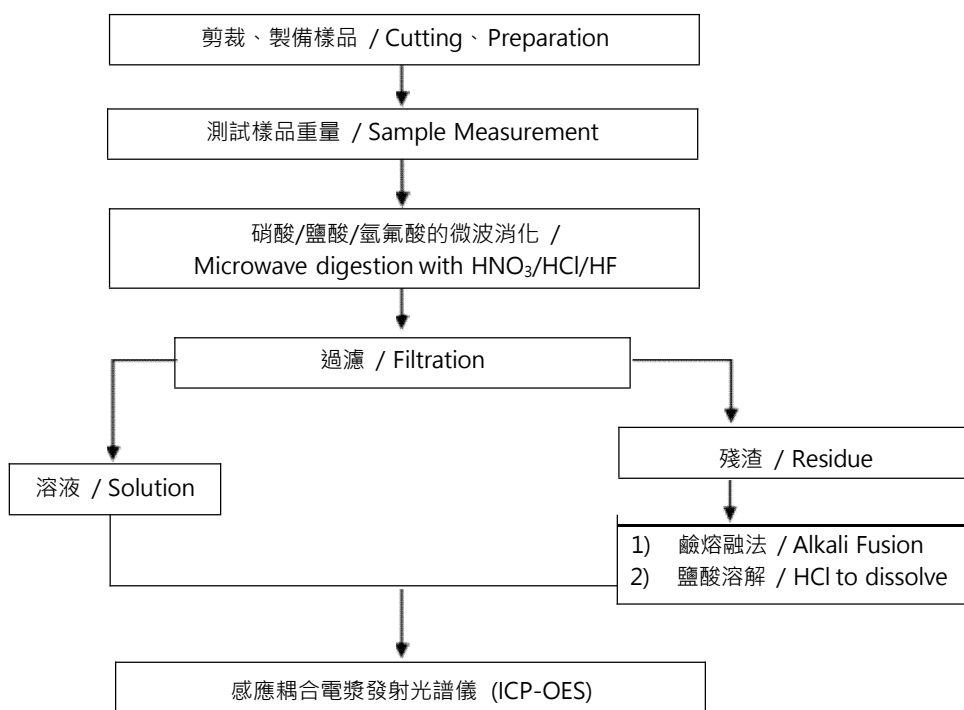
桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

元素(含重金屬)分析流程圖 / Analytical flow chart of Elements (Heavy metal included)

根據以下的流程圖之條件，樣品已完全溶解。

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

【參考方法/Reference method : US EPA 3051A、US EPA 3052】



* US EPA 3051A 方法未添加氫氟酸 / US EPA 3051A method does not add HF.

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測試報告

Test Report

號碼(No.): ETR21805816

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優立實業股份有限公司 (UNIRES CHEMICAL IND. CO., LTD.)

桃園市觀音工業區經建四路22號 (NO.22, JINGJIAN 4TH RD., GUANYIN DISTRICT, TAOYUAN CITY, TAIWAN)

* 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.)

ETR21805816

** 報告結尾 (End of Report) **

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測試報告 Test Report

號碼(No.): ETR21A04957M01

日期(Date): 29-Oct-2021

頁數(Page): 1 of 14

川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)

桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, 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/on behalf of the applicant as) :

送樣廠商(Sample Submitted By) : 川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)
樣品名稱(Sample Name) : INK(ZSR-150)W
樣品型號(Style/Item No.) : ZM-400WF, 400WF, ZM-400WF(HF), ZM-400WF-1, 400WF-1, ZM-400WF(N), ZM-400WB, ZM-480, ZM-480W, ZM-680W, WNY, WNA, WNB, NWB, WH, WM, WN, WL, WH(N), WH(H), 13A089, PC-W, IC-W, 100W, SW, 580W, SP-W, 2K-W, FMW, FMW-1, PHP-80, PHP-80K, 928

收件日(Sample Receiving Date) : 22-Oct-2021
測試期間(Testing Period) : 22-Oct-2021 to 29-Oct-2021

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).)

測試結果(Test Results) : (2) 其他測試項目請見下一頁。 (Please refer to next pages for the other item(s).)
請參閱下一頁 (Please refer to following pages.)

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.)

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



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測試報告
Test Report

號碼(No.): ETR21A04957M01 日期(Date): 29-Oct-2021 頁數(Page): 2 of 14

川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)
桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

測試部位敘述 (Test Part Description)
No.1 : 白色塊狀 (WHITE LUMP)

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)) (CAS No.: 7440-43-9)	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)) (CAS No.: 7439-92-1)	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.	1000
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	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)) (CAS No.: 18540-29-9)	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
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

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測試報告

Test Report

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川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)
桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
一溴聯苯醚 (Monobromodiphenyl ether)	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)) (CAS No.: 85-68-7)	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)) (CAS No.: 84-74-2)	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(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)	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
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)	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.	-

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測試報告

Test Report

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川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)

桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)	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.	-
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)	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.	-
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3)	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.	-
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0)	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.	-
鄰苯二甲酸二異戊酯 (DIPP) (Diisopentyl phthalate (DIPP)) (CAS No.: 605-50-5)	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.	-
鄰苯二甲酸雙(2-甲氧基乙基)酯 (DMEP) (Bis(2-methoxyethyl) phthalate (DMEP)) (CAS No.: 117-82-8)	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.	-
鄰苯二甲酸二乙酯 (DEP) (Di-ethyl phthalate (DEP)) (CAS No.: 84-66-2)	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.	-
鄰苯二甲酸二甲酯 (DMP) (Dimethyl phthalate (DMP)) (CAS No.: 131-11-3)	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.	-

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Test Report

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川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)
桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
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 62321-9: 2021 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.)	mg/kg	20	n.d.	-
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	99.2	-
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	625	-
溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.	-
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.	-
全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	參考DIN CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to DIN CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)	參考DIN CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to DIN CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)

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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	
砷 (As) (Arsenic (As)) (CAS No.: 7440-38-2)	參考US EPA 3052: 1996，以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	參考US EPA 3052: 1996，以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 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. 全氟辛烷磺酸及其鹽類包含 (PFOS and its salts including) :
CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
6. 全氟辛酸及其鹽類包含 (PFOA and its salts including) :
CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
7. 符合性結果之判定係以測試結果與限值做比較。(The statement of compliance conformity is based on comparison of testing results and limits.)
8. 本報告為 ETR21A04957 之異動報告。(This is the additional test report of ETR21A04957.)

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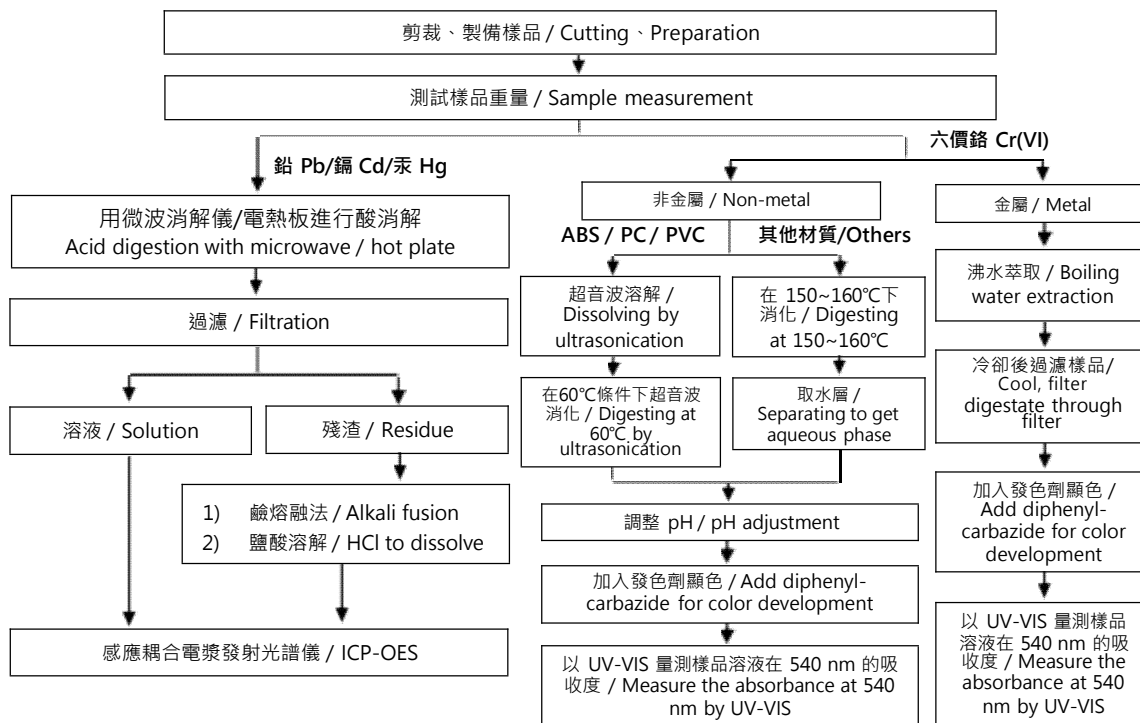
川裕工業股份有限公司 (CHUNGYU INDUSTRY CORPORATION)

桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

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.
(Cr⁶⁺ test method excluded)



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日期(Date): 29-Oct-2021

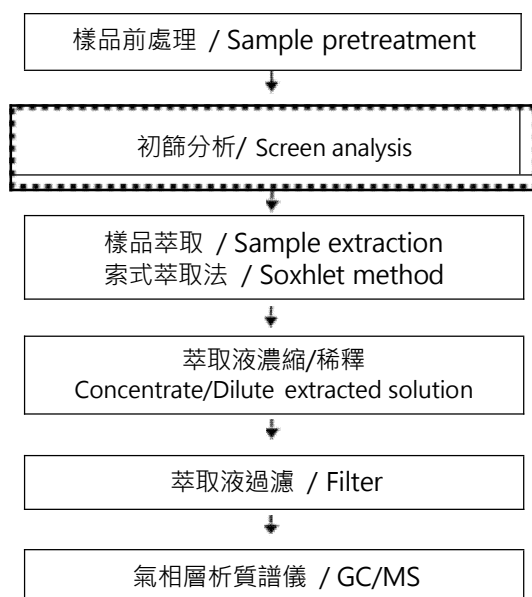
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桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

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

初次測試程序 / First testing process →
選擇性篩檢程序 / Optional screen process
確認程序 / Confirmation process - - - →



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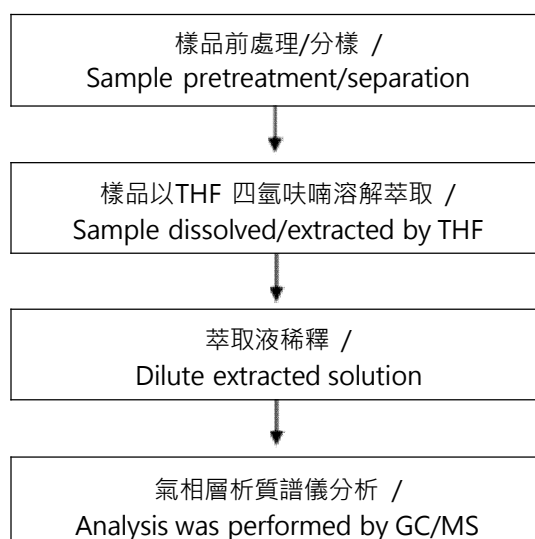
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桃園市平鎮區延平路三段618號 (NO. 618, SEC. 3, YANPING RD., PINGZHEN DIST., TAOYUAN CITY 324013, TAIWAN)

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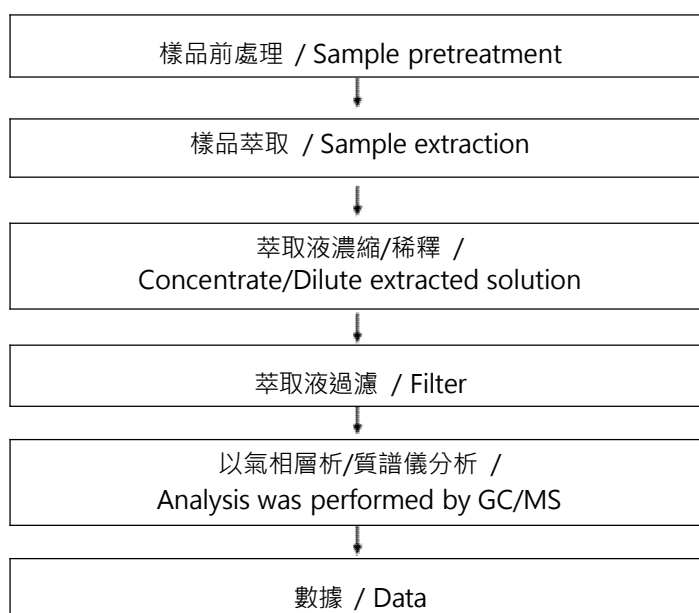
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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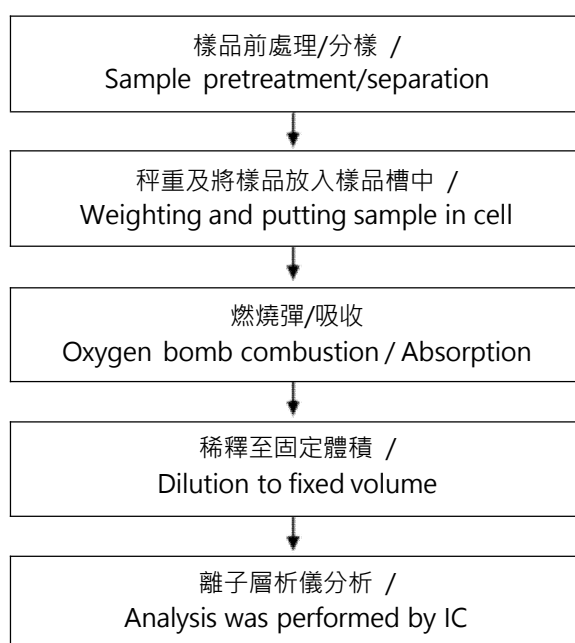
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鹵素分析流程圖 / Analytical flow chart - Halogen



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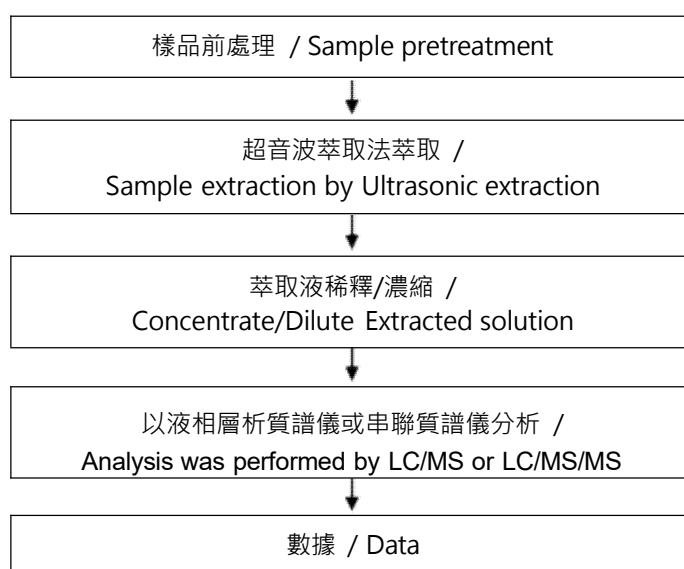
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS



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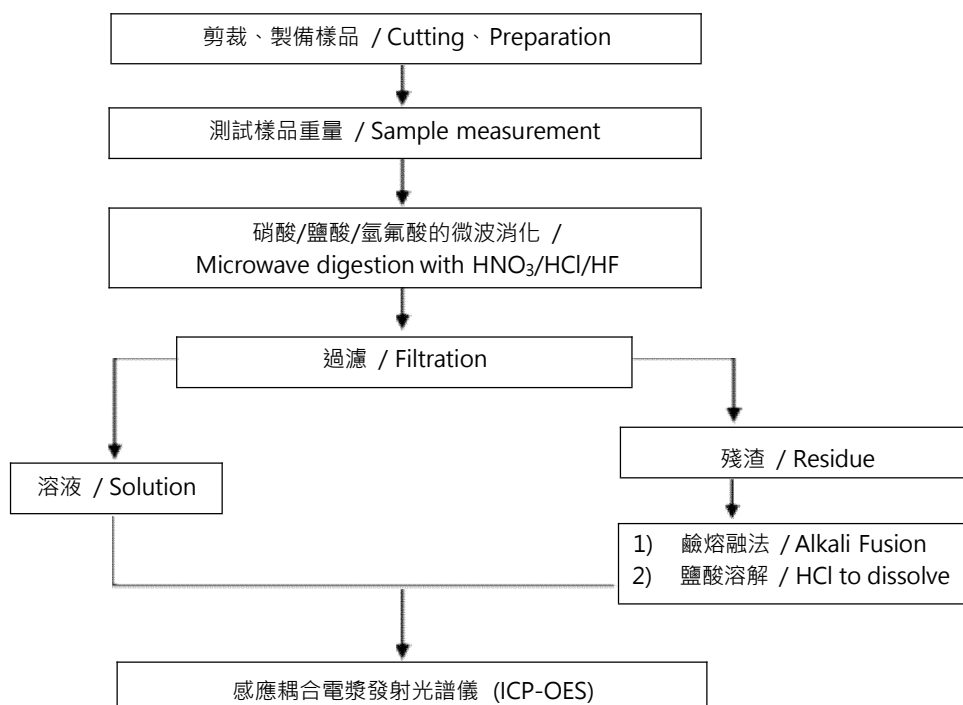
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元素(含重金屬)分析流程圖 / Analytical flow chart of Elements (Heavy metal included)

根據以下的流程圖之條件，樣品已完全溶解。

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

【參考方法/Reference method : US EPA 3051A、US EPA 3052】



* US EPA 3051A 方法未添加氫氟酸 / US EPA 3051A method does not add HF.

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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.)

ETR21A04957

** 報告結尾 (End of Report) **

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Test Report

No. SHAEC2118730101

Date: 04 Sep 2021

Page 1 of 8

3M CHINA LIMITED

222 TIANLIN ROAD, SHANGHAI

The following sample(s) was/were submitted and identified on behalf of the clients as : 3M 9471LE

SGS Job No. : SP21-027420 - SH

Model No. : 3M 9471LE

Client Ref. Information : 3M 9472LE, 3M 9671LE, 3M 9653LE, 3M 9672LE

Date of Sample Received : 30 Aug 2021

Testing Period : 30 Aug 2021 - 04 Sep 2021

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

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

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

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

Dora Hu

Dora Hu
Approved Signatory

scan to see the report



SHAEC2118730101



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center-Chemical Laboratory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA21-187301.001	Colorless transparent adhesive tape

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	001
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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Testing Center (Shanghai)

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Test Item(s)	Limit	Unit	MDL	001
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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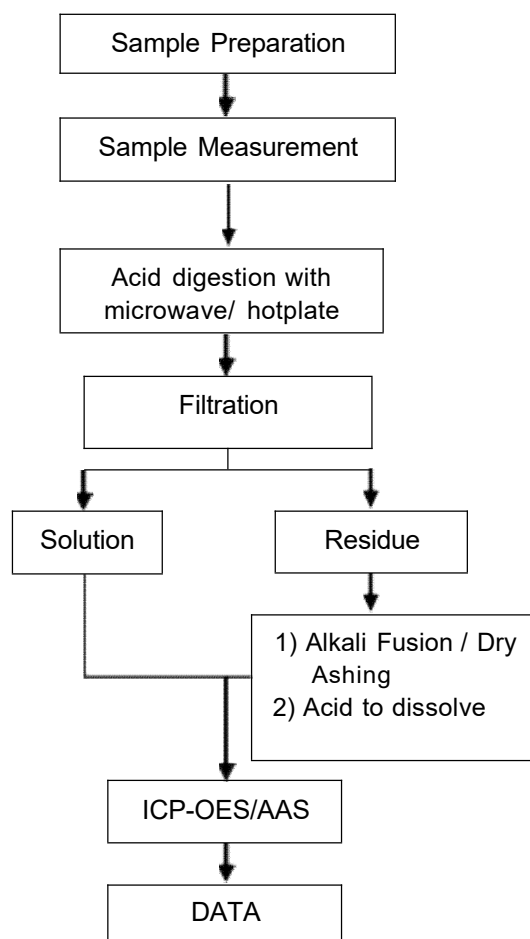
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Elements (IEC62321) Testing Flow Chart

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



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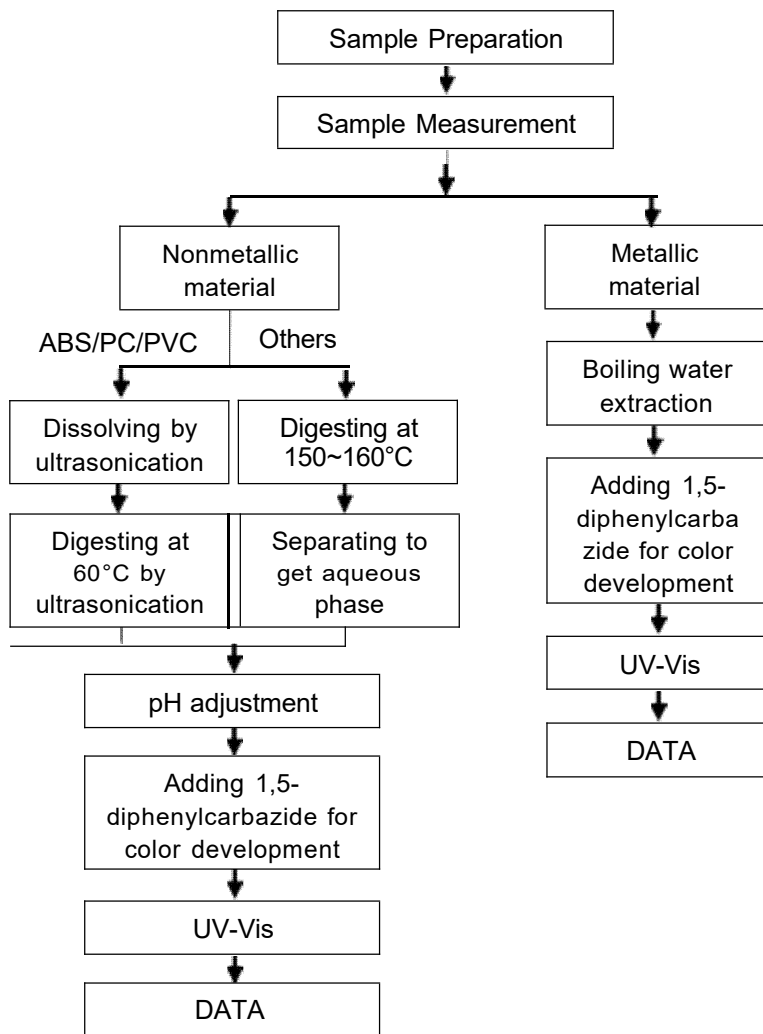
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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Testing Center - Chemical Laboratory

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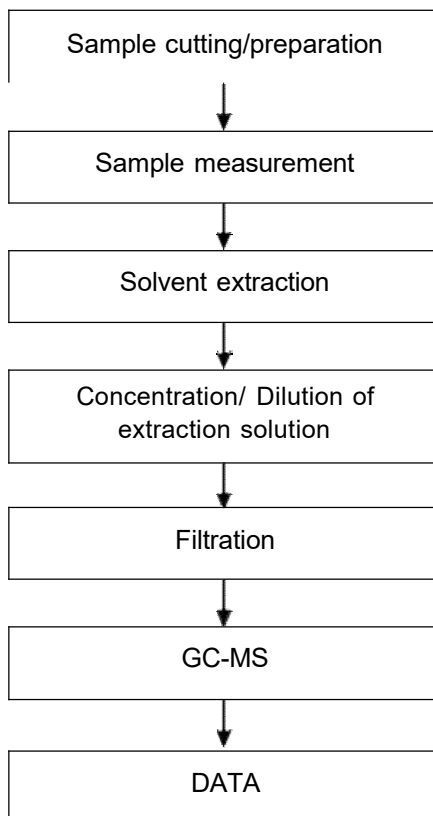
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PBBs/PBDEs Testing Flow Chart



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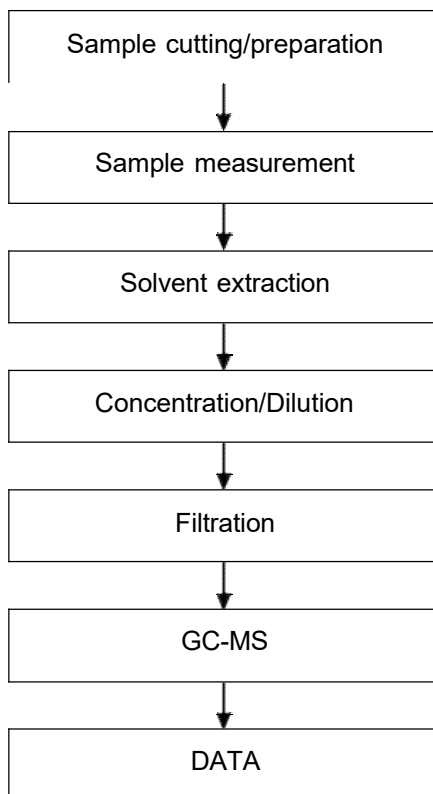
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Phthalates Testing Flow Chart



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Test Report

No. SHAEC2118730101

Date: 04 Sep 2021

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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***



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测试报告(Test Report)

測試項目	規格 1.37I-PEX	樣品 1.37 IPEX	測試結果
测试特性: ☐ 机械特性 ☒ 电器特性 ☐ 环境特性			
接触阻抗:	中心導體 初期 : 20m Ω 以下 試驗後 : 25mΩ 以下 外部導體 初期 : 10m Ω 以下 試驗後 : 15mΩ 以下	1	Ok
		2	Ok
		3	Ok
		4	Ok
		5	Ok
		MAX	/
		MIN.	/
		AVG.	/
绝缘阻抗	初期: 500M Ω 以上 试验后: 100 M Ω 以上	1	700M Ω /550 M Ω
		2	700 M Ω /500 M Ω
		3	750M Ω /600 M Ω
		4	700 M Ω /550 M Ω
		5	750 M Ω /550 M Ω
		MAX	750M Ω /600 M Ω
		MIN	700M Ω /500 M Ω
		AVG	720 M Ω /550 M Ω
耐电压:	AV200V 电流: 0.5mA	1	Ok
		2	Ok
		3	Ok
		4	Ok
		5	Ok
		MAX.	/
		MIN.	/
		AVG	/
VSWR 测试	0. 1-3GHz 1.3MAX 3-6GHz 1.5MAX	1	1.22/1.44
		2	1.23/1.45
		3	1.22/1.47
		4	1.22/1.45
		5	1.25/1.46
		MAX.	1.22/1.47
		MIN	1.22/1.44
		AVG.	1.238/1.454
核准(Approved by): 胡春梅	审核(Checked by): 郑盛林	测试(Name of operator): 杜氏花/2022/2/9	

测试报告(Test Report)

測試項目	插拔力	規格 1.37I-PEX	樣品 1.37 IPEX	測試結果
測試特性: ☒ 机械特性 ☐ 电器特性 ☐ 环境特性				
拔去力测试	测试插拔 30 次 综合拔出力要求 3N 以上 导体插拔力 0.1N 以上	1	综合拔出力 9.55N 导体拔出力 0.28N	
		2	综合拔出力 9.67N 导体拔出力 0.27N	
		3	综合拔出力 8.35N 导体拔出力 0.27N	
		4	综合拔出力 8.49N 导体拔出力 0.23N	
		5	综合拔出力 9.61N 导体拔出力 0.3N	
		MAX.	综合拔出力 9.61N 导体拔出力 0.3N	
		MIN.	综合拔出力 8.35N 导体拔出力 0.23N	
		AVG.	综合拔出力 9.134N 导体拔出力 0.27N	
引张力强度测试	≥25N	1	28.2N	
		2	27.5N	
		3	27.6N	
		4	26.5N	
		5	26.3N	
		MAX	28.2N	
		MIN.	26.3N	
		AVG	27.22N	
耐久性:	测试插拔 30 次 综合拔出力要求 3N 以上 导体插拔力 0.1N 以上	1	综合拔出力 8.07N 导体拔出力 0.21N	
		2	综合拔出力 8.21N 导体拔出力 0.29N	
		3	综合拔出力 8.25N 导体拔出力 0.27N	
		4	综合拔出力 8.56N 导体拔出力 0.26N	
		5	综合拔出力 8.01N 导体拔出力 0.26N	
		MAX.	综合拔出力 8.56N 导体拔出力 0.26N	
		MIN.	综合拔出力 8.01N 导体拔出力 0.26N	
		AVG.	综合拔出力 8.238N 导体拔出力 0.258N	
核准(Approved by): 胡春梅		审核(Checked by): 郑盛林		测试(Name of operator): 杜氏花/2022/2/9
表单编号: AX-QR-QA-076 版本: A1				



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安迅科技有限公司

测试报告(Test Report)

测试项目	插拔力	规格 1.37I-PEX	样品 1.37 IPEX 双端	测试结果
测试特性: ☒ 机械特性 ☐ 电器特性 ☐ 环境特性				
荷重后接触阻抗	上下 90 度各 2N 的力量 摇摆线材, 水平 4N 的力 量拉动线材, 确认零部件 未有出现形变, 并施以 DC100mA 电流确认接 触阻抗	1	Ok	
		2	Ok	
		3	Ok	
		4	Ok	
		5	Ok	
		MAX.	/	
		MIN	/	
		AVG.	/	
核准(Approved by): 胡春梅	审核(Checked by): 郑盛林	测试(Name of operator): 杜氏花/2022/2/9		
表单编号: AX-QR-QA-076 版本: A1				



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安 迅 科 技 有 限 公 司

测试报告(Test Report)

测试项目	规格 1.37-IPEX	样品 1.37 IPEX	测试结果
测试特性: ☐ 机械特性 ☐ 电器特性 ☒ 环境特性			
耐温度测试	环境条件： 233K(-40℃)/30 分→ 278～308K(5～35℃)/ 5 分以下→363K(90℃)/30 分→ 278～308K (5～35℃)/5 分以下 产品外观不得出现形变，异色， 熔化现象，接触阻抗，绝缘阻抗 符合规格要求	1	OK
		2	OK
		3	OK
		4	OK
		5	OK
		MAX.	/
		MIN	/
		AVG.	/
耐湿度测试	温度 ：313±2K (40±2℃) 湿度 ：90～95%RH 时间 ：96 时间 产品外观不得出现形变，异色现 象，接触阻抗，绝缘阻抗符合规 格要求	1	OK
		2	OK
		3	OK
		4	OK
		5	OK
		MAX	/
		MIN	/
		AVG	/
盐水喷雾实验	温度 ：308±2K (35±2℃) 盐水浓度 ：5±1% (重量比) 时间 ：48 时间 表面无腐蚀，生锈现象	1	OK
		2	OK
		3	OK
		4	OK
		5	OK
		MAX	/
		MIN	/
		AVG	/
高温测试	温度： 363+/-2K (90+/-2℃) 时间： 96H 产品外观不得出现形变，异色， 熔化现象，接触阻抗符合规格要 求	1	OK
		2	OK
		3	OK
		4	OK
		5	OK
		MAX	/
		MIN	/
		AVG	/
核准(Approved by): 胡春梅	审核(Checked by): 郑盛林	测试(Name of operator): 杜氏花/2022/2/9	
表单编号：AX-QR-QA-076 版本：A1			

1.37单端IPEX拉力测试报告

1. 主旨： 1.37端子拉力测试

测试日期/时间： 2022/2/9

测试人员： 杜氏花

测试仪器： 电动立式拉力计 仪器编号AX-SC-03-143

测试数量： 10pcs

2. 内容：



sample	拉力值管控 SPEED: 25mm/min	实测值(单位N)	判定(合格/不合格)
sample 1	≥2.5kg(25N)	28.6N	合格
sample 2	≥2.5kg(25N)	27.8N	合格
sample 3	≥2.5kg(25N)	29.2N	合格
sample 4	≥2.5kg(25N)	29.1N	合格
sample 5	≥2.5kg(25N)	27.5N	合格
sample 6	≥2.5kg(25N)	27.3N	合格
sample 7	≥2.5kg(25N)	26.9N	合格
sample 8	≥2.5kg(25N)	29.7N	合格
sample 9	≥2.5kg(25N)	28.1N	合格
sample 10	≥2.5kg(25N)	27.5N	合格

3. 结论： 测试IPEX MHF与线材压接处拉至脱离,查看拉力峰值 最大： 29.7N 最小： 26.9N

4. 判定： ☒ 达到要求,合格 ☐ 未达到要求,不合格

核准(Approved by): 胡春梅 审核(Checked by): 郑盛林 测试(Name of operator): 杜氏花/2022/2/9