亞 驪 企 業 股 份 有 限 公 司
ARISTOTLE ENTERPRISES

承 認 申 請 書

ROHS COMPLIANCE

客戶名稱: Customer	醫揚科技股份有限公司
廠商料號: Part No.	RFA-27-AP379-4B-95
品名: Description	L=95mm
圖號: Drawing No.	RFA-27-AP379-4B-95
客戶料號: Drawing No.	1700010951

出廠簽章:

檢　　查 TEST BY	核　　對 CHECK BY	承　　認 APPROVE BY
張家福	張鴻隆	廖煥文

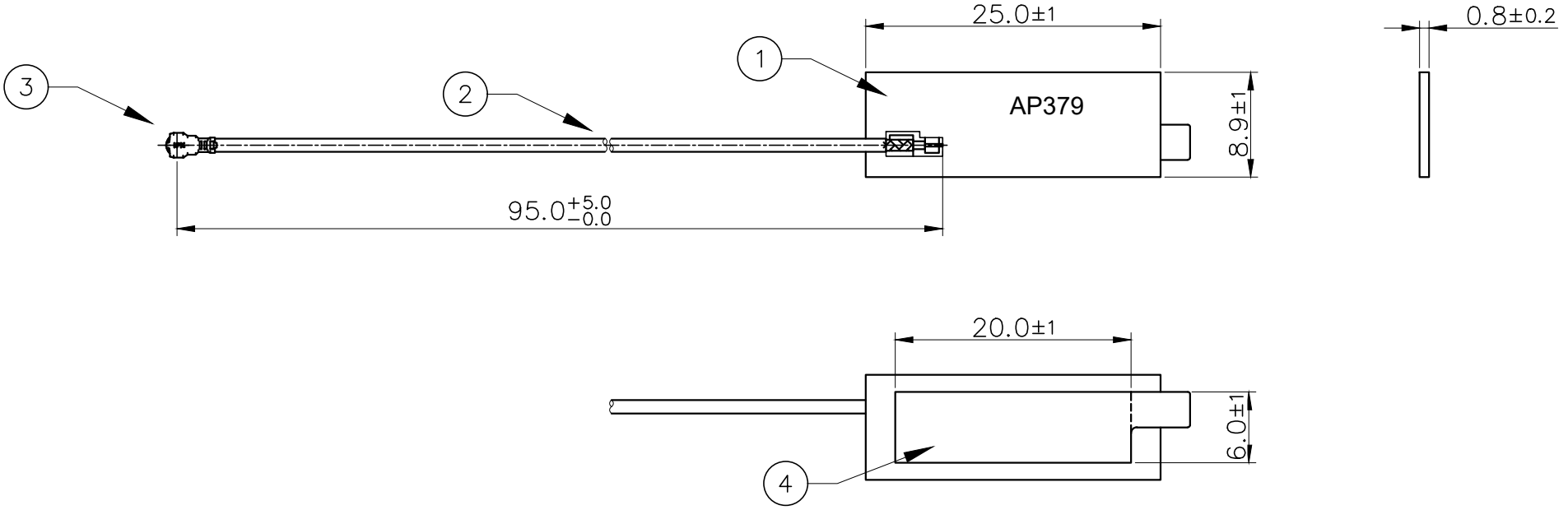
承認簽章:

檢　　查 TEST BY	核　　對 CHECK BY	承　　認 APPROVE BY

地址:新北市中和區莒光路 63 號 8 樓
電話:02-2225-8209
傳真:02-2225-7523

Revision History		
Revision	Date	Description
V1	2024/04/24	新發行

NO.	NAME	FINSH	MAT'L	Q'TY	MEMO
1.	PCB	BLACK	FR4	1	
2.	Cable	BLACK	--	1	ø1.13
3.	IPEX	GOLD PLATED	PHOSPHOR BRONZE	1	MHF4L 20565-001R-13
4.	拉耳背膠	--	--	1	



PROJECTION	TOLERANCE UNLESS OTHERWISE SPECIFIED		亞驪企業股份有限公司 ARISTOTLE ENTERPRISES INC.
	LINER	ANGLE	
UNITS	.X ±1.0	X° ±5°	
MM	.XX ±0.5		TITLE
	.XXX ±0.2		RFA-27-AP379-4B-95

REV.	ECN.	NAME	DATE						DWG NO.
3.				REV.	B				
2.				SHEET	1/1	CHKD.			
1.				SIZE	SCALE				RFA-27-AP379-4B-95
REV.	ECN.	NAME	DATE	A4	1:1	DRAW	Gino	20240424	

(0,0)

供應商料件無毒物質承諾書
Non-use of restricted substances statement

QD4-0032-c2-供應商料件無毒物質承諾書

請填寫相關資訊

Please fill in the relevant information：

公司名稱 Company name：亞驪企業股份有限公司

公司負責人 Company Responsible Person：陳惠珠

立書人 Declarant：胡金晶

立書人職稱 Declarant's Title：業務經理

本聲明書生效日期 Effective Date of this Declaration：2024/4/24

(公司章 Company Stamp or sign)

(負責人章 Responsible Person Chop or sign)

請勾選本聲明書適用範圍

Please Select the Scope of this Declaration：

□提供給醫揚的全部產品 All Products provided to ONYX

☑醫揚料號 ONYX Part Number：

1700010951、1700011751

☑原廠料號 Manufacturer Part Number：

RFA-27-AP379-4B-95、RFA-27-AP379-4G-175

亞驪企業股份有限公司 **(填寫公司名稱) 響應全球綠色環保法規或其他法律，保證如下事項：**

ARISTOTLE ENTERPRISES INC. **(Fill in Company name) Response to global green environmental protection regulations or other laws, guarantee the following matters:**

*為必勾項目

☑*1.產品符合歐盟 RoHS (2011/65/EU & (EU) 2015/863) 規範。

The product complies with EU RoHS (2011/65/EU & (EU) 2015/863) Directive.

☑*2.產品符合衝突礦產規範(EICC電子產業公民聯盟及CFSP無衝突礦產冶煉廠計畫等)，

銷售的產品中所含的金(Au)，鉭(Ta)，錫(Sn)和鎢(W)來源，非來自於「衝突礦區」剛果民主共 和國及其周邊國家剛果、烏干達、蘇丹、坦桑尼亞、盧旺達、安哥拉、贊比亞、布隆迪等

Products comply with conflict mineral policy (EICC electronics industry civil unions and CFSP conflict mineral smelters plan, etc.), sales of the products contained in the gold (Au), tantalum (Ta), tin (Sn) and tungsten (W) source, not from the "conflict mineral area" of the democratic republic of the Congo and its neighboring countries in Congo, Uganda, Tanzania, Rwanda, Sudan, Angola, Burundi, Zambia, etc

□ 3.產品符合蒙特婁議定書(Montreal Protocol on Substances that Deplete the Ozone Layer)

規範，並確認銷售產品不含蒙特婁議定書規範之化學物質。

The product complies with the Montreal Protocol on Substances that Deplete the Ozone Layer regulation, and confirm that your company selling products does not contain the Montreal Protocol provisions chemicals.

☑*4.產品符合歐盟最新REACH (EC 1907/2006) 規範。

高關注物質(SVHC)，不超過0.1%上限，以重量計算。

備註：請參照歐盟化學總署(ECHA)網站，最新的高關注物質清單。

This product complies with latest EU REACH (EC 1907/2006) norms.
The SVHC, are not over 0.1% threshold by weight.
Note: Please check ECHA website for latest SVHC list:
https://echa.europa.eu/candidate-list table

□5.產品符合 UL（Underwriter Laboratories Inc.)，並已經對產品的代表性樣品進行測試，並確認其符合 UL 的相應要求及已發佈的功能安全標準

The product meets the requirements of UL (Underwriter Laboratories Inc.) and has been tested on a representative sample of the product to confirm compliance with the requirements of UL and the published functional safety standards

□6.產品符合美國眾議院(防止維吾爾人強迫勞動法案),產品皆無在新疆製造

The products comply with the US House of Representatives' (Prevention of Uighur Forced Labor Act) and are not manufactured in Xinjiang, China.

□7.符合WEEE(廢電子電機設備指令)指令(2012/19/EU)，新指令的目的是為了提高電子廢棄物經過適當處理的量，並減少廢棄產品數量。

Comply with WEEE Directive 2012/19/EU. The aim of the new directive is to increase the amount of e-waste that is appropriately treated and to reduce the volume that goes to disposal.

□8. 遵循《加州 65 號提案 (California's Proposition 65)》規 定

Comply with California's Proposition 65 (Prop 65)

☑*9. 包材產品符合法國包材暨礦物油環保法第112條規範，自2023年1月1日起，禁止在包裝/文件上使用礦物油。France published Decree No. 2020-105 on the 'Fight Against Waste and the Circular Economy'. Article 112 to this law: Prohibits mineral oils on packaging, advertising material and catalogs from January 1, 2023

☑*10.所有材料和產品均不包含俄羅斯的鋼鐵，鋼鐵原料也非由俄羅斯進口。All of materials and products dose neither originate in Russia nor contain any Russian iron and steel inputs.

11. 立書人提供給醫揚的所有文件（含測試報告、聲明書、調查表等文件)，均正確屬實並且完整。

All documents (including test reports, declarations, survey forms, etc.) provided by Declarant to ONYX shall be accurate, true and complete.

12. 如有違背此保證聲明書的規定， 亞驪企業股份有限公司 (填寫公司名稱) 將承擔相關法律責任並賠償醫揚所受損害。

If violates any provision of this Declaration, ARISTOTLE ENTERPRISES INC. (Fill in Company name) shall take legal responsibilities and compensate ONYX for damages and losses caused by the violation.

ARISTOTLE ENTERPRISES INC.

Specifications

RFA-27-AP379-4B-95

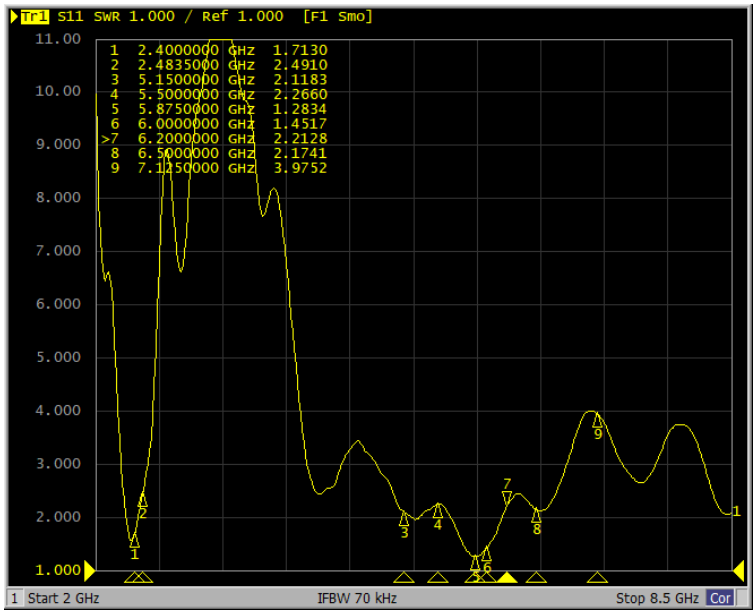
Electrical Specifications

Frequency range	2400-2500 MHz	5150-7125 MHz
Peak gain	0.94 dBi	2.43 dBi
Average gain	-6.53 dBi	-5.08 dBi
Efficiency	22.25 %	31.71 %
VSWR	3.0 : 1 Max.	4.5 : 1 Max.
Polarization	Linear, vertical	
Impedance	50 Ω	
Connector	IPEX MHF4	
Cable	Ø1.13	

Environmental & Mechanical Characteristics

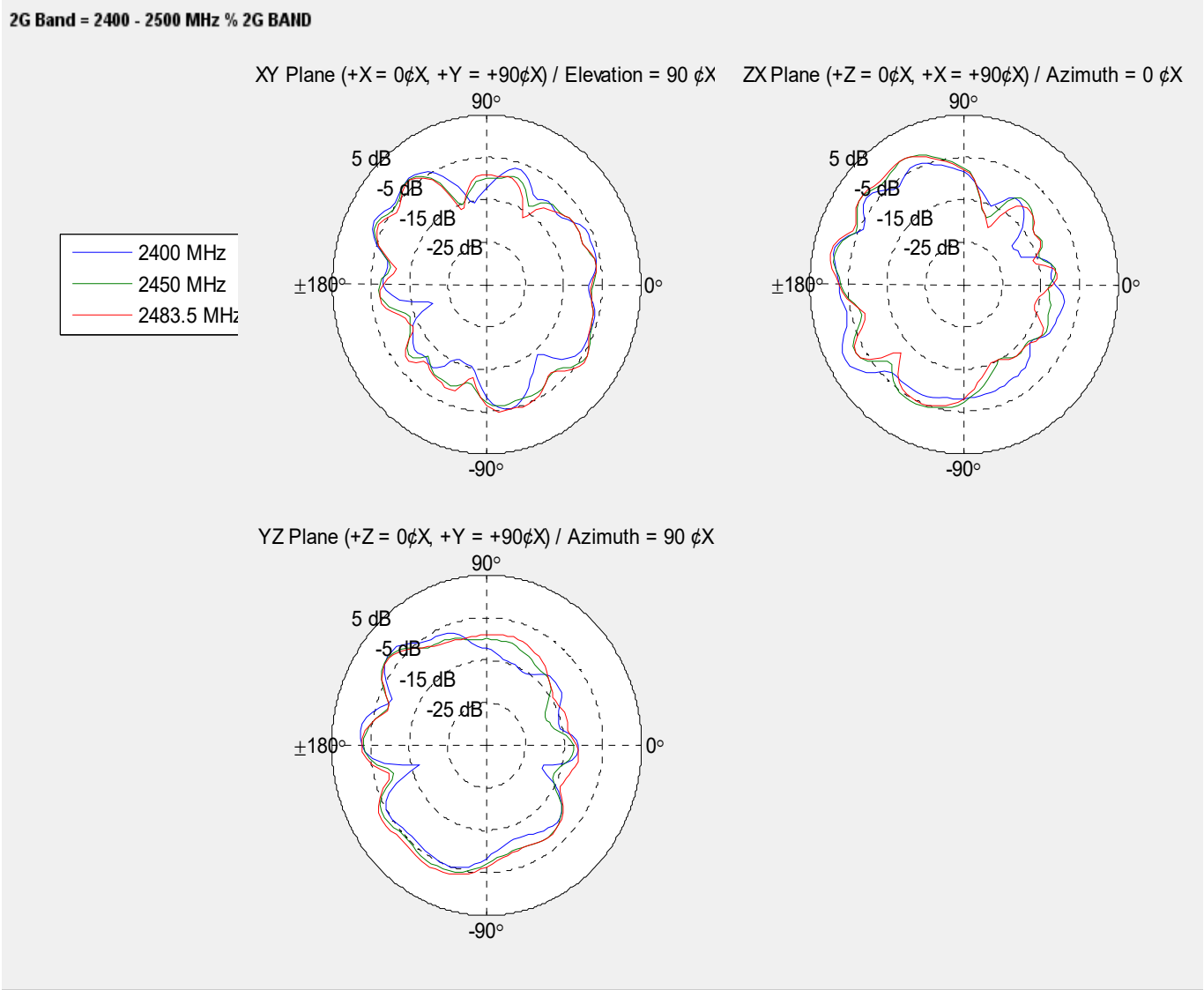
Temperature	- 10℃ to +55℃
Humidity	95% @ 25℃

VSWR



ARISTOTLE
8F, No.63, Juguang Rd, Zhonghe Dist, New Taipei City 235, Taiwan, R.O.C.
Tel : +886-2-2225-8209 Fax: +886-2-2225-7523 www.aristotle.com.tw

Radiation Pattern



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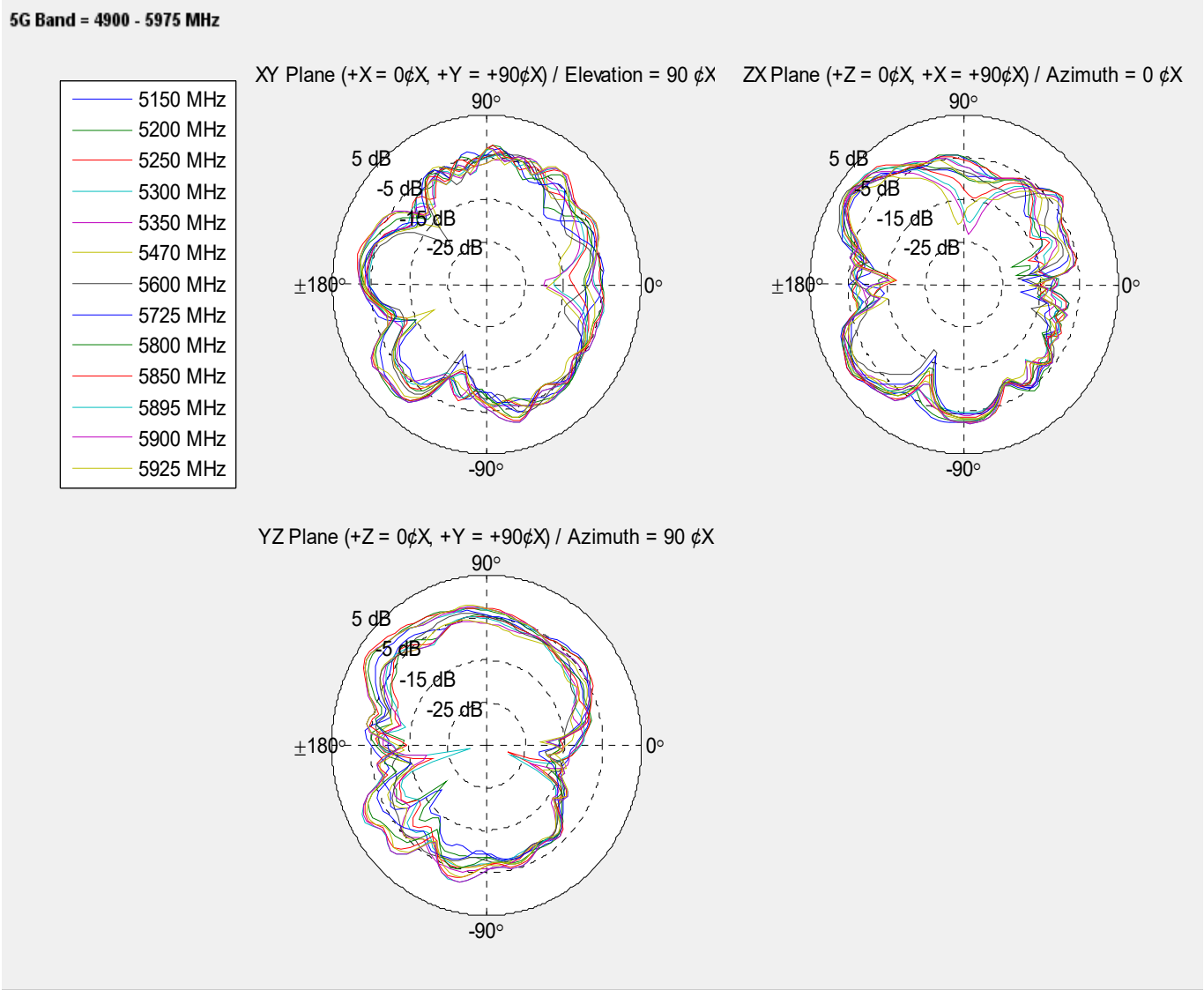
Radiation Pattern



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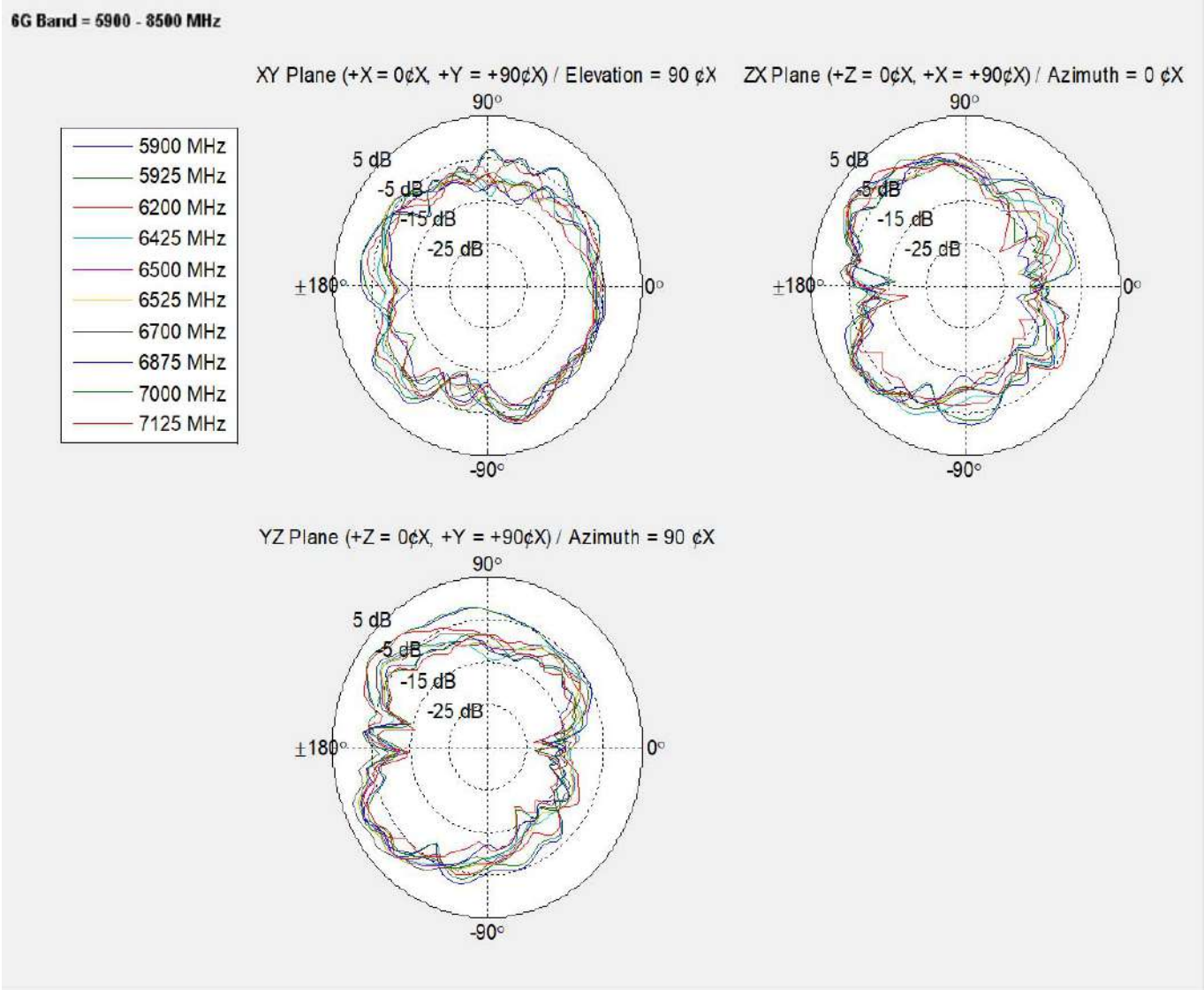
Radiation Pattern



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NAN YA PLASTICS CORPORATION
ELECTRONIC MATERIALS DIVISION.
COPPER CLAD LAMINATE DEPARTMENT

NO. 201. TUNG HWA N. ROAD,
TAIPEI, TAIWAN.

Glass cloth base epoxy resin
flame retardant copper clad laminate

NP-140TL

■ FEATURES

- Multi-functional epoxy renders the material outstanding heat resistance, better dimensional stability, and through-hole reliability that benefit the performance of high layer count multilayer boards.
- HTE copper foil applied to prevent corner cracking.
- High luminance of epoxy contrast with copper for laser type A.O.I.
- UV solder mask may be applied simultaneously in order to increase yields.
- IPC-4101B specification is applicable.

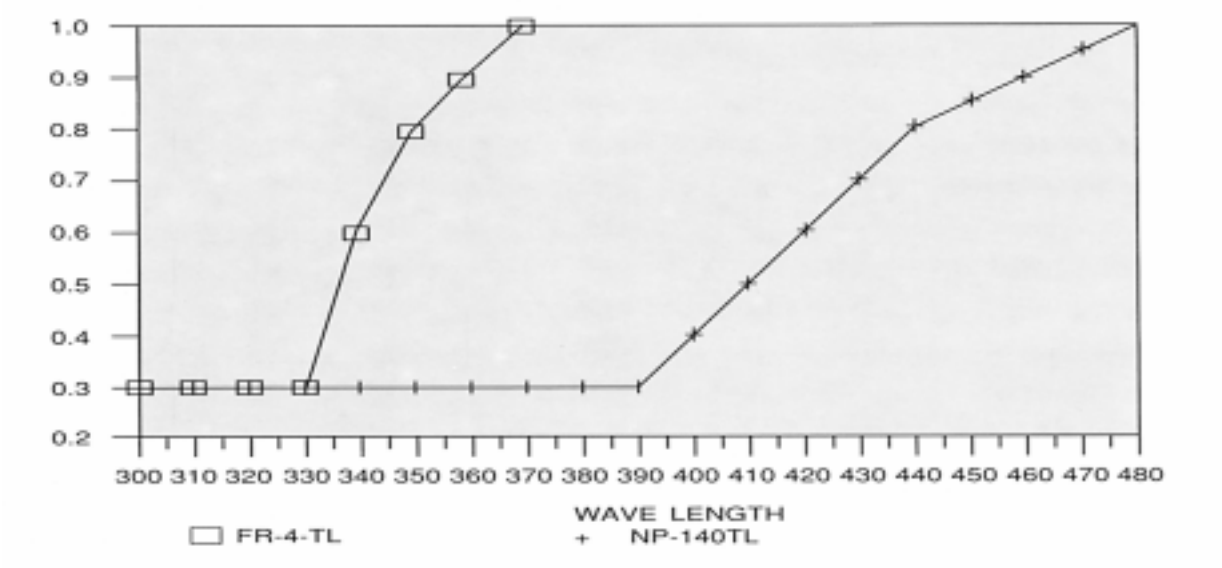
■ PERFORMANCE LIST

Characteristics	Unit	Conditioning	Typical Values	SPEC	Test Method
Volume resistivity	MΩ-cm	C-96/35/90	5.0 x10^9	10^6 ↑	2.5.17
Surface resistivity	MΩ	C-96/35/90	5.0 x10^7	10^4 ↑	2.5.17
Permittivity 1 MHZ	-	C-24/23/50	4.2-4.4	5.4 ↓	2.5.5.9
Permittivity 1 GHZ	-	C-24/23/50	3.8-4.0	-	2.5.5.9
Loss Tangent 1 MHZ	-	C-24/23/50	0.015-0.020	0.035 ↓	2.5.5.9
Loss Tangent 1 GHZ	-	C-24/23/50	0.012-0.014	-	2.5.5.9
Arc resistance	SEC	D-48/50+D-0.5/23	120 ↑	60 ↑	2.5.1
Dielectric breakdown	KV	D-48/50	60 ↑	40 ↑	2.5.6
Moisture absorption	%	D-24/23	0.20-0.30	0.35 ↓	2.6.2.1
Flammability	-	C-24/23/50+E-24/125	94V0	94V0	UL94
Peel strength 1 oz	lb/in	288°Cx10" solder floating	10-14	6 ↑	2.4.8
Thermal stress	SEC	288°C solder dipping	90 ↑	10 ↑	2.4.13.1
Glass transition temp	°C	DSC	140 ± 5	N/A	2.4.25
Dimensional stability X-Y axis	%	E 4/105	0.01-0.03	0.05 ↓	2.4.39
Coefficient of thermal expansion Z-axis before Tg Z-axis after Tg	ppm/°C ppm/°C	TMA TMA	50-70 250-350	N/A	2.4.24

Data shown are nominal values for reference only.

NOTE:
The average value in the table refers to samples of .020" 1/1.
Test method per IPC-TM-650

■ UV TRANSMISSION CURVE OF 0.2mm CCL



■ PRODUCT SIZE & THICKNESS

THICKNESS INCH(mm)	COPPER CLADDING OZ (μm)	SIZE INCH	SIZE mm	THICKNESS TOLERANCE
0.004 (0.1)	0.5 (17)	48.8 x 36.6	1240 x 0930	
to	1.0 (35)	48.8 x 40.5	1240 x 1030	CLASS C/M
0.047(1.2)	2.0 (70)	48.8 x 42.5	1240 x 1080	

■ Keeping the core and prepreg in the same grain direction is crucial to ensure the flatness of multilayer boards.

Grain direction is shown on the Certificate of Conformance

■ CERTIFICATION UL

・UL File No. : E98983

■ CONSTRUCTION:

THICKNESS mm	THICKNESS mil	CONSTRUCTION	
0.08	3	2112	1 ply
0.10	4	1080	2 plies
0.11	4	2116	1 ply
0.13	5	1080	2 plies
0.13sp	5	2116	1 ply
0.15	6	1506	1 ply
0.16	6	2112	2 plies
0.21	8	7628	1 ply
0.26	10	2116	2 plies
0.30	12	2116	3 plies
0.30sp	12	1506	2 plies
0.35	14	7628	2 plies
0.38	15	7628	2 plies

THICKNESS mm	THICKNESS mil	CONSTRUCTION	
0.45	18	7628 x 2 + 1080 x 1	
0.46	18	7667	2 plies
0.50	20	7628	3 plies
0.53	21	7628	3 plies
0.60	24	7628	3 plies
0.77	31	7628	4 plies
0.8	32	7628	4 plies
0.9	36	7628	5 plies
1.0	39	7628	5 plies
1.1	43	7628	6 plies
1.2	47	7628	6 plies

*1.2,1.1,1.0,0.9,0.77 mm, THICKNESS INCLUDES CLADDING. ALL OTHERS EXCLUDE CLADDING.

ONLINE CERTIFICATIONS DIRECTORY

QMTS2.E98983
Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

Enhanced searching capability for this category can be found in UL's iQ Family of Databases (iq.ul.com).

Page Bottom

Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

See General Information for Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

NAN YA PLASTICS CORP CCL DEPT ELECTRONIC MATERIAL DIV E98983
201 TUNG HWA N RD
TAIPEI, 10508 TAIWAN

High density interconnect - resin coated foils:

		Core		Dielectric			R.T.I.				H		
Mtl Dsg	Color	Min Thk (mm)	Max Thk (mm)	Min Thk (mic)	Max Thk (mic)	Flame Class	Elec (°C)	Mech (°C)	HWI	HAI	VTR	CTI	Meets 746E DSR
ANSI FR-4 core with Epoxy (EP) dielectric, High density interconnect - resin coated foils, furnished as sheets.													
NPRCC ($2)@&, NPRC180 ($2)@&, NPRCC(H) ($2)@&													
	NC	0.10	-	35	110	V-0	90	-	0	4	-	4	-
NPRCCG ($4)@&, NPRC180G ($4)@&													
	NC	0.10	-	35	110	V-0	90	-	0	1	-	4	-
UL ANSI FR-4 core with Epoxy (EP) dielectric, High density interconnect - resin coated foils, furnished as sheets.													
NPRCF @	NC	0.035	-	25	110	V-0	-	-	-	-	-	-	-

Industrial laminates:

			Build up		R.T.I.				H		
Mtl Dsg	ANSI Type	Color	Min Thk (mm)	Flame Class	Elec (°C)	Mech (°C)	HWI	HAI	VTR	CTI	Meets 746E DSR
Industrial laminates, furnished as rolls.											
NPG-PYR, NPG-PYTL, NPG-170PYR, NPG-170PYTL											
	No ANSI	NC	0.64	V-0	90	90	0	0	-	-	Yes
		NC	1.40	V-0	90	90	0	0	-	0	Yes
		NC	0.38	V-0	90	90	0	0	-	-	Yes
Industrial laminates, furnished as sheets.											
CEM-1-05	CEM-1	NC	0.63	V-0	130	140	3	2	-	-	Yes
			1.40	V-0	130	140	1	2	-	0	Yes
CEM-1-05PY, CEM-1-08											
	No ANSI	NC	0.63	V-0	90	90	0	4	-	-	-
			1.40	V-0	90	90	0	4	-	0	-

CEM-1-87, UV Block CEM-1-87											
	CEM-1	NC	0.64	V-0	130	140	3	2	0	-	Yes
			1.40	V-0	130	140	1	2	0	3	Yes
CEM-1-97, CEM-1-97 PM, UV Block CEM-1-97											
	CEM-1	NC	0.64	V-0	130	140	3	2	-	-	Yes
			1.40	V-0	130	140	1	2	-	0	Yes
CEM-3-01	No ANSI	NC	0.64	V-0	115	115	0	4	-	-	-
			1.40	V-0	115	115	0	3	-	3	Yes
CEM-3-01PY, CEM-3-09, CEM-3-01 HC, CEM-3-09HT											
	CEM-3	NC	0.63	V-0	130	140	0	2	-	-	Yes
			1.40	V-0	130	140	0	2	-	0	Yes
CEM-3-86, UV Block CEM-3-86											
	CEM-3	NC	0.64	V-0	130	140	0	0	-	-	Yes
			1.40	V-0	130	140	0	0	0	3	Yes
CEM-3-92 PY, CEM-3-10											
	CEM-3	NC	0.63	V-0	130	140	0	2	-	-	Yes
			1.40	V-0	130	140	0	2	-	0	Yes
CEM-3-92, UV Block CEM-3-92											
	CEM-3	NC	0.64	V-0	130	140	0	2	-	-	Yes
			1.40	V-0	130	140	0	2	-	3	Yes
CEM-3-95	CEM-3	BK	0.64	V-0	130	140	0	0	-	-	Yes
			1.40	V-0	130	140	0	0	-	3	Yes
CEM-3-98, CEM-3-86PY											
	No ANSI	NC	0.64	V-0	120	120	0	3	-	-	Yes
			1.40	V-0	120	120	0	3	-	0	Yes
FR-4-86 (#1), FR-4-TL (#1), UV Block FR-4-86 (#1)											
	FR-4	NC	0.18	V-0	130	105	0	0	-	-	Yes
			0.38	V-0	130	130	0	0	-	-	Yes
			0.64	V-0	130	140	0	0	-	-	Yes
			1.40	V-0	130	140	0	0	0	3	Yes
FR-4-98, FR-4-86PY, NP-140TLPY											
	No ANSI	NC	0.38	V-0	130	120	0	3	-	-	Yes
			0.64	V-0	130	120	0	3	-	-	Yes
			1.40	V-0	130	120	0	3	-	0	Yes
NP-140R (#2), NP-140TL (#2), NP-140MR (#2), NP-140MTL (#2)											
	FR-4		0.04	V-0	120	130	3	4	-	-	-
			0.25	V-0	120	130	3	3	-	-	Yes
			0.38	V-0	130	130	0	3	-	-	Yes
			0.64	V-0	130	140	0	3	4	-	Yes
			1.40	V-0	130	140	0	2	4	3	Yes
NP-150TL, NP-150R											
	FR-4	NC	0.38	V-0	130	130	0	3	-	-	Yes
			0.64	V-0	130	140	0	3	-	-	Yes
			1.40	V-0	130	140	0	2	-	4	Yes

SPECIFICATION FOR APPROVAL

DOCUMENT: A3132TS001

STYLE： COAXIAL CABLE
105℃ 30V

SIZE: 32AWG×1C
BRAID ：TS

RECOGNIZED: UL 1979
MEET VW-1

WONDERFUL HI-TECH CO.,LTD.

OFFICE：72WU KONG 6TH ROAD,
WU KU IND. DISTRICT
TAIPEI HSIEN,TAIWAN

TEL：(02)22988033
FAX：(02)22988031-2

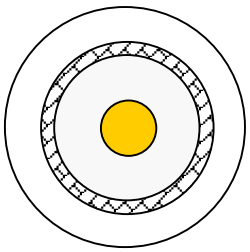
FACTORY：17 PEI YUAN ROAD,
CHUNG-LI IND. PARK
TAIWAN, R.O.C.

TEL：(03)4527777
FAX：(03)4622419

WONDERFUL HI-TECH CO., LTD.
SPECIFICATION

STYLE	105℃ 30V UL 1979	DOCUMENT NO : A3132TS001
SIZE	32AWG	ESTABLISHED DATE: Mar/16/2005

STANDARD :

Conductor	Size	AWG	32
	Material	----	Silver Cover Copper
	Conductors No.	----	7
	Conductors Size	mm	0.085± 0.008
	O.D.	mm	0.26± 0.03
Insulation	Average Thickness	mm	0.22± 0.03
	Diameter	mm	0.70 ± 0.03
	Material	----	FEP
	Color	----	Clear
Braid	Material	----	Tinned Copper
	Construction	mm	16 / 4 / 0.05
	Coverage	%	90
Jacket	Average Thickness	mm	0.12±0.05
	Diameter	mm	1.13±0.1
	Material	----	FEP
	Color	----	According to customer
Marking	Non		
Drawing			

MAKER：Talis Huang CONFIRM：W.J. Wang APPROVAL： Glen Lin

WONDERFUL HI-TECH CO., LTD.
SPECIFICATION

Electrical & Physical Properties			
Item			32AWG
Rating Temp. Voltage			105℃ 30V
Conductor Resistance			497 OHM/KM/20℃ MAX.
Insulation Resistance			3000 MEGA OHM-KM MIN.
Dielectric Strength			AC 500 V/Minute
Spark Test			1 KV
Insulation	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / m m²)
		Elongation	200% MIN.
	Aged	Tensile Strength	UNAGED MIN. 75%(168HRS×232℃)
		Elongation	UNAGED MIN. 75%(168HRS×232℃)
Jacket	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / m m²)
		Elongation	200% MIN.
	Aged	Tensile Strength	UNAGED MIN.75%(168HRS×232℃)
		Elongation	UNAGED MIN.75%(168HRS×232℃)
Nom. Impedance			50 ± 3 Ohms
Nom. Capacitance			96 ± 3 pF/m
Nom. Vel. of Prop.			69%
VSWR Test (0 – 6 GHZ)			Max 1.35
VSWR Test (6 – 8 GHZ)			Max 1.45
Flame Test			VW-1 OK
BEND RADIUS			Min. 5mm
Operation Temperature			-40~200℃
Storage Temperature			-40~200℃

MAKER：Talis Huang CONFIRM：W.J. Wang APPROVAL： Glen Lin

		Frequency	Reference value
Attenuation	dB/1m	1.0GHz	2.20
		2.0GHz	3.10
		3.0GHz	3.90
		4.0GHz	4.50
		5.0GHz	5.00
		6.0 GHz	5.50
		7.0 GHz	6.10
		8.0 GHz	6.70

The above values may be affected by processing and connector itself, the information is for engineering reference only.

UL Product iQ®

AVLV2.E77981 - Appliance Wiring Material - Component

Appliance Wiring Material - Component

WONDERFUL HI-TECH CO LTD
2F 72 WU KONG 6TH RD
WUGU DISTRICT
NEW TAIPEI INDUSTRIAL PARK
NEW TAIPEI, 248 Taiwan

E77981

Table of Recognized Styles

Single-conductor, thermoplastic insulation							
1007	1027	1227	1340	1431	1640	1868	10444
1009	1028	1230	1342	1436	1641	1953	10484
1010	1029	1275	1344	1452	1650	1971	10515
1011	1030	1283	1345	1478	1651	1973	10535
1012	1031	1316	1346	1489	1663	1976	10602
1013	1032	1317	1347	1497	1672	1979	10627
1014	1033	1318	1354	1500	1674	10002	10704
1015	1061	1319	1365	1503	1691	10005	10738
1016	1071	1320	1375	1509	1692	10064	10741
1017	1095	1321	1381	1533	1726	10070	10800
1018	1107	1330	1408	1550	1727	10131	10801
1019	1113	1331	1409	1569	1741	10231	10921
1020	1118	1332	1410	1571	1743	10254	10936
1021	1120	1333	1411	1581	1745	10269	10937
1022	1150	1335	1412	1589	1777	10272	10985
1023	1185	1336	1413	1605	1790	10362	11014
1024	1195	1337	1414	1617	1792	10368	11030
1025	1208	1338	1429	1618	1803	10369	11352
1026	1226	1339	1430	1631	1867	10439	11733
Multiple-conductor, thermoplastic insulation							

2084	2345	2498	2586	2777	2960	20236	21088

2092	2346	2501	2589	2789	2961	20245	21099
2093	2384	2502	2591	2791	2969	20246	21143
2094	2385	2511	2592	2824	2970	20247	21153
2095	2386	2516	2598	2833	2990	20251	21286
2096	2387	2517	2614	2835	2991	20276	21307
2097	2388	2528	2623	2844	2992	20279	21327
2098	2396	2532	2626	2851	2993	20280	21355
2099	2404	2547	2630	2854	2994	20288	21398
2100	2405	2549	2631	2876	20002	20306	21439
2101	2444	2550	2637	2877	20006	20379	21451
2102	2448	2552	2648	2881	20035	20417	21468
2103	2462	2562	2651	2896	20058	20489	21503
2106	2463	2569	2661	2919	20063	20544	21520
2127	2464	2570	2668	2933	20121	20549	
2128	2468	2571	2674	2934	20127	20554	
2265	2474	2574	2678	2935	20187	20620	
2273	2483	2576	2704	2936	20197	20792	
2331	2490	2582	2717	2937	20207	21016	
2343	2493	2583	2725	2938	20233	21064	
2344	2497	2584	2733	2951	20234	21080	
Single-conductor, thermoset insulation							
3034	3168	3265	3286	3348	3385	3439	30035
3039	3173	3266	3302	3376	3386	3443	
3044	3199	3271	3321	3377	3424	3619	
Multiple-conductor, thermoset insulation							
4028	4032	4036	4384	4469	4478		

Style(s) 1007, 1015, 10269, 1028, 10741, 10937, 1346, 1569, 2103, 3265, 3385 can be assigned the IEC 60332-1 flammability rating

Style(s) 1007, 1015, 10269, 1028, 10741, 10937, 1346, 1569, 2103, 3265, 3385 can be assigned the IEC 60332-2 flammability rating

Marking: Company name, voltage rating, temperature rating, conductor size, conductor material if other than copper,.

Last Updated on 2022-05-09

APPLIANCE WIRING MATERIAL

Subj.758 Section 1 Page 1979 Issued:1986-02-26

Revised:2012-07-26

Style 1979 Single conductor with extruded insulation and non-integral jacket.

Rating	105 deg C, 30 Vac, Horizontal flame.
Conductor	40-20 AWG. Material not specified.
Insulation	Extruded ETFE or extruded FEP or extruded PFA, 1.8 mils min average, 1.5 mils minimum at any point.
Shield	Optional.
Jacket	Extruded ETFE or extruded FEP or extruded PFA, 1.8 mils minimum average, 1.5 mils minimum at any point.
Standard	Appliance Wiring Material UL 758.
Marking	General.
Use	Internal Wiring of Class 2 Circuits in Electronic Equipment.

MHF® 4 / 4L Connector

Part No. MHF 4L Plug: 20565-001R-13, 20572-001R-08 MHF 4 Receptacle: 20449-001E-**

Product Specification

Qualification Test Report No. TR-13011

Rev.	ECN	Date	Prepared by	Checked by	Approved by
16	S22368	August 30, 2022	M. Hidaka	K. Yufu	Y. Hashimoto
15	S22251	June 16, 2022	H. Lu	Y. Shimizu	M. Takemoto
14	S22219	June 1, 2022	K. Watanabe	K. Yufu	Y. Hashimoto
13	S21509	October 22, 2021	K. Ikeshita		M. Takemoto

1. Scope

This Product Specification defines the test conditions and the performances of the MHF 4 / 4L Connector
Test method is complied with “PCI Express® M.2 Electromechanical Specification DRAFT Revision 0.9”.

2. Product Name and Parts No.

2.1 Product Name

MHF 4 / 4L Connector

2.2 Parts No.

MHF 4L Plug: 20565-001R-13, 20572-001R-08
MHF 4 Receptacle: 20449-001E-**

3. Rating

3.1 Applicable cable

3.1.1 Part No. 20565-001R-13

(1) Description

Inner conductor: AWG#32(7/0.08) , Silver plating copper wire
Dielectric core: Fluoro-plastics, diameter 0.68(+0.04,-0.02)mm
Outer conductor: Braid of 0.05mm, diameter 0.93(±0.09)mm, silver plating copper wire
or tin plating copper wire
Jacket: Fluoro-plastics, diameter 1.13(+0.08,-0.05)mm

(2) Requirements

Characteristic impedance: 50±2Ω by TDR method
Nominal capacitance(Reference value): 97 pF/m
Dielectric withstand voltage: no breakdown at AC 500V for 1 minutes.

3.1.2 Part No. 20572-001R-08

(1) Description

Inner conductor : AWG#36(7/0.05) ,Silver plating copper wire
Dielectric core : Fluoro-plastics ,diameter 0.40(+0.04,-0.02)mm
Outer conductor : Braid of 0.05mm, diameter 0.65(±0.1)mm , silver plating copper wire or tin plating copper wire
Jacket : Fluoro-plastics , diameter 0.81(+0.04,-0.03)mm

(2) Requirements

Characteristic impedance : 50±3Ω by TDR method
Nominal capacitance(Reference value): 96 pF/m
Dielectric withstand voltage : no breakdown at AC 1,000V for 1 minutes.

3.2 Conditions

Voltage: 60 Vr.m.s AC
Operating Temperature: 233～363K(-40℃～+90℃)
(Containing temperature rise by current)
Nominal characteristic impedance: 50Ω
Frequency: DC~9 GHz
VSWR: [Plug] 1.30 MAX at 0.1~3 GHz
1.45 MAX at 3~6 GHz
1.60MAX at 6~9 GHz
1.90MAX at 9~12 GHz
[Receptacle] 1.30 MAX at 0.1~3 GHz
1.40 MAX at 3~6 GHz
1.55 MAX at 6~9 GHz

3.3 Storage Conditions

Storage temperature: 248 to 333K(-25℃ to 60℃)
Storage humidity: 85% max. (Non-condensing)

4. Test and Performance

Test Condition

This initial test is equal to it's at shipping condition and unless otherwise specified, all tests and measurements shall be performed under the following conditions in accordance with MIL-STD-202.

Temperature… 288K～308K（15℃～35℃）
Pressure… 866hPa～1066hPa（650mmHg～800mmHg）
Relative humidity… 45～75%R.H.

4.1. Electrical Performance

1. Contact resistance	
Reference standard:	MIL-STD-202-307
Test conditions:	Solder the receptacle connector to the test board and mate the plug connector together, then measure the contact resistance as shown in Fig.1 by the four terminal methods. Apply the low level condition of 20mV MAX. DC for the open circuit voltage and 10mA MAX. DC for the closed circuit current.

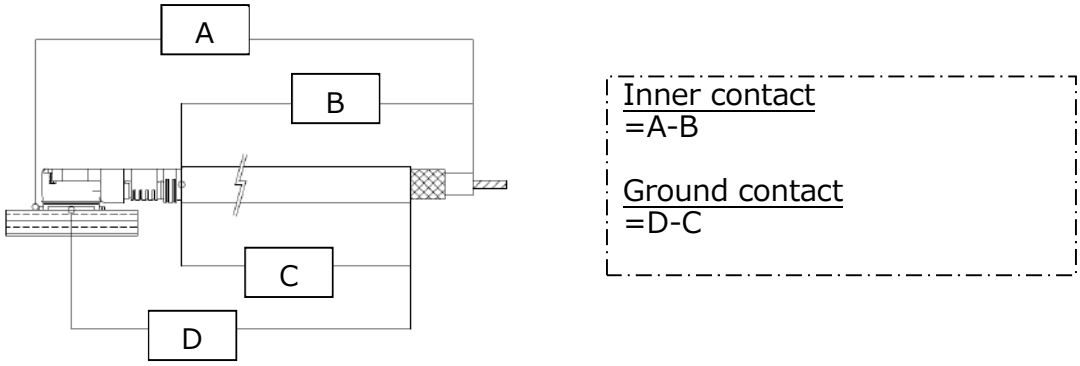


Fig. 1 Contact resistance

Pass criteria:	Contact Initial: 20 mΩMAX. After testing: ⊿R20 mΩ MAX. Ground contact Initial: 20 mΩ MAX. After testing: ⊿R20 mΩ MAX.

2. Insulation resistance	
Reference standard:	MIL-STD-202-302
Test conditions:	Mate the plug and receptacle connector together, and then apply DC 100 V between the inner contact and the ground contact.
Pass criteria:	Initial: 500 MΩ MIN. After testing: 100 MΩ MIN.

3. Dielectric withstanding voltage	
Reference standard:	MIL-STD-202-301
Test conditions:	Mate the receptacle and plug connector together, then apply AC 200V(rms) between the neighboring contacts for a minute.
Pass criteria:	No creeping discharge, flashover, no insulator breakdown shall occur.

4.1. Electrical Performance

4.VSWR	
Reference standard:	-
Test conditions:	Measure the VSWR as shown in Fig. 2 by the network analyzer. Frequency ： 100MHz ～ 12GHz

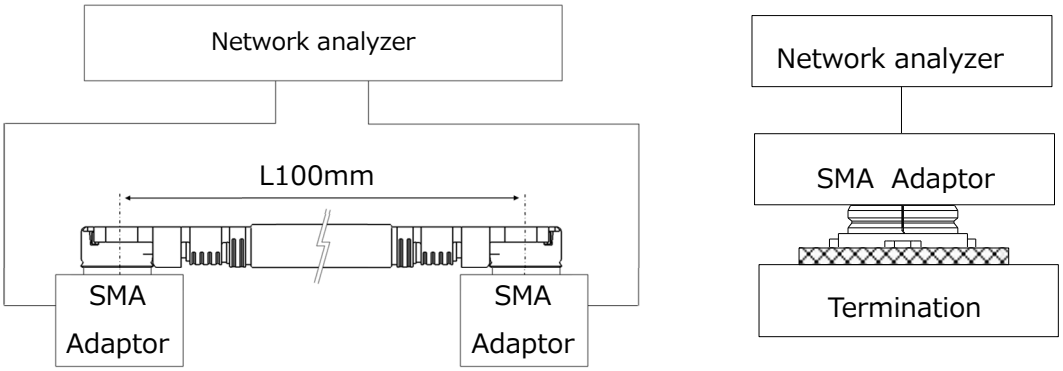


Fig. 2 VSWR

Pass criteria:	PLUG:	1.30 MAX. at 0.1~3GHz, 1.45 MAX. at 3~6GHz 1.60 MAX. at 6~9GHz, 1.90 MAX. at 9~12GHz
	RECEPTACLE:	1.30 MAX. at 0.1~3GHz, 1.40 MAX. at 3~6GHz, 1.55MAX. at 6~9GHz

4.2. Mechanical Performance

1. Mating force and Un-mating force	
Reference standard:	-
Test conditions:	Solder the receptacle connector to the test board, then place the board and plug on push-on/pull-off machine, measure of initial and mating/unmating 30 cycles at a speed 25±3mm/min. along the mating axis.
Pass criteria:	Mating force Initial: 30 N MAX. 30cycles: 30 N MAX. Unmating force Initial: 20 N MAX. , 5 N MIN. 30cycles: 20 N MAX. , 3 N MIN..

2. Cable retention force at 30 degree	
Reference standard:	-
Test conditions:	Mate plug with receptacle and tilt cable by 30 degree and pull the cable by 10N force with 10 cycles toward arrowhead direction. (Fig. 3)

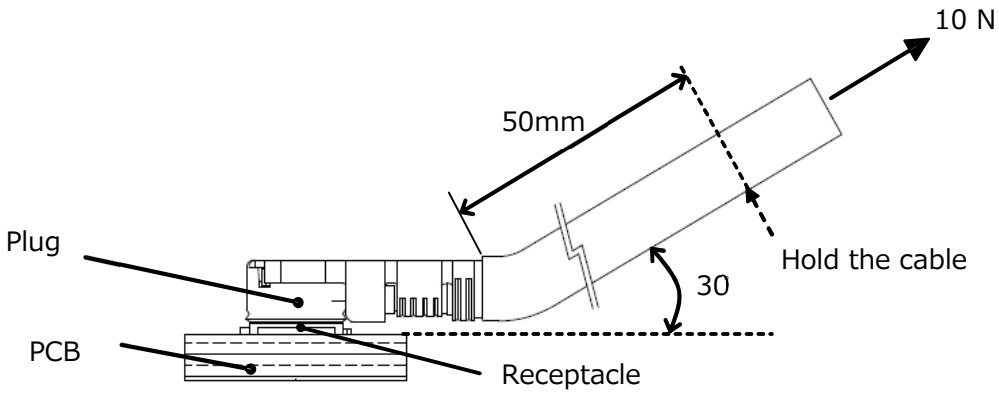


Fig. 3 Cable retention force at 30 degree

Pass criteria:	Appearance：No abnormality adversely affecting the performance shall occur Electrical discontinuity: No electrical discontinuity greater than 1μs.

4.2. Mechanical Performance

3.Cable retention force at 0 degree	
Reference standard:	-
Test conditions:	Mate Plug with Receptacle and pull the φ1.13 cable by 20N force toward horizontal direction. (Fig. 4) In case of φ0.81 cable strength should have more than 10N.

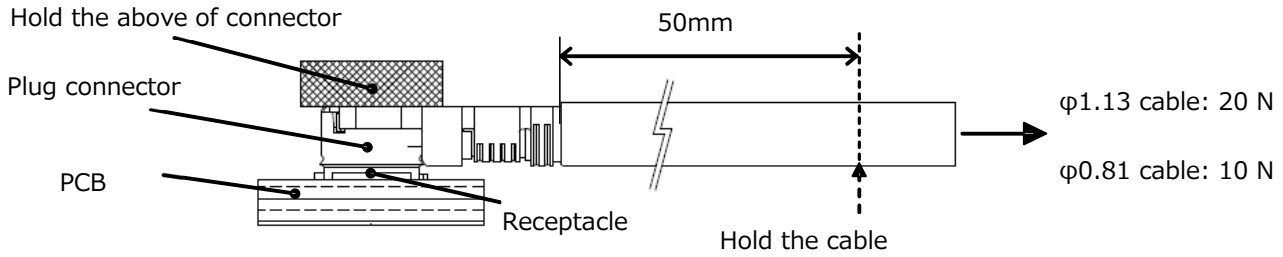


Fig. 4 Cable retention force at 0 degree

Pass criteria:	Appearance：No abnormality adversely affecting the performance shall occur Electrical discontinuity: No electrical discontinuity greater than 1μs.

4. Durability	
Reference standard:	-
Test conditions:	Solder the receptacle connector to the test board, then place the board and plug on the push-on/pull-off machine, and repeat mating and un-mating 30 cycles at a speed 25±3mm/min. along the mating axis.
Pass criteria:	Appearance：No abnormality adversely affecting the performance shall occur Contact Resistance: Shall meet4.1.1.

5. Receptacle shearing strength	
Reference standard:	-
Test conditions:	Solder the receptacle connector to the test board, push the receptacle connector from each directions as Shown in Fig. 5. Measure the strength when the connector is broken.

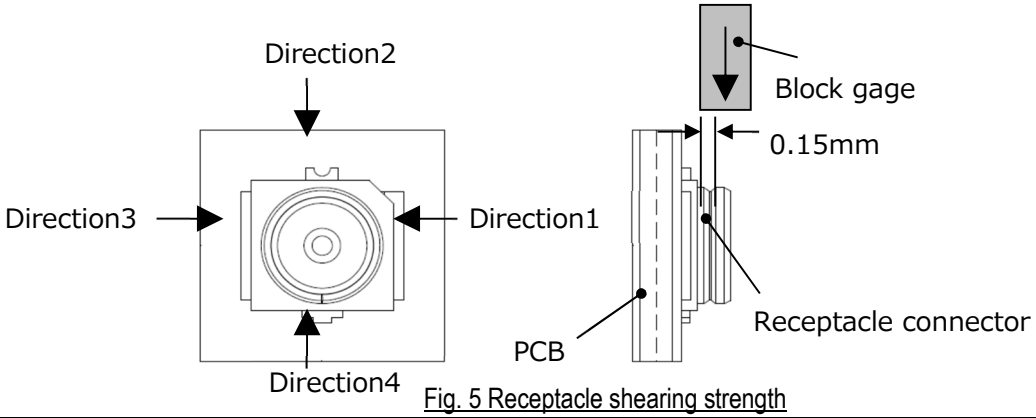


Fig. 5 Receptacle shearing strength

Pass criteria:	Shearing strength: 20 N MIN.

4.2. Mechanical Performance

6. Vibration	
Reference standard:	MIL-STD-202-201.
Test conditions:	Apply the following vibration to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. Frequency: 10Hz →100Hz → 10Hz ／ approx 15minutes. Half amplitude, Peak value of acceleration: 1.5mm or 59m/s2 (6G) Directions , cycle: 3 mutually perpendicular direction, 5 cycles (approx 75minutes.) for each direction.
Pass criteria:	Contact resistance: Shall meet 4.1.1. Electrical discontinuity: No electrical discontinuity greater than 1μs shall occur. Appearance ： No abnormality adversely affecting the performance shall occur

7.Shock	
Reference standard:	MIL-STD-202-213.
Test conditions:	Apply the following shock to the mating connector. During the testing, run 100mA DC to check electrical discontinuity. MAX.G: 735m/s^2(75G) Directions: 6 mutually perpendicular direction Duration: 11msec Cycle: 3 cycles about each direction Wave Form: Half Sinusoidal
Pass criteria:	Contact resistance: Shall meet 4.1.1. Electrical discontinuity: No electrical discontinuity greater than 1μs shall occur. Appearance ： No abnormality adversely affecting the performance shall occur

4.3. Environmental Performance

1.Thermal shock	
Reference standard:	MIL-STD-202, Method 107, Condition A.
Test conditions:	Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment. Temperature: 218K(-55℃),30min.→358K(85℃),30min. Transition time: 5min. MAX. No. of cycles: 5 cycles
Pass criteria:	Contact resistance: Shall meet 4.1.1. Insulation resistance: Shall meet 4.1.2. Dielectric withstanding voltage: Shall meet 4.1.3. Appearance ： No abnormality adversely affecting the performance shall occur

2. High temperature life	
Reference standard:	MIL-STD-202-108
Test conditions:	Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment. Temperature: 363±2K (90±2℃) Duration: 96 hours
Pass criteria:	Contact resistance: Shall meet 4.1.1. Appearance ： No abnormality adversely affecting the performance shall occur

4.3. Environmental Performance

3. Humidity(Steady state)	
Reference standard:	MIL-STD-202-103, Condition A.
Test conditions:	Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment. Temperature: 313±2K (40±2℃) Humidity: 90～95%RH Duration: 96 hours
Pass criteria:	Contact resistance: Shall meet 4.1.1. Insulation resistance: Shall meet 4.1.2. Dielectric withstanding voltage: Shall meet 4.1.3. Appearance：No abnormality adversely affecting the performance shall occur

4. Salt water spray	
Reference standard:	MIL-STD-202-101, Condition B
Test conditions:	Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment. Temperature: 308±2K (35±2℃) Salt water density: 5±1% [by weight] Duration: 48 hours
Pass criteria:	Contact resistance: Shall meet 4.1.1. Appearance：No abnormality adversely affecting the performance shall occur adversely affecting the performance shall occur.

5. H_2S gas	
Reference standard:	-
Test conditions:	Solder the receptacle connector to the test board, then mate plug connector, and expose them to the following environment. Temperature: 313±2K (40±2℃) Relative humidity: 80±5%RH Gas: H_2S 3±1ppm Duration: 48 hours
Pass criteria:	Contact resistance: Shall meet 4.1.1. Appearance：No abnormality adversely affecting the performance shall occur adversely affecting the performance shall occur.

4.4.Others

1. Solder ability	
Reference standard:	MIL-STD-202-208
Test conditions:	Dip the solder tine of the contact in the solder bath at 518±5K （245±5℃） for 5±0.5seconds after immersing the tine in the flux of RMA or R type for 5 to 10 seconds.
Pass criteria:	The surface of the dipped contact must become 95% wet and the non-wetted pinholes must not accumulate in one area but be distributed and must be less than 5% of the contact area to be soldered.

2. Soldering heat resistance	
Reference standard:	-
Test conditions:	Reflow temperature profile as shown in Fig. 6. The number of times of reflow is within 2.

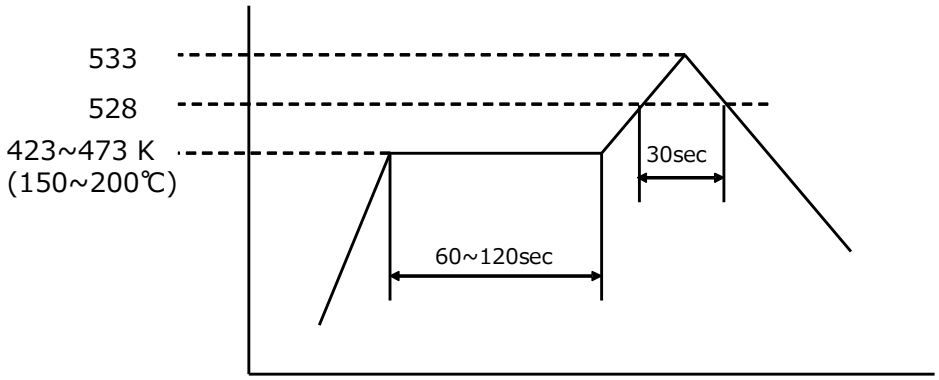


Fig. 6 Reflow Temperature Profile

Pass criteria:	No abnormality adversely affecting the performance shall not occur.

4.5 Test Sequence and Specimen Quantity

Table 1 Test Sequence and Sample Quantity

Test Item		Group														
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
Contact resistance							1,3		1,3	1,3	1,5	1,3	1,3	1,3	1,3		
Insulation resistance											2,6		2,6				
Dielectric withstanding voltage		1									3,7		3,7				
VSWR			1														
Mating force / Unmating force				1													
Cable retention force at 30 degree					1												
Cable retention force at 0 degree						1											
Durability							2										
Receptacle shearing strength								1									
Vibration									2								
Shock										2							
Thermal shock											4						
High temperature life												2					
Humidity (Steady state)													4				
Salt water spray														2			
H_2S gas															2		
Solder ability																1	
Soldering heat resistance																	1
Specimen Quantity (pcs.)	Plug	10	10	10	10	10	10	-	10	10	10	10	10	10	10	-	-
	Receptacle		5					12								10	10

※Numbers indicate sequence in which tests are performed.

5. Recommended Metal Mask

Refer to drawing for the recommended metal mask thickness and opening dimension.

XFR 4840 GF10 (w), 310NF (w) - PLASTICS - COMPONENT

PLASTICS - COMPONENT

File Number: E213445

Yellow Card®

COMPANY

POLYPLASTICS CO LTD
18-1 KONAN 2-CHOME
MINATO-KU, TOKYO 108-8280 Japan

MODEL INFO

Duranex: XFR 4840 GF10 (w), 310NF (w)
Polybutylene Terephthalate (PBT) , furnished as pellets
--(w) Virgin and regrind up to 50% by weight inclusive, have the same flame characteristics only.

FLAMMABILITY PROPERTIES	NOMINAL VALUE	TEST METHOD
Flammability		
0.75 mm, Color: ALL	V-0	ANSI/UL 94, IEC 60695-11-10
1.5 mm, Color: ALL	V-0	ANSI/UL 94, IEC 60695-11-10
3.0 mm, Color: ALL	5VA V-0	ANSI/UL 94
3.0 mm, Color: ALL	V-0	IEC 60695-11-10
3.0, Color: ALL	5VA	IEC 60695-11-20

ELECTRICAL PROPERTIES	NOMINAL VALUE	TEST METHOD
Hot-wire Ignition (HWI)		UL 746A
0.75 mm	1 PLC	
1.5 mm	1 PLC	

3.0 mm	1 PLC		
High Amp Arc Ignition (HAI)			UL 746A
0.75 mm	0 PLC		
1.5 mm	0 PLC		
3.0 mm	0 PLC		
Comparative Tracking Index (CTI)	1 PLC		UL 746
Dielectric Strength	24	kV/mm	ASTM D149
High Voltage Arc Tracking Rate (HVTR)	0 PLC		
Volume Resistivity	1.0E+14	ohms·cm	ASTM D257/IEC 60093
High Voltage, Low Current Arc Resistance	5 PLC		

THERMAL PROPERTIES	NOMINAL VALUE		TEST METHOD
Relative Thermal Index - Electrical Strength			UL 746B
0.75 mm	130	°C	
1.5 mm	130	°C	
3.0 mm	130	°C	
Relative Thermal Index - Mechanical Impact			UL 746B
0.75 mm	125	°C	
1.5 mm	125	°C	
3.0 mm	125	°C	
Relative Thermal Index - Mechanical Strength			UL 746B
0.75 mm	125	°C	
1.5 mm	125	°C	
3.0 mm	125	°C	

Report Date: 2006-07-24
Revision Date: 2012-11-27

3M

Double Coated Tissue Tapes

9888T

Temporary Technical Data ***May, 2002***

Product Description:

Product 9888T double coated tissue tape features a tissue carrier for dimensional stability and improved handling with ease of die cutting and laminating.

Construction:

Product Number	Adhesive[1]/ Color/ Tape Thickness	Carrier	Liner Color, Type, Print	Liner Caliper
9888T	Translucent, 0.0059" (0.150mm)	Tissue translucent in color	White, PE[2] polycoated paper, 3M logo print in red color	0.0059" (0.150mm)

Note 1: Pressure Sensitive Acrylic Adhesive provides excellent initial tack and adhesion to a wide variety surface including many low surface energy plastics.

Note 2: PE (Polyethylene)

Feature

1. 9888T feature a medium-soft acrylic pressure sensitive adhesive system. The key characteristics of this adhesive include a combination of high initial adhesion and good shear and holding power to a wide variety of materials, including many plastics.
2. 9888T feature controlled adhesive flow into open cell foam and controlled caliper for bond to application surface.
3. For foam laminating, it provides excellent foam stability to reduce stretching and allows to more precise alignment during application.

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Product Number	9888T
Adhesion to stainless steel ASTM D3330 –180 degree, 2 mil Al foil at 22°C, 50%RH	g/25.4m
15 minute RT	2940
72 Hour RT	3180
Adhesion to ABS ASTM D3330 –180 degree, 2 mil Al foil at 22°C, 50%RH	
15 minute RT	2210
72 Hour RT	2440
Adhesion to PC ASTM D3330 –180 degree, 2 mil Al foil at 22°C, 50%RH	
15 minute RT	2560
72 Hour RT	2670
Adhesion to PP ASTM D3330 –180 degree, 2 mil Al foil at 22°C, 50%RH	
20 minute RT	1900
72 Hour RT	2190

Shear strength ASTM D3654 modified 0.5 inch^2 sample size at 22°C	
1000 grams	10000 mins
Relative High temperature Operating Ranges	
Long Term (days, weeks)	80°C
Short Term (minutes, hours)	120°C

Shelf Life

12 months from date of receipt by customer when stored in original carton at 22 °C and 50% relative humidity

Application Techniques:

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improves bond strength.

To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane. Note: Carefully read and follow the manufacturer's precautions and directions for use when working with solvents.

Ideal tape application temperature range is 70° F to 100° F (21° C to 38° C). Initial tape application to surfaces at temperatures below 50° F (10° C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

General Information

Tape 9888T has a tissue carrier, which can add dimensional stability to foams and other substrates. The carrier also provides easier handling during slitting and die-cutting.

Application Ideas

- 9888T tapes are specially formulated for many indoor high performance purpose mounting and joining applications, including bonding to Polyethylene, Polypropylene and many other Plastics, where moderate temperature and shear performance are required.
- 9888T tapes are formulated for more demanding indoor and moderate outdoor high performance mounting and joining application.
- Application ideas for these tapes include
    - Lens attachment for mobile phone
    - Wire and Cable Clips
    - Appliance, Case for display and Electronics Equipment Trim
    - Interior under sheet for car
    - Paper splicing
    - Foam, Gasket attachment in mobile phones and pagers.
    - Plastics Hooks, Racks and Dispensers
    - Sign, Nameplates and Plaques
    - Appliques

Important Notice

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Limitation of Remedies and Liability

If the 3M product is proved to be defective, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.

ONLINE CERTIFICATIONS DIRECTORY

PGGU2.MH28421
Marking and Labeling System Materials - Component

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Marking and Labeling System Materials - Component

See General Information for Marking and Labeling System Materials - Component

3M TAIWAN LTD MH28421
6TH FL
95 DUNHUA S RD, SEC 2
TAIPEI, 106 TAIWAN

Pressure-sensitive laminating adhesives:

Model No.	Face Stock	Face Stock Thk(mm)	Application Surface	Max Temp (˚C)	Min Temp (˚C)	Indoor Use	Outdoor Use	Additional Conditions
1815, 9815								
	Aluminum	0.100	Aluminum (AL)	150	-40	X	-	-
		0.100	Galvanized steel (GS)	150	-40	X	-	-
		0.100	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
		0.100	Polycarbonate (PC)	80	-40	X	-	-
	Polycarbonate	0.254	Aluminum (AL)	150	-40	X	-	-
		0.254	Galvanized steel (GS)	150	-40	X	-	-
		0.254	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
		0.254	Polycarbonate (PC)	80	-40	X	-	-
	Polyester	0.100	Aluminum (AL)	150	-40	X	-	-
		0.100	Galvanized steel (GS)	150	-40	X	-	-
		0.100	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
		0.100	Polycarbonate (PC)	80	-40	X	-	-
D/C PET Tape 8003, D/C PET Tape 8005, D/C PET Tape 8008,D/C PET Tape 8010								
	Aluminum	0.200 - 0.200	Aluminum (AL)	100	-40	X	-	-
		0.200 - 0.200	Galvanized steel (GS)	100	-40	X	-	-
		0.200 - 0.200	Stainless steel (SS)	100	-40	X	-	-
		0.200 - 0.200	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	Polycarbonate	0.125 - 0.125	Aluminum (AL)	100	-40	X	-	-
		0.125 - 0.125	Galvanized steel (GS)	100	-40	X	-	-

	0.125 - 0.125	Stainless steel (SS)	100	-40	X	-	-
	0.125 - 0.125	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
Polyethylene terephthalate	0.100 - 0.100	Aluminum (AL)	100	-40	X	-	-
	0.100 - 0.100	Galvanized steel (GS)	100	-40	X	-	-
	0.100 - 0.100	Stainless steel (SS)	100	-40	X	-	-
	0.100 - 0.100	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
D/C PET Tape 8004PT, D/C PET Tape 8004DL, D/C PET Tape 8018PT, D/C PET Tape 8018DL, D/C PET Tape 8408PT, D/C PET Tape 8408DL, D/C PET Tape 8608PT, D/C PET Tape 8608DL, D/C PET Tape 8006PT							
Aluminum	0.05 - 0.20	Acrylonitrile butadiene styrene (ABS)	100	-40	X	-	-
	0.05 - 0.20	Aluminum (AL)	100	-40	X	-	-
	0.05 - 0.20	Galvanized steel (GS)	100	-40	X	-	-
	0.05 - 0.20	Stainless steel (SS)	100	-40	X	-	-
Polycarbonate	0.125 - 0.508	Acrylonitrile butadiene styrene (ABS)	100	-40	X	-	-
	0.125 - 0.508	Aluminum (AL)	100	-40	X	-	-
	0.125 - 0.508	Galvanized steel (GS)	100	-40	X	-	-
	0.125 - 0.508	Stainless steel (SS)	100	-40	X	-	-
Polyester	0.05 - 0.10	Acrylonitrile butadiene styrene (ABS)	100	-40	X	-	-
	0.05 - 0.10	Aluminum (AL)	100	-40	X	-	-
	0.05 - 0.10	Galvanized steel (GS)	100	-40	X	-	-
	0.05 - 0.10	Stainless steel (SS)	100	-40	X	-	-
D/C PET Tape 8012, D/C PET Tape 8012P, D/C PET Tape 8015, D/C PET Tape 8015P							
Aluminum	0.200 - 0.200	Aluminum (AL)	100	-40	X	-	-
	0.200 - 0.200	Galvanized steel (GS)	100	-40	X	-	-
	0.200 - 0.200	Stainless steel (SS)	100	-40	X	-	-
	0.200 - 0.200	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
Polycarbonate	0.100 - 0.100	Aluminum (AL)	100	-40	X	-	-
	0.100 - 0.100	Galvanized steel (GS)	100	-40	X	-	-
	0.100 - 0.100	Stainless steel (SS)	100	-40	X	-	-
	0.100 -	Acrylonitrile	80	-40	X	-	-

		0.100	butadiene styrene (ABS)					
	Polyethylene Terephthalate	0.100 - 0.100	Aluminum (AL)	100	-40	X	-	-
		0.100 - 0.100	Galvanized steel (GS)	100	-40	X	-	-
		0.100 - 0.100	Stainless steel (SS)	100	-40	X	-	-
		0.100 - 0.100	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
D/C PET Tape 8018B								
	Aluminum	0.200 - 0.200	Aluminum (AL)	100	-40	X	-	-
		0.200 - 0.200	Galvanized steel (GS)	100	-40	X	-	-
		0.200 - 0.200	Stainless steel (SS)	100	-40	X	-	-
		0.200 - 0.200	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	Polycarbonate	0.125 - 0.125	Aluminum (AL)	100	-40	X	-	-
		0.125 - 0.125	Galvanized steel (GS)	100	-40	X	-	-
		0.125 - 0.125	Stainless steel (SS)	100	-40	X	-	-
		0.125 - 0.125	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	Polyethylene terephthalate	0.100 - 0.100	Aluminum (AL)	100	-40	X	-	-
		0.100 - 0.100	Galvanized steel (GS)	100	-40	X	-	-
		0.100 - 0.100	Stainless steel (SS)	100	-40	X	-	-
		0.100 - 0.100	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
D/C Tape 9810								
	Aluminum	0.200 - 0.200	Aluminum (AL)	125	-40	X	-	-
		0.200 - 0.200	Galvanized steel (GS)	125	-40	X	-	-
		0.200 - 0.200	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
		0.200 - 0.200	Polypropylene (PP)	80	-40	X	-	-
	Polycarbonate	0.125 - 0.125	Aluminum (AL)	100	-40	X	-	-
		0.125 - 0.125	Galvanized steel (GS)	100	-40	X	-	-
		0.125 - 0.125	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
		0.125 - 0.125	Polypropylene (PP)	80	-40	X	-	-
	Polyethylene terephthalate	0.100 - 0.100	Aluminum (AL)	100	-40	X	-	-

	0.100 - 0.100	Galvanized steel (GS)	100	-40	X	-	-
	0.100 - 0.100	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	0.100 - 0.100	Polypropylene (PP)	80	-40	X	-	-
Double coated tissue tape 9888T							
Aluminum	0.05 - 0.20	Aluminum (AL)	150	-40	X	X	-
	0.05 - 0.20	Galvanized steel (GS)	150	-40	X	X	-
	0.05 - 0.20	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	0.05 - 0.20	Polypropylene (PP)	80	-40	X	X	-
Polycarbonate	0.125 - 0.500	Aluminum (AL)	100	-40	X	-	-
	0.125 - 0.500	Galvanized steel (GS)	100	-40	X	X	-
	0.125 - 0.500	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	0.125 - 0.500	Polypropylene (PP)	80	-40	X	X	-
Polyester	0.05 - 0.10	Aluminum (AL)	100	-40	X	X	-
	0.05 - 0.10	Galvanized steel (GS)	100	-40	X	X	-
	0.05 - 0.10	Acrylonitrile butadiene styrene (ABS)	80	-40	X	-	-
	0.05 - 0.10	Polypropylene (PP)	80	-40	X	X	-
WSP-5							
Polycarbonate	0.508	Acrylic (AC)	100	-40	X	-	-
	0.508	Acrylonitrile butadiene styrene (ABS)	100	-40	X	-	-
	0.508	Aluminum (AL)	100	-40	X	-	-
	0.508	Galvanized steel (GS)	100	-40	X	-	-
	0.508	Polycarbonate (PC)	100	-40	X	-	-
Polyester	0.127	Acrylic (AC)	100	-40	X	-	-
	0.127	Acrylonitrile butadiene styrene (ABS)	100	-40	X	-	-
	0.127	Aluminum (AL)	100	-40	X	-	-
	0.127	Galvanized steel (GS)	100	-40	X	-	-
	0.127	Polycarbonate (PC)	100	-40	X	-	-

Pressure-sensitive screen-printable adhesives:

Model No.	Adhesive Dry Film Thk (mm)	Face Stock	Face Stock Thk(mm)	Application Surface	Max Temp (˚C)	Min Temp (˚C)	Indoor Use	Outdoor Use	Additional Conditions

WSP-1								
0.030	Polycarbonate	0.125 - 0.500	Acrylic (AC)	100	-40	X	-	-
		0.125 - 0.500	Acrylonitrile butadiene styrene (ABS)	100	-40	X	X	-
		0.125 - 0.500	Aluminum (AL)	100	-40	X	X	-
		0.125 - 0.500	Galvanized steel (GS)	100	-40	X	X	-
		0.125 - 0.500	Polycarbonate (PC)	100	-40	X	X	-
0.030	Polyester	0.05 - 0.10	Acrylic (AC)	100	-40	X	-	-
		0.05 - 0.10	Acrylonitrile butadiene styrene (ABS)	100	-40	X	X	-
		0.05 - 0.10	Aluminum (AL)	100	-40	X	X	-
		0.05 - 0.10	Galvanized steel (GS)	100	-40	X	X	-
		0.05 - 0.10	Polycarbonate (PC)	100	-40	X	X	-

Pressure-sensitive unprinted label stocks:

Model No.	Application Surface	Max Temp (°C)	Min Temp (°C)	Indoor Use	Outdoor Use	Additional Conditions
9381T						
	Stainless steel (SS)	80	-	X	-	-
W525						
	Stainless steel (SS)	100	-23	X	-	-

Note: Labels suitable for application to two or more plastic or painted surfaces are considered suitable for blends of those plastics or paints, with Conditions of Acceptability common to the individual components in the blend.

Marking: Company name and model designation.

Last Updated on 2010-10-15

Questions? Print this page Notice of Disclaimer Page Top

RoHS REPORT INDEX

	NAME		RoHS report
1	PCB	南亞塑膠工業股份有限公司	ETR23703796
2	Cable		
2-1	色母	WONDERFUL HI-TECH CO., LTD.	TWNC01231369
2-2	FEP	大金氟化工(中國)有限公司	SHAEC23013103705
2-3	裸銅線/鍍銀/鍍錫	WONDERFUL HI-TECH CO., LTD.	TWNC01231370
3	IPEX		
3-1	HOUSING	POLYPLASTICS TAIWAN CO., LTD.	EKR23400747
3-2	CONTACT/GROUND CONTACT	JX NIPPON MINING & METALS CORPORATION	ETR23803657M01
4	TAPE	3M MATERIAL TECHNOLOGY (GUANGZHOU) CO.,LTD.	CANEC23014107402

測試報告
Test Report

號碼(No.): ETR23703796 日期(Date): 24-Jul-2023

南亞塑膠工業股份有限公司 (NAN YA PLASTICS CORPORATION)
南亞電子材料(昆山)有限公司 (NANYA ELECTRONIC MATERIALS (KUNSHAN) CORP. LTD.)
南亞電子材料(惠州)有限公司 (NAN YA ELECTRONIC MATERIALS (HUIZHOU) CORP., LTD)
台北市松山區敦化北路201號 (NO. 201 TUNG HWA NORTH ROAD, SONGSHAN DIST., TAIPEI, TAIWAN, R.O.C.)
江蘇省昆山市昆山經濟技術開發區長江南路201號 (201 CHANG JIANG ROAD(S) KUNSHAN ECONOMIC & TECHNICAL DEVELOPMENT ZONE, KUNSHAN, JIANG SU, CHINA 215300)
廣東省惠州市博羅縣石灣鎮永石大道230號 (NO. 230, YONGSHI BOULEVARD SHIWAN TOWN BOLUO COUNTY HUIZHOU CITY GUANG DONG)

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

送樣廠商(Sample Submitted By)	:	南亞塑膠工業股份有限公司 (NAN YA PLASTICS CORPORATION)
樣品名稱(Sample Name)	:	LAMINATE (UL E98983)
樣品型號(Style/Item No.)	:	NP-140R/NP-140TL
訂單編號(Order No.)	:	3608239

==========

收件日(Sample Receiving Date)	:	17-Jul-2023
測試期間(Testing Period)	:	17-Jul-2023 to 24-Jul-2023

測試需求(Test Requested) :
(1) 依據客戶指定，參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP。 (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)
(2) 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.)

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

CHECK REPORT
PIN CODE: D3FC4046

測試報告
Test Report

南亞塑膠工業股份有限公司 (NAN YA PLASTICS CORPORATION)
南亞電子材料(昆山)有限公司 (NANYA ELECTRONIC MATERIALS (KUNSHAN) CORP. LTD.)
南亞電子材料(惠州)有限公司 (NAN YA ELECTRONIC MATERIALS (HUIZHOU) CORP., LTD)
台北市松山區敦化北路201號 (NO. 201 TUNG HWA NORTH ROAD, SONGSHAN DIST., TAIPEI, TAIWAN, R.O.C.)
江蘇省昆山市昆山經濟技術開發區長江南路201號 (201 CHANG JIANG ROAD(S) KUNSHAN ECONOMIC & TECHNICAL DEVELOPMENT ZONE, KUNSHAN, JIANG SU, CHINA 215300)
廣東省惠州市博羅縣石灣鎮永石大道230號 (NO. 230, YONGSHI BOULEVARD SHIWAN TOWN BOLUO COUNTY HUIZHOU CITY GUANG DONG)

測試部位敘述 (Test Part Description)

No.1 : 銅色/棕色板子 (COPPER COLORED/BROWN 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	限值 (Limit)
鎘 (Cd) (Cadmium (Cd))	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
鉛 (Pb) (Lead (Pb))		mg/kg	2	5.42	1000
汞 (Hg) (Mercury (Hg))	參考IEC 62321-4: 2013+ AMD1: 2017，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	1000
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI))	參考IEC 62321-7-2: 2017，以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.	1000
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	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.	-
氧化鈹 (BeO) (Beryllium oxide (BeO)) (CAS No.: 1304-56-9)	由鈹結果計算得之。(Calculated from the result of Beryllium.)	mg/kg	2▲	n.d.	-
聚氯乙烯 (Polyvinylchloride) (PVC)	參考ASTM E1252: 2021，以傅立葉轉換紅外線光譜儀及焰色法分析。(With reference to ASTM E1252: 2021, analysis was performed by FT-IR and Flame Test.)	**	-	Negative	-

測試報告
Test Report

南亞塑膠工業股份有限公司 (NAN YA PLASTICS CORPORATION)
南亞電子材料(昆山)有限公司 (NANYA ELECTRONIC MATERIALS (KUNSHAN) CORP. LTD.)
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廣東省惠州市博羅縣石灣鎮永石大道230號 (NO. 230, YONGSHI BOULEVARD SHIWAN TOWN BOLUO COUNTY HUIZHOU CITY GUANG DONG)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000
一溴聯苯醚 (Monobromodiphenyl ether)	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
多氯聯苯 (PCBs) (Polychlorinated biphenyls (PCBs))	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	0.5	n.d.	-
多氯奈 (PCNs) (Polychlorinated naphthalene (PCNs))		mg/kg	5	n.d.	-

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廣東省惠州市博羅縣石灣鎮永石大道230號 (NO. 230, YONGSHI BOULEVARD SHIWAN TOWN BOLUO COUNTY HUIZHOU CITY GUANG DONG)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
多氯三聯苯 (PCTs) (Polychlorinated terphenyls (PCTs))	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	0.5	n.d.	-
短鏈氯化石蠟(C10-C13) (SCCP) (Short Chain Chlorinated Paraffins(C10-C13) (SCCP)) (CAS No.: 85535-84-8)	參考ISO 18219-1: 2021，以氣相層析儀/質譜儀分析。(With reference to ISO 18219-1: 2021, analysis was performed by GC/MS.)	mg/kg	50	n.d.	-
石綿 (Asbestos)					
白石綿/溫石綿 (Chrysotile) (CAS No.: 12001-29-5)	參考EPA 600/R-93/116: 1993，以立體顯微鏡(SM)與分散染色式偏光顯微鏡(DS-PLM)及X光繞射光譜分析法(XRD)分析。(With reference to EPA 600/R-93/116: 1993, analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD).)	-	-	Negative	-
褐石綿/鐵石綿 (Amosite) (CAS No.: 12172-73-5)		-	-	Negative	-
青石綿 (Crocidolite) (CAS No.: 12001-28-4)		-	-	Negative	-
斜方角閃石綿 (Anthophyllite) (CAS No.: 77536-67-5)		-	-	Negative	-
透閃石綿 (Tremolite) (CAS No.: 77536-68-6)		-	-	Negative	-
陽起石綿 (Actinolite) (CAS No.: 77536-66-4)		-	-	Negative	-
三丁基錫 (TBT) (Tributyl tin (TBT))	參考ISO 17353: 2004，以氣相層析儀/火焰光度偵測器分析。(With reference to ISO 17353: 2004, analysis was performed by GC/FPD.)	mg/kg	0.03	n.d.	-
三苯基錫 (TPT) (Triphenyl tin (TPT))		mg/kg	0.03	n.d.	-
二丁基錫 (DBT) (Dibutyl tin (DBT))		mg/kg	0.03	n.d.	-
二辛基錫 (DOT) (Dioctyl tin (DOT))		mg/kg	0.03	n.d.	-
三丙基錫 (TPrT) (Tripropyl tin (TPrT))		mg/kg	0.03	n.d.	-
氧化雙三丁基錫 (TBTO) (Bis(tributyltin) oxide (TBTO)) (CAS No.: 56-35-9)	由三丁基錫結果計算得之。(Calculated from the result of Tributyl Tin (TBT).)	mg/kg	0.03▲	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
2-(2'-羥基-3',5'-二-叔-戊基苯基)苯並三唑 (紫外線吸收劑328) (2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)) (CAS No.: 25973-55-1)	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
2-[2-羥基-3',5'-二-叔-丁基苯基]-苯並三唑 (紫外線吸收劑320) (2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)) (CAS No.: 3846-71-7)	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
富馬酸二甲酯 (DMFu) (Dimethyl fumarate (DMFu)) (CAS No.: 624-49-7)	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
磷酸三(2-氯乙基)酯 (TCEP) (Tris(2-chloroethyl) phosphate (TCEP)) (CAS No.: 115-96-8)	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
磷酸三(1-氯-2-丙基)酯 (TCPP) (Tris(1-chloro-2-propyl) phosphate (TCPP)) (CAS No.: 13674-84-5)	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
磷酸三(1,3-二氯異丙基)酯 (Tris(1,3-dichloro-2-propyl) phosphate) (CAS No.: 13674-87-8)	參考US EPA 3550C: 2007，以氣相層析儀/質譜儀分析。(With reference to US EPA 3550C: 2007, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
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.	-
氫氟碳化合物 (Hydrofluorocarbon) (HFCs)					
HFC-23 (CHF3) (CAS No.: 75-46-7)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
HFC-32 (CH2F2) (CAS No.: 75-10-5)		mg/kg	1	n.d.	-
HFC-41 (CH3F) (CAS No.: 593-53-3)		mg/kg	1	n.d.	-
HFC-43-10mee (C5H2F10)		mg/kg	1	n.d.	-
HFC-125 (C2HF5)		mg/kg	1	n.d.	-
HFC-134 (C2H2F4)		mg/kg	1	n.d.	-
HFC-134a (CH2FCF3) (CAS No.: 811-97-2)		mg/kg	1	n.d.	-
HFC-143 (CH3F3)		mg/kg	1	n.d.	-
HFC-143a (CH3F3)		mg/kg	1	n.d.	-
HFC-152a (C2H4F2) (CAS No.: 75-37-6)		mg/kg	1	n.d.	-
HFC-227ea (C3HF7) (CAS No.: 431-89-0)		mg/kg	1	n.d.	-
HFC-236fa (C3H2F6)		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
HFC-236ea (C3H2F6) (CAS No.: 431-63-0)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
HFC-245ca (C3H3F5)		mg/kg	1	n.d.	-
HFC-245fa (C3H3F5)		mg/kg	1	n.d.	-
HFC-365mfc (C4H5F5)		mg/kg	1	n.d.	-
全氟化碳 (Perfluorocarbon) (PFCs)					
四氟甲烷 (Freon-14) (CAS No.: 75-73-0)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
六氟乙烷 (Fluorocarbon 116) (CAS No.: 76-16-4)		mg/kg	1	n.d.	-
八氟丙烷 (Freon 218) (CAS No.: 76-19-7)		mg/kg	1	n.d.	-
十氟丁烷 (Decafluorobutane) (CAS No.: 355-25-9)		mg/kg	1	n.d.	-
八氟環丁烷 (Freon C318) (CAS No.: 115-25-3)		mg/kg	1	n.d.	-
全氟-1-丁烯 (Perfluor-1-butene) (CAS No.: 357-26-6)		mg/kg	1	n.d.	-
全氟異丁烯 (Perfluorisobutene) (CAS No.: 382-21-8)		mg/kg	1	n.d.	-
1,4-二氫八氟丁烷 (1,4-dihydrooctafluorobutane) (CAS No.: 377-36-6)		mg/kg	1	n.d.	-
2-全氟甲基丁烷 (Nonafluor-2-(trifluoromethyl)butane) (CAS No.: 594-91-2)		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟戊烷 (Perfluoro-n-pentane) (CAS No.: 678-26-2)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
2-全氟甲基戊烷 (2-Perfluoromethylpentane) (CAS No.: 355-04-4)		mg/kg	1	n.d.	-
全氟己烷 (Perfluorohexane) (CAS No.: 355-42-0)		mg/kg	1	n.d.	-
氟氯碳化物 (Chlorofluorocarbons) (CFCs)					
CFC-11	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
CFC-12		mg/kg	1	n.d.	-
CFC-113		mg/kg	1	n.d.	-
CFC-114		mg/kg	1	n.d.	-
CFC-115		mg/kg	1	n.d.	-
CFC-13		mg/kg	1	n.d.	-
CFC-111		mg/kg	1	n.d.	-
CFC-112		mg/kg	1	n.d.	-
CFC-211		mg/kg	1	n.d.	-
CFC-212		mg/kg	1	n.d.	-
CFC-213		mg/kg	1	n.d.	-
CFC-214		mg/kg	1	n.d.	-
CFC-215		mg/kg	1	n.d.	-
CFC-216		mg/kg	1	n.d.	-
CFC-217		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
氟氯氫烷碳化物 (Hydrochlorofluorocarbons) (HCFCs)					
HCFC-21	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
HCFC-22		mg/kg	1	n.d.	-
HCFC-31		mg/kg	1	n.d.	-
HCFC-121		mg/kg	1	n.d.	-
HCFC-122		mg/kg	1	n.d.	-
HCFC-123		mg/kg	1	n.d.	-
HCFC-124		mg/kg	1	n.d.	-
HCFC-131		mg/kg	1	n.d.	-
HCFC-132b		mg/kg	1	n.d.	-
HCFC-133a		mg/kg	1	n.d.	-
HCFC-141b		mg/kg	1	n.d.	-
HCFC-142b		mg/kg	1	n.d.	-
HCFC-221		mg/kg	1	n.d.	-
HCFC-222		mg/kg	1	n.d.	-
HCFC-223		mg/kg	1	n.d.	-
HCFC-224		mg/kg	1	n.d.	-
HCFC-225ca		mg/kg	1	n.d.	-
HCFC-225cb		mg/kg	1	n.d.	-
HCFC-226		mg/kg	1	n.d.	-
HCFC-231		mg/kg	1	n.d.	-
HCFC-232		mg/kg	1	n.d.	-
HCFC-233		mg/kg	1	n.d.	-
HCFC-234		mg/kg	1	n.d.	-
HCFC-235		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
HCFC-241	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
HCFC-242		mg/kg	1	n.d.	-
HCFC-243		mg/kg	1	n.d.	-
HCFC-244		mg/kg	1	n.d.	-
HCFC-251		mg/kg	1	n.d.	-
HCFC-252		mg/kg	1	n.d.	-
HCFC-253		mg/kg	1	n.d.	-
HCFC-261		mg/kg	1	n.d.	-
HCFC-262		mg/kg	1	n.d.	-
HCFC-271		mg/kg	1	n.d.	-
HCFC-141		mg/kg	1	n.d.	-
HCFC-142		mg/kg	1	n.d.	-
HCFC-151		mg/kg	1	n.d.	-
HCFC-225		mg/kg	1	n.d.	-
溴甲烷 (Methyl Bromide) (CAS No.: 74-83-9)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
海龍 (Halons)					
海龍-1211 (Halon-1211) (CAS No.: 353-59-3)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
海龍-1301 (Halon-1301) (CAS No.: 75-63-8)		mg/kg	1	n.d.	-
海龍-2402 (Halon-2402) (CAS No.: 124-73-2)		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
不完全鹵化氟溴化物 (Hydrobromofluorocarbons) (HBFCs)					
HBFC-21B2 (CHFBr2) (CAS No.: 1868-53-7)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
HBFC-22B1 (CHF2Br) (CAS No.: 1511-62-2)		mg/kg	1	n.d.	-
HBFC-31B1 (CH2FBr) (CAS No.: 373-52-4)		mg/kg	1	n.d.	-
HBFC-121B4 (C2HFBr4)		mg/kg	1	n.d.	-
HBFC-122B3 (C2HF2Br3)		mg/kg	1	n.d.	-
HBFC-123B2 (C2HF3Br2)		mg/kg	1	n.d.	-
HBFC-124B1 (C2HF4Br)		mg/kg	1	n.d.	-
HBFC-131B3 (C2H2FBr3)		mg/kg	1	n.d.	-
HBFC-132B2 (C2H2F2Br2)		mg/kg	1	n.d.	-
HBFC-133B1 (C2H2F3Br)		mg/kg	1	n.d.	-
HBFC-141B2 (C2H3FBr2)		mg/kg	1	n.d.	-
HBFC-142B1 (C2H3F2Br)		mg/kg	1	n.d.	-
HBFC-151B1 (C2H4FBr)		mg/kg	1	n.d.	-
HBFC-221B6 (C3HFBr6)		mg/kg	1	n.d.	-
HBFC-222B5 (C3HF2Br5)		mg/kg	1	n.d.	-
HBFC-223B4 (C3HF3Br4)		mg/kg	1	n.d.	-
HBFC-224B3 (C3HF4Br3)		mg/kg	1	n.d.	-
HBFC-225B2 (C3HF5Br2)		mg/kg	1	n.d.	-
HBFC-226B1 (C3HF6Br)		mg/kg	1	n.d.	-
HBFC-231B5 (C3H2FBr5)		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
HBFC-232B4 (C3H2F2Br4)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
HBFC-233B3 (C3H2F3Br3)		mg/kg	1	n.d.	-
HBFC-234B2 (C3H2F4Br2)		mg/kg	1	n.d.	-
HBFC-235B1 (C3H2F5Br)		mg/kg	1	n.d.	-
HBFC-241B4 (C3H3FBr4)		mg/kg	1	n.d.	-
HBFC-242B3 (C3H3F2Br3)		mg/kg	1	n.d.	-
HBFC-243B2 (C3H3F3Br2)		mg/kg	1	n.d.	-
HBFC-244B1 (C3H3F4Br)		mg/kg	1	n.d.	-
HBFC-251B3 (C3H4FBr3)		mg/kg	1	n.d.	-
HBFC-252B2 (C3H4F2Br2)		mg/kg	1	n.d.	-
HBFC-253B1 (C3H4F3Br)		mg/kg	1	n.d.	-
HBFC-261B2 (C3H5FBr2)		mg/kg	1	n.d.	-
HBFC-262B1 (C3H5F2Br)		mg/kg	1	n.d.	-
HBFC-271B1 (C3H6FBr)		mg/kg	1	n.d.	-
氯碳氫化物 (Chlorinate hydrocarbon) (CHCs)					
1,1,1,2-四氯乙烷 (1,1,1,2-Tetrachloroethane) (CAS No.: 630-20-6)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
1,1,1-三氯乙烷 (1,1,1-Trichloroethane) (CAS No.: 71-55-6)		mg/kg	1	n.d.	-
1,1,2,2-四氯乙烷 (1,1,2,2-Tetrachloroethane) (CAS No.: 79-34-5)		mg/kg	1	n.d.	-
1,1,2-三氯乙烷 (1,1,2-Trichloroethane) (CAS No.: 79-00-5)		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
1,1-二氯乙烷 (1,1-Dichloroethane) (CAS No.: 75-34-3)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
1,1-二氯乙烯 (1,1-Dichloroethylene) (CAS No.: 75-35-4)		mg/kg	1	n.d.	-
1,1-二氯丙烯 (1,1-Dichloropropene) (CAS No.: 563-58-6)		mg/kg	1	n.d.	-
1,2,3-三氯丙烷 (1,2,3-Trichloropropane) (CAS No.: 96-18-4)		mg/kg	1	n.d.	-
1,2-二氯乙烷 (1,2-Dichloroethane) (CAS No.: 107-06-2)		mg/kg	1	n.d.	-
1,2-二氯丙烷 (1,2-Dichloropropane) (CAS No.: 78-87-5)		mg/kg	1	n.d.	-
1,3-二氯丙烷 (1,3-Dichloropropane) (CAS No.: 142-28-9)		mg/kg	1	n.d.	-
2,2-二氯丙烷 (2,2-Dichloropropane) (CAS No.: 594-20-7)		mg/kg	1	n.d.	-
四氯甲烷(四氯化碳) (Carbon tetrachloride) (CAS No.: 56-23-5)		mg/kg	1	n.d.	-
氯乙烷 (Chloroethane) (CAS No.: 75-00-3)		mg/kg	1	n.d.	-
氯仿 (Chloroform) (CAS No.: 67-66-3)		mg/kg	1	n.d.	-
氯甲烷 (Chloromethane) (CAS No.: 74-87-3)		mg/kg	1	n.d.	-
順-1,2-二氯乙烯 (cis-1,2-Dichloroethene) (CAS No.: 156-59-2)		mg/kg	1	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
順-1,3-二氯丙烯 (cis-1,3-Dichloropropene) (CAS No.: 10061-01-5)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
六氯-1,3-丁二烯 (Hexachlorobutadiene) (CAS No.: 87-68-3)		mg/kg	1	n.d.	-
二氯甲烷 (Dichloromethane) (CAS No.: 75-09-2)		mg/kg	1	n.d.	-
四氯乙烯 (Tetrachloroethene) (CAS No.: 127-18-4)		mg/kg	1	n.d.	-
反-1,2-二氯乙烯 (trans-1,2-Dichloroethene) (CAS No.: 156-60-5)		mg/kg	1	n.d.	-
反-1,3-二氯丙烯 (trans-1,3-Dichloropropene) (CAS No.: 10061-02-6)		mg/kg	1	n.d.	-
三氯乙烯 (Trichloroethylene) (CAS No.: 79-01-6)		mg/kg	1	n.d.	-
六氟化硫 (Sulfur hexafluoride) (CAS No.: 2551-62-4)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
砷 (Arsenic) (As) (※ E)	參考RSTS-EE-SVHC-007，以感應耦合電漿發射光譜儀分析。(With reference to RSTS-EE-SVHC-007, analysis was performed by ICP-OES.)	mg/kg	50	n.d.	-
五氧化二砷 (As_2O_5) (Diarsenic pentaoxide (As_2O_5)) (CAS No.: 1303-28-2)	由砷結果計算得之。(Calculated from the result of Arsenic.)	mg/kg	50▲	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
三氧化二砷 (As_2O_3) (Diarsenic trioxide (As_2O_3)) (CAS No.: 1327-53-3)	由砷結果計算得之。(Calculated from the result of Arsenic.)	mg/kg	50▲	n.d.	-
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP))	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP))		mg/kg	50	n.d.	1000
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.	-
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3)		mg/kg	50	n.d.	-
鄰苯二甲酸二甲酯 (DMP) (Dimethyl phthalate (DMP)) (CAS No.: 131-11-3)		mg/kg	50	n.d.	-
鄰苯二甲酸二環己酯 (DCHP) (Di-cyclohexyl phthalate (DCHP)) (CAS No.: 84-61-7)		mg/kg	50	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
鄰苯二甲酸二苯酯 (DPhP) (Diphenyl phthalate (DPhP)) (CAS No.: 84-62-8)	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.	-
鄰苯二甲酸二苯甲基酯 (Dibenzyl phthalate) (CAS No.: 523-31-9)		mg/kg	50	n.d.	-
鄰苯二甲酸二異辛酯 (DIOP) (Diisooctyl phthalate (DIOP)) (CAS No.: 27554-26-3)		mg/kg	50	n.d.	-
鄰苯二甲酸二丙酯 (DPrP) (Dipropyl phthalate (DPrP)) (CAS No.: 131-16-8)		mg/kg	50	n.d.	-
鄰苯二甲酸二正壬酯 (DNNP) (Di-n-nonyl phthalate (DNNP)) (CAS No.: 84-76-4)		mg/kg	50	n.d.	-
鄰苯二甲酸二乙酯 (DEP) (Di-ethyl phthalate (DEP)) (CAS No.: 84-66-2)		mg/kg	50	n.d.	-
二氯化鈷 ($CoCl_2$) (Cobalt dichloride ($CoCl_2$)) (CAS No.: 7646-79-9)	以感應耦合電漿發射光譜儀，離子層析儀分析；由氯、鈷的結果計算得之。(Analysis was performed by ICP-OES, IC. Calculated from the results of Cobalt, Chlorine.)	mg/kg	50▲	n.d.	-
溴氯甲烷 (Bromochloromethan) (CAS No.: 74-97-5)	參考US EPA 5021A: 2014，以氣相層析儀/質譜儀分析。(With reference to US EPA 5021A: 2014, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
中鏈氯化石蠟(C14-C17) (MCCP) (Medium Chain Chlorinated Paraffins(C14-C17) (MCCP)) (CAS No.: 85535-85-9)	參考ISO 18219-2: 2021，以氣相層析儀/質譜儀分析。(With reference to ISO 18219-2: 2021, analysis was performed by GC/MS.)	mg/kg	50	n.d.	-

測試報告
Test Report

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
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	57500	-
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	386	-

備註(Note)：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出)；小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. **= Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. 石綿定性分析試驗範圍： <0.1%~100%，石綿鑑定的判定基準是以檢出含有石綿纖維為『Positive』，未檢出石綿纖維為『Negative』。(Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as "Negative".)

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8. ▲：MDL是針對元素/測試化合物之評估。(The MDL was evaluated for element / tested substance.)
   換算公式 (Conversion Formula)：AX = A × F

AX	A	F
五氧化二砷 (Diarsenic pentaoxide)	砷 (Arsenic)	1.5339
三氧化二砷 (Diarsenic trioxide)	砷 (Arsenic)	1.3203
氧化鈹 (Beryllium oxide (BeO))	鈹 (Beryllium)	2.7753
氧化雙三丁基錫 (Bis(tributyltin)oxide) (TBTO)	三丁基錫 (Tributyl Tin) (TBT)	1.0276

   參數換算表 (Parameter Conversion Table)：
   https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others
9. (※ E): 被萃取出的溶出砷是以感應耦合電漿發射光譜儀檢測得之。(The extracted soluble Arsenic is detected by ICP-OES.)
10. 鈹青銅是一種主要成份為鈹及銅的合金, 當偵測不到總鈹含量時, 亦表示不含鈹青銅.
    (Since beryllium copper is a metal alloy of copper and beryllium and the test result is n.d. for beryllium, we can have conclusion that the beryllium copper is n.d..)
11. 除非另有說明，參照ILAC-G8:09/2019，採用簡單二元(w=0)允收規則進行符合性判定；根據此規則，符合性結果之判定係以測試結果與限值做比較。(Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.)
12. 本報告部份測試結果係引用自報告 ETR23703795 之樣品測試結果。(The some test results of this report were quoted from ETR23703795)

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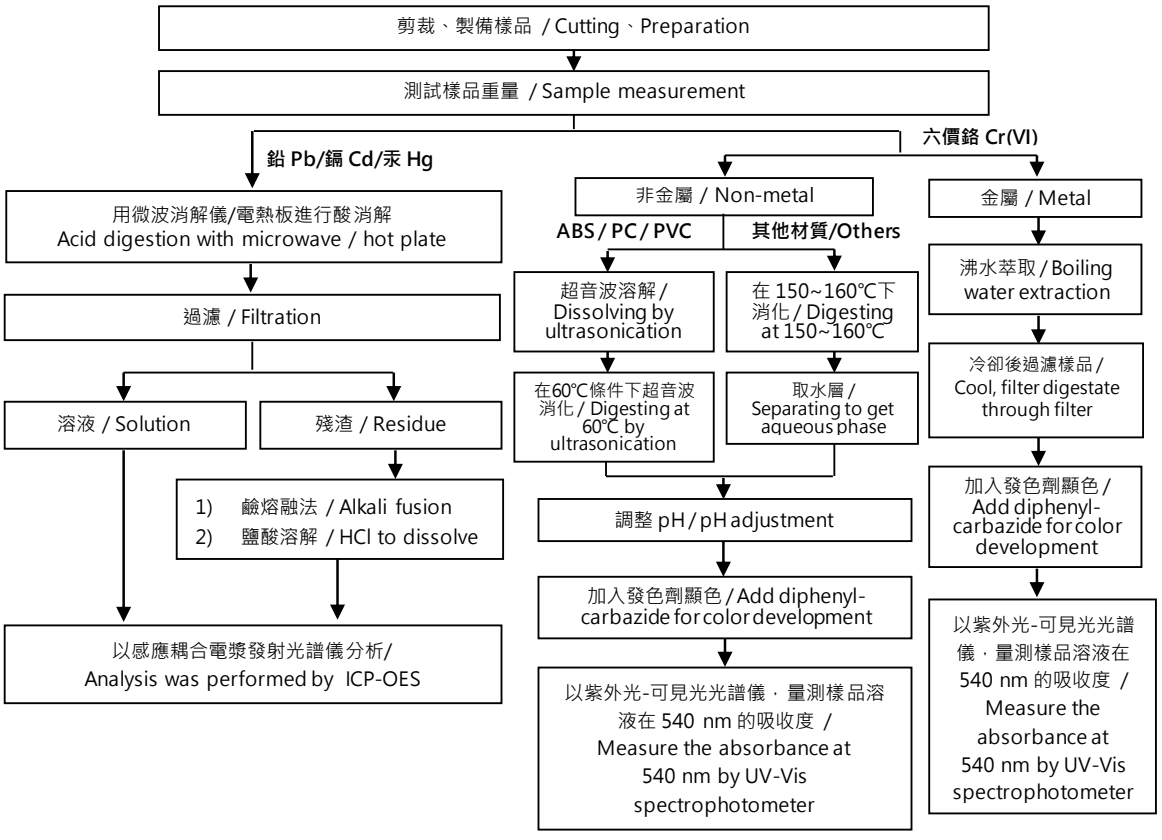
重金屬流程圖 / Analytical flow chart of heavy metal

根據以下的流程圖之條件，樣品已完全溶解。（六價鉻測試方法除外）
These samples were dissolved totally by pre-conditioning method according to below flow chart.
（Cr^{6+} test method excluded）



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南亞電子材料(昆山)有限公司 (NANYA ELECTRONIC MATERIALS (KUNSHAN) CORP. LTD.)
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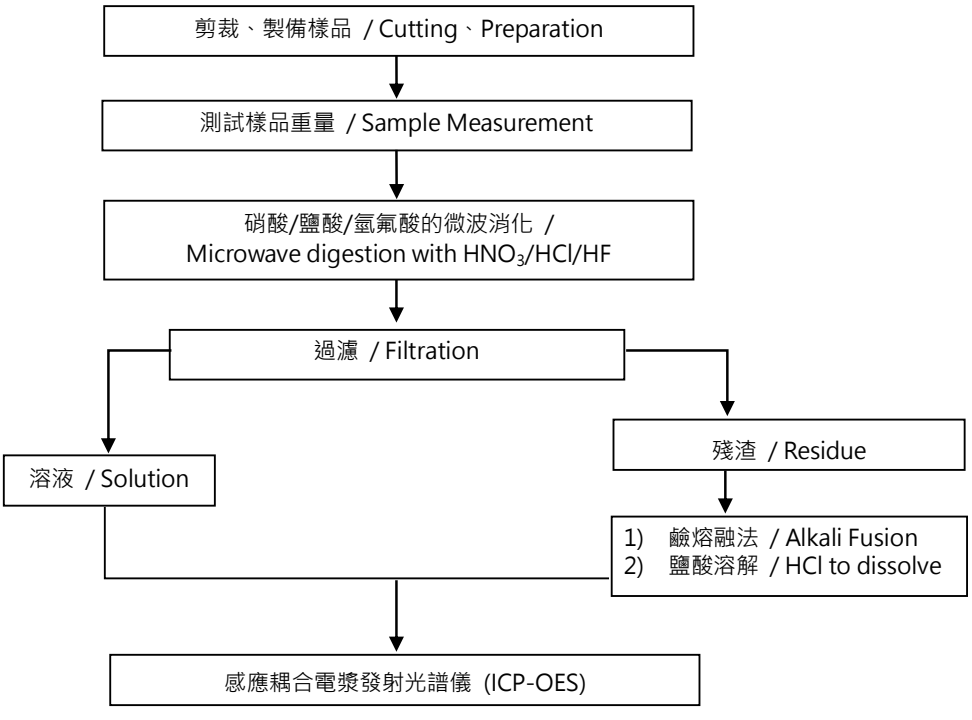
元素(含重金屬)分析流程圖 / Analytical flow chart of Elements (Heavy metal included)

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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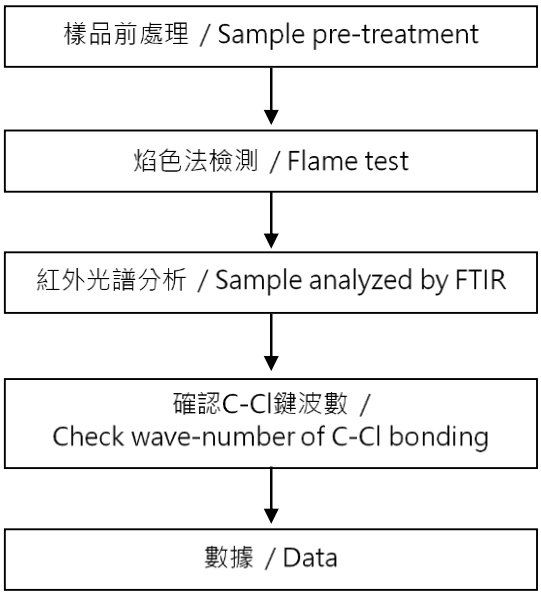
聚氯乙烯物質判定分析流程圖 / Analysis flow chart - PVC



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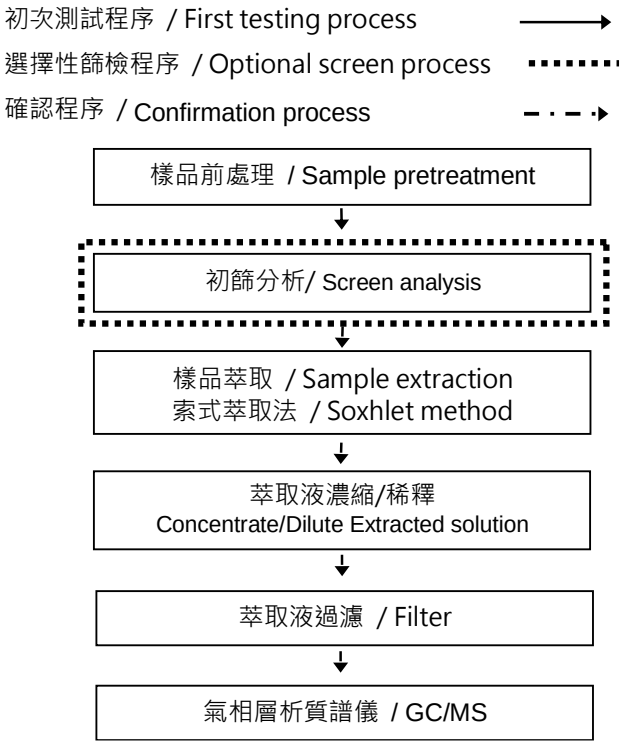
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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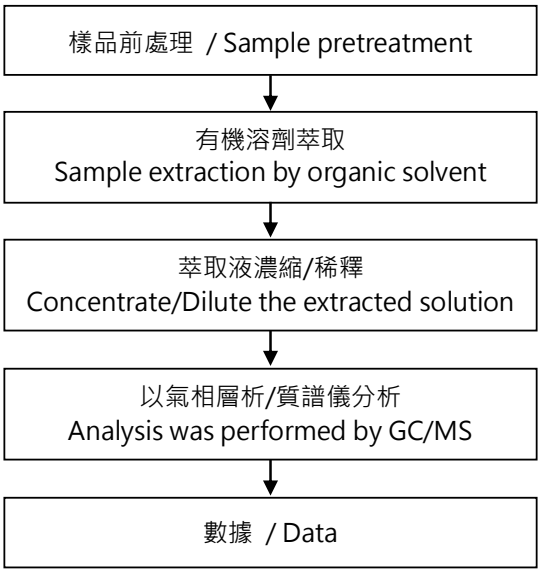
分析流程圖 / Analytical flow chart

【適用於：多氯聯苯、多氯奈、多氯三聯苯、滅蟻靈、氯化石蠟、DBBT】

*Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT



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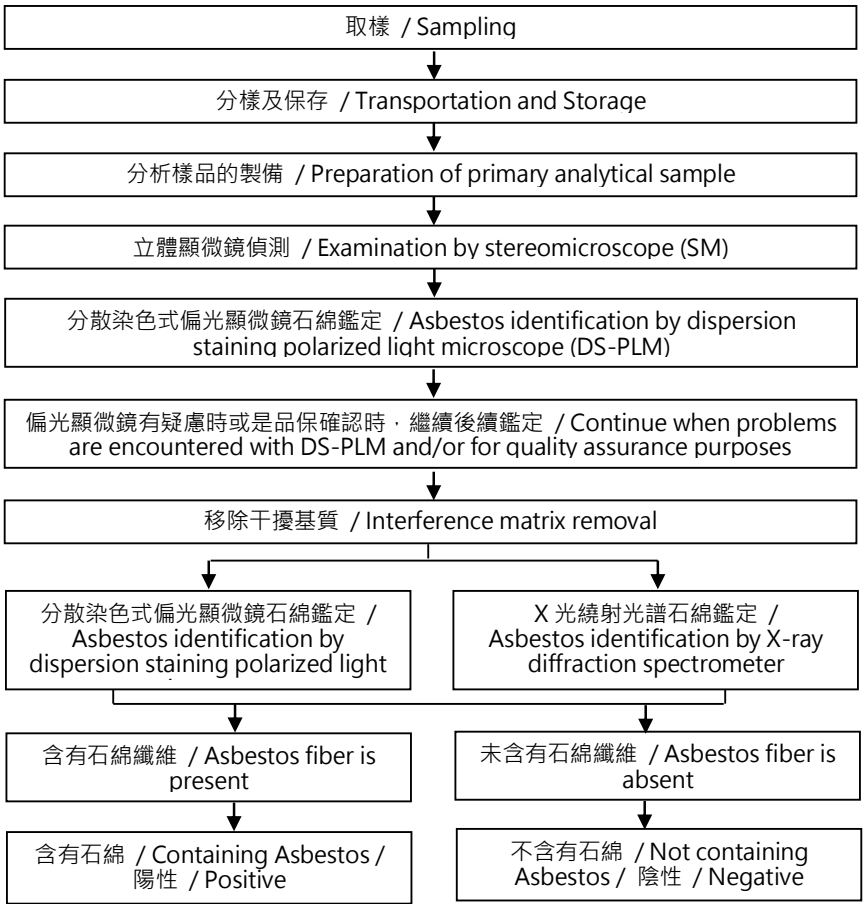
石綿鑑定分析流程圖 / Analysis flow chart for determination of Asbestos

【參考方法(Reference method): EPA 600/R-93/116】



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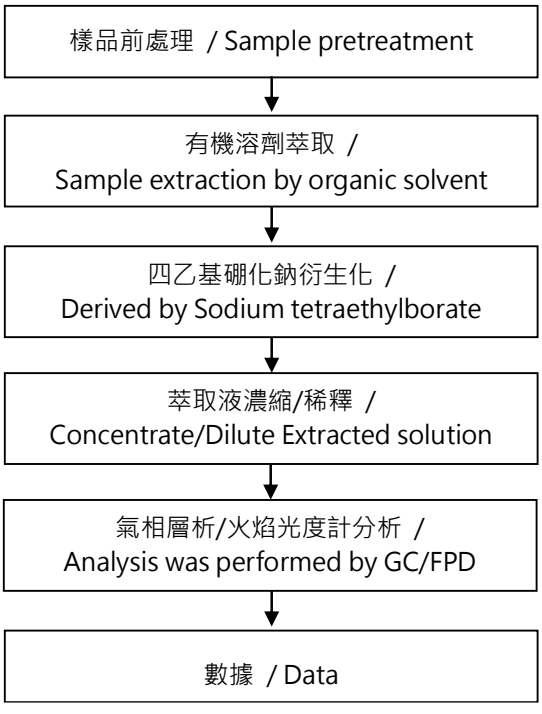
有機錫分析流程圖 / Analytical flow chart - Organic-Tin



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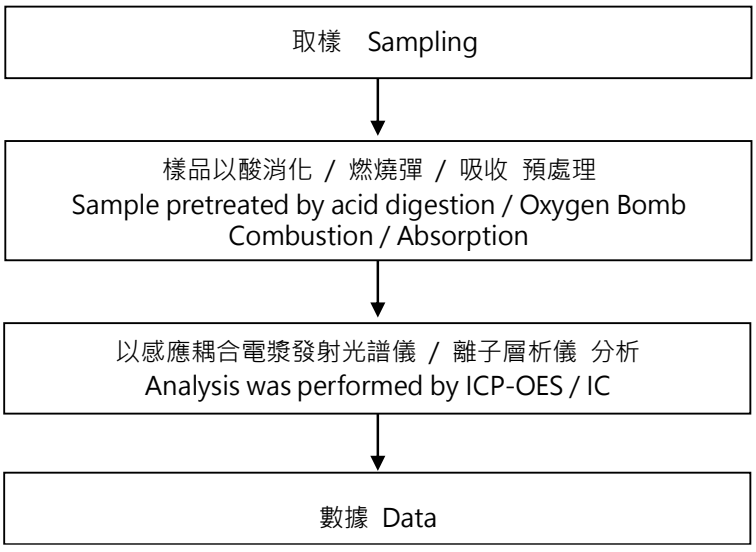
二氯化鈷分析流程圖 / Analytical flow chart - Cobalt dichloride



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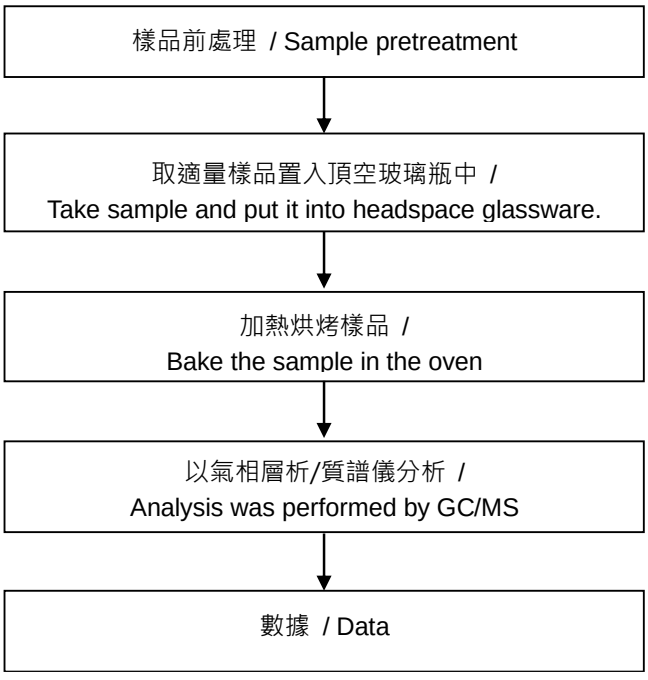
揮發性有機化合物分析流程圖 /
Analytical flow chart of volatile organic compounds (VOCs)

【參考方法/Reference method：US EPA 5021A】



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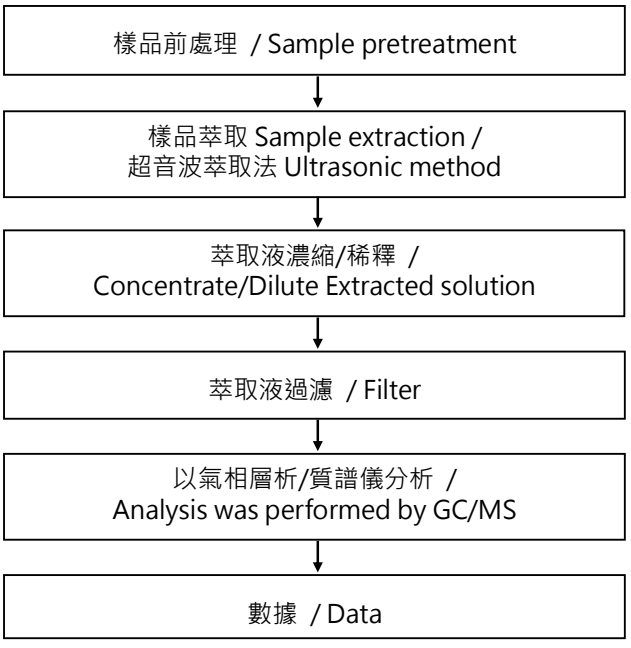
分析流程圖 / Analytical flow chart

* 適用於 / Apply to: 富馬酸二甲酯(DMFU)、六溴環十二烷(HBCDD)、乙二醇醚及其酯類(Ethylene glycol ether) 、有機磷化合物(Organic phosphorus compounds)、BNST



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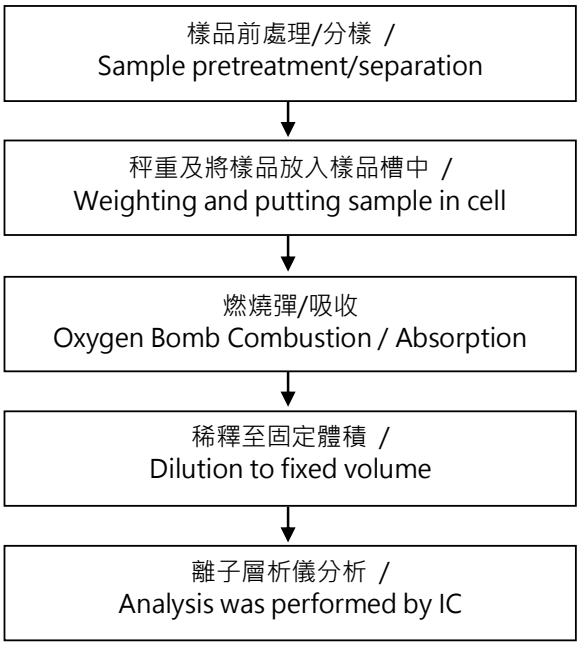
鹵素分析流程圖 / Analytical flow chart - Halogen



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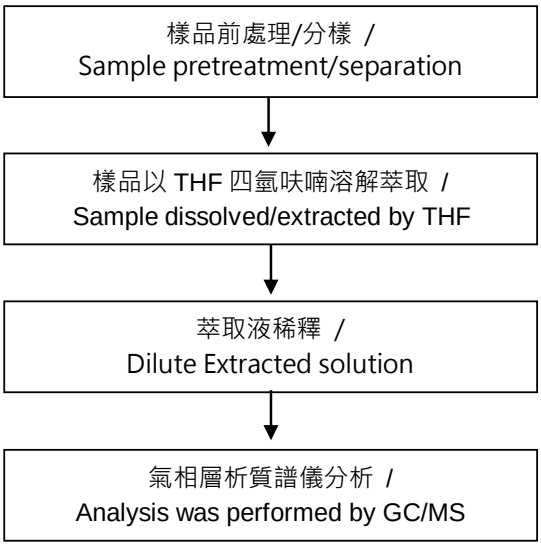
可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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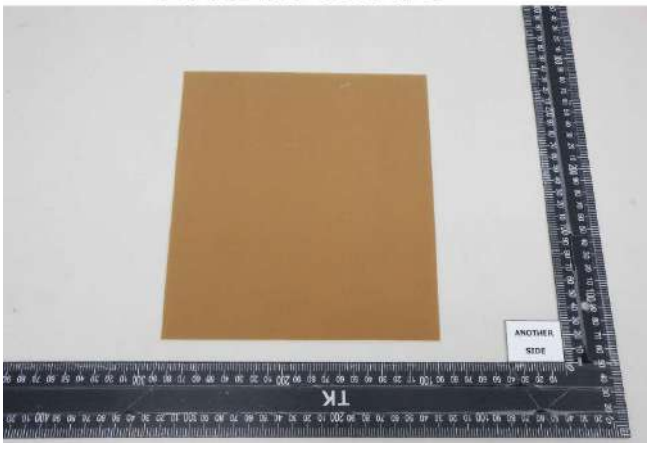
*** 照片中如有箭頭標示，則表示為實際檢測之樣品/部位. ***
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR23703796

ETR23703796



** 報告結尾 (End of Report) **

Test Report 測試報告

Number 報告號碼 : TWNC01231369

Applicant: 申請廠商
WONDERFUL HI-TECH CO., LTD.
萬泰科技股份有限公司
No.17, Beiyuan Rd., Zhongli Dist.,
Taoyuan City 320, Taiwan (R.O.C.)
桃園市中壢區工業區北園路 17 號

Issue Date 報告發行日期 : Jan 12, 2024

Sample Description 樣品敘述:

One (1) Group of Submitted Samples Said To Be :
以下測試樣品乃供應商所提供及確認:

Sample Submitted By 送樣廠商	:	WONDERFUL HI-TECH CO., LTD. 萬泰科技股份有限公司
Sample Description 樣品名稱	:	RF COAXIAL CABLE RG-6U,RG-59,RG-11,RG-58A/U, RG-142/U, RG-178 B/U, RG-179/U, RG-316U, MINI 0.8mm, 0.98mm, 1.13mm, 1.27mm, 1.32mm, 1.37mm, 1.48mm, 1.13LL, 1.37LL, RF405A, UL 1330, 1331, 1332, 1333, 1726, 1727, 1867, 1979, 10231, 10064, 10362
Style / Item No. 產品型號	:	BLACK, BROWN, RED, ORANGE, YELLOW, GREEN, BLUE, PURPLE, GRAY, WHITE
Date Sample Received 收件日期	:	Dec 13, 2023
Date Test Started 開始測試日期	:	Dec 13, 2023

Test Conducted 測試執行:

As requested by the applicant, for details please refer to attached pages.
依申請商之要求, 細節請參考附頁.

Conclusion 結論:

Please see page two.
請見第二頁。

Authorized By:
On behalf of Intertek Testing Services Taiwan Limited

Matt Wang
General Manager

Signed by:

Thomas Chou
Manager

報告查詢 Report Verification

Intertek Testing Services Taiwan Ltd.
全國公證檢驗股份有限公司
8F., No. 423, Ruiguang Rd., Neihu District,
Taipei, 114690, Taiwan, R.O.C.
114690 台北市內湖區瑞光路 423 號 8 樓
Tel: (+886-2) 6602-2888 · 2797-8885
Fax: (+886-2) 6602-2420
www.intertek-twn.com

Test Report 測試報告

Number : TWNC01231369
報告號碼

Conclusion 結論:

Tested Sample 測試樣品	Standard 標準	Result 結果
Test Components of Submitted Samples 測試部位	Restriction of Hazardous Substances (RoHS)危害物質限制 – As per applicant's request with reference to 2011/65/EU and amendment (EU) 2015/863 依據客戶要求參考歐盟指令 2011/65/EU 及其更新指令 (EU) 2015/863	Pass 合格
	As per applicant's request 依據客戶要求	
	– Antimony (Sb) Content 銻含量	See Test Conducted 請見測試內容
	– Phthalates Content 可塑劑含量	See Test Conducted 請見測試內容
	– Halogen Content 鹵素含量	See Test Conducted 請見測試內容
	– Perfluorooctane Sulfonates (PFOS) Content 全氟辛磺酸含量	See Test Conducted 請見測試內容
	– Perfluorooctanoic Acid (PFOA) Content 全氟辛酸含量	See Test Conducted 請見測試內容

Tested Components 測試元件:

(1) Black plastic pellets
(2) Brown plastic pellets
(3) Red plastic pellets
(4) Orange plastic pellets
(5) Yellow plastic pellets
(6) Green plastic pellets
(7) Blue plastic pellets
(8) Purple plastic pellets
(9) Grey plastic pellets
(10) White plastic pellets

Authorized By:
On behalf of Intertek Testing Services Taiwan Limited

Matt Wang
General Manager

Signed by:

Thomas Chou
Manager

Intertek Testing Services Taiwan Ltd.
全國公證檢驗股份有限公司
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Test Conducted 測試內容：

Test Result Summary 測試結果：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (1)	Result 結果 (2)	Result 結果 (3)	RL
Heavy Metal 重金屬						
Cadmium (Cd) Content 鎘含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Lead (Pb) Content 鉛含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Mercury (Hg) Content 汞含量	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD 1:2017，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Antimony (Sb) Content 銻含量	ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES. 參考 USEPA 3052，以微波消化法並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Chromium VI (Cr(VI)) Content 六價鉻含量	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer. 參考 IEC 62321-7-2:2017，以有機溶劑溶解或使樣品基質膨脹，再進行鹼液消化，用紫外光-可見光分光光度計分析。	ND	ND	ND	8

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Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (1)	Result 結果 (2)	Result 結果 (3)	RL
Polybrominated Biphenyls (PBBs) 多溴聯苯						
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	ND	ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	ND	ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	ND	ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	ND	ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	ND	ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	ND	ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	ND	ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	ND	ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	ND	ND	5
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚						
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	ND	ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	ND	ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	ND	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	ND	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	ND	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	ND	ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	ND	ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	ND	ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	ND	ND	5

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (1)	Result 結果 (2)	Result 結果 (3)	RL
Phthalates 鄰苯二甲酸酯						
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS. 參考 IEC 62321-8:2017，以溶劑萃取並用氣相層析質譜儀分析。	ND	ND	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	ND	ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	ND	ND	50
Di-(Iso-Nonyl) Phthalate (DINP) 鄰苯二甲酸二異壬酯	ppm		ND	ND	ND	50
Di-(Iso-Decyl) Phthalate (DIDP) 鄰苯二甲酸二異癸酯	ppm		ND	ND	ND	50
Di-(N-Octyl) Phthalate (DNOP) 鄰苯二甲酸二辛酯	ppm		ND	ND	ND	50
Di-n-hexyl Phthalate (DNHP) 鄰苯二甲酸二正己酯	ppm		ND	ND	ND	50
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	ppm		ND	ND	ND	50
Halogen Content 鹵素含量						
Fluorine (F) 氟	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography. 參考 EN 14582:2016，以氧彈燃燒集氣法並用離子層析儀分析。	541750	534748	520948	50
Chlorine (Cl) 氯	ppm		ND	ND	ND	50
Bromine (Br) 溴	ppm		ND	ND	ND	50
Iodine (I) 碘	ppm		ND	ND	ND	50
Others 其他						
Perfluorooctane Sulfonates Including PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE 全氟辛磺酸含 PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	ND	0.01
Perfluorooctanoic Acid (PFOA) 全氟辛酸	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	ND	0.01

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (4)	Result 結果 (5)	Result 結果 (6)	RL
Heavy Metal 重金屬						
Cadmium (Cd) Content 鎘含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Lead (Pb) Content 鉛含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Mercury (Hg) Content 汞含量	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD 1:2017，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Antimony (Sb) Content 銻含量	ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES. 參考 USEPA 3052，以微波消化法並用感應耦合電漿原子發射光譜儀分析。	ND	ND	ND	2
Chromium VI (Cr(VI)) Content 六價鉻含量	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer. 參考 IEC 62321-7-2:2017，以有機溶劑溶解或使樣品基質膨脹，再進行鹼液消化，用紫外光-可見光分光光度計分析。	ND	ND	ND	8

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (4)	Result 結果 (5)	Result 結果 (6)	RL
Polybrominated Biphenyls (PBBs) 多溴聯苯						
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	ND	ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	ND	ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	ND	ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	ND	ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	ND	ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	ND	ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	ND	ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	ND	ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	ND	ND	5
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚						
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	ND	ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	ND	ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	ND	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	ND	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	ND	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	ND	ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	ND	ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	ND	ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	ND	ND	5

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (4)	Result 結果 (5)	Result 結果 (6)	RL
Phthalates 鄰苯二甲酸酯						
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS. 參考 IEC 62321-8:2017，以溶劑萃取並用氣相層析質譜儀分析。	ND	ND	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	ND	ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	ND	ND	50
Di-(Iso-Nonyl) Phthalate (DINP) 鄰苯二甲酸二異壬酯	ppm		ND	ND	ND	50
Di-(Iso-Decyl) Phthalate (DIDP) 鄰苯二甲酸二異癸酯	ppm		ND	ND	ND	50
Di-(N-Octyl) Phthalate (DNOP) 鄰苯二甲酸二辛酯	ppm		ND	ND	ND	50
Di-n-hexyl Phthalate (DNHP) 鄰苯二甲酸二正己酯	ppm		ND	ND	ND	50
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	ppm		ND	ND	ND	50
Halogen Content 鹵素含量						
Fluorine (F) 氟	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography. 參考 EN 14582:2016，以氧彈燃燒集氣法並用離子層析儀分析。	508989	513312	434823	50
Chlorine (Cl) 氯	ppm		ND	ND	ND	50
Bromine (Br) 溴	ppm		ND	ND	ND	50
Iodine (I) 碘	ppm		ND	ND	ND	50
Others 其他						
Perfluorooctane Sulfonates Including PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE 全氟辛磺酸含 PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	ND	0.01
Perfluorooctanoic Acid (PFOA) 全氟辛酸	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	ND	0.01

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (7)	Result 結果 (8)	RL
Heavy Metal 重金屬					
Cadmium (Cd) Content 鎘含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Lead (Pb) Content 鉛含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Mercury (Hg) Content 汞含量	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD 1:2017，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Antimony (Sb) Content 銻含量	ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES. 參考 USEPA 3052，以微波消化法並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Chromium VI (Cr(VI)) Content 六價鉻含量	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer. 參考 IEC 62321-7-2:2017，以有機溶劑溶解或使樣品基質膨脹，再進行鹼液消化，用紫外光-可見光分光光度計分析。	ND	ND	8

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Polybrominated Biphenyls (PBBs) 多溴聯苯					
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	ND	5
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚					
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	ND	5

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (7)	Result 結果 (8)	RL
Phthalates 鄰苯二甲酸酯					
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS. 參考 IEC 62321-8:2017，以溶劑萃取並用氣相層析質譜儀分析。	ND	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	ND	50
Di-(Iso-Nonyl) Phthalate (DINP) 鄰苯二甲酸二異壬酯	ppm		ND	ND	50
Di-(Iso-Decyl) Phthalate (DIDP) 鄰苯二甲酸二異癸酯	ppm		ND	ND	50
Di-(N-Octyl) Phthalate (DNOP) 鄰苯二甲酸二辛酯	ppm		ND	ND	50
Di-n-hexyl Phthalate (DNHP) 鄰苯二甲酸二正己酯	ppm		ND	ND	50
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	ppm		ND	ND	50
Halogen Content 鹵素含量					
Fluorine (F) 氟	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography. 參考 EN 14582:2016，以氧彈燃燒集氣法並用離子層析儀分析。	508082	433764	50
Chlorine (Cl) 氯	ppm		ND	ND	50
Bromine (Br) 溴	ppm		ND	ND	50
Iodine (I) 碘	ppm		ND	ND	50
Others 其他					
Perfluorooctane Sulfonates Including PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE 全氟辛磺酸含 PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	0.01
Perfluorooctanoic Acid (PFOA) 全氟辛酸	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	0.01

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (9)	Result 結果 (10)	RL
Heavy Metal 重金屬					
Cadmium (Cd) Content 鎘含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Lead (Pb) Content 鉛含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Mercury (Hg) Content 汞含量	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD 1:2017，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Antimony (Sb) Content 銻含量	ppm	With reference to USEPA 3052, by microwave digestion and determined by ICP-OES. 參考 USEPA 3052，以微波消化法並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Chromium VI (Cr(VI)) Content 六價鉻含量	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer. 參考 IEC 62321-7-2:2017，以有機溶劑溶解或使樣品基質膨脹，再進行鹼液消化，用紫外光-可見光分光光度計分析。	ND	ND	8

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Number : TWNC01231369
報告號碼

Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (9)	Result 結果 (10)	RL
Polybrominated Biphenyls (PBBs) 多溴聯苯					
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	ND	5
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚					
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	ND	5

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (9)	Result 結果 (10)	RL
Phthalates 鄰苯二甲酸酯					
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS. 參考 IEC 62321-8:2017，以溶劑萃取並用氣相層析質譜儀分析。	ND	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	ND	50
Di-(Iso-Nonyl) Phthalate (DINP) 鄰苯二甲酸二異壬酯	ppm		ND	ND	50
Di-(Iso-Decyl) Phthalate (DIDP) 鄰苯二甲酸二異癸酯	ppm		ND	ND	50
Di-(N-Octyl) Phthalate (DNOP) 鄰苯二甲酸二辛酯	ppm		ND	ND	50
Di-n-hexyl Phthalate (DNHP) 鄰苯二甲酸二正己酯	ppm		ND	ND	50
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	ppm		ND	ND	50
Halogen Content 鹵素含量					
Fluorine (F) 氟	ppm	With reference to EN 14582:2016 by combustion bomb with oxygen and determined by Ion Chromatography. 參考 EN 14582:2016，以氧彈燃燒集氣法並用離子層析儀分析。	550579	490593	50
Chlorine (Cl) 氯	ppm		ND	ND	50
Bromine (Br) 溴	ppm		ND	ND	50
Iodine (I) 碘	ppm		ND	ND	50
Others 其他					
Perfluorooctane Sulfonates Including PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE 全氟辛磺酸含 PFOS, PFOSA, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	0.01
Perfluorooctanoic Acid (PFOA) 全氟辛酸	ppm	With reference to CEN/TS 15968:2010, by solvent extraction and determined by LC-MS-MS. 參考 CEN/TS 15968:2010，以溶劑萃取並用液相層析串聯質譜儀分析。	ND	ND	0.01

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Test Conducted 測試內容：

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
備註 百萬分之一，依據測試樣品重量計算 = 毫克/公斤
ND = Not detected 未檢測出
RL = Reporting limit, quantitation limit of analyte in sample
報告極限，測試樣品之定量偵測極限

Responsibility of Chemist 分析人員 : Cloud Hsu/ Vita Fu

Date Sample Received 樣品收件日期 : Dec 13, 2023
Test Period 樣品測試期間 : Dec 13, 2023 to Jan 02, 2023

RoHS Limit RoHS 限值

Restricted Substances 限用物質	Limits 限值
Cadmium (Cd) content 鎘含量	0.01% (100ppm)
Lead (Pb) content 鉛含量	0.1% (1000ppm)
Mercury (Hg) content 汞含量	0.1% (1000ppm)
Chromium VI (Cr(VI)) content 六價鉻含量	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs) 多溴聯苯	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	0.1% (1000ppm)
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.
本限值是依據歐盟指令 2011/65/EU 及其更新指令(EU) 2015/863 之附錄二針對均質材質所訂定。

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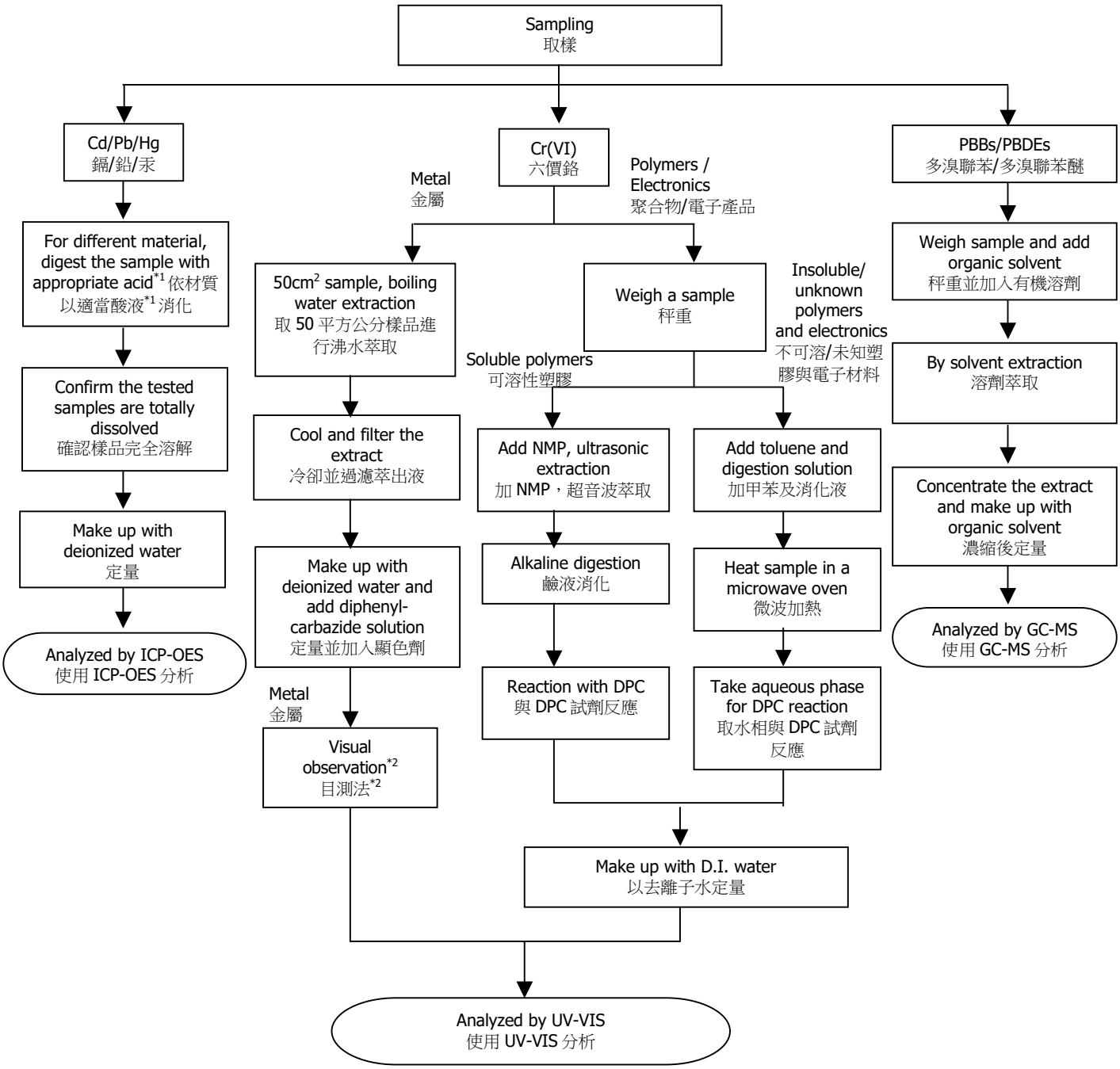
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content RoHS 六項測試
Reference Method 參考方法: Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;
Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);
Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);
PBBs/PBDEs: IEC 62321-6:2015



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Test Conducted 測試內容：

Remarks 備註:

*1: List of Appropriate Acid 各材質添加酸液如下表：

Material 材質	Acid Added for Digestion 添加酸液種類
Polymers 聚合物	HNO_3,HCl,HF,H_2O_2,H_3BO_3 硝酸、鹽酸、氫氟酸、雙氧水、硼酸
Metals 金屬	HNO_3,HCl,HF 硝酸、鹽酸、氫氟酸
Electronics 電子產品	HNO_3,HCl,H_2O_2,HBF_4 硝酸、鹽酸、雙氧水、氟硼酸

*2: If sample solution is significantly more intense than 0.13 μg/cm^2 equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.
當待測樣品溶液顏色明顯比 0.13 μg/cm^2 深，採用目測法判定六價鉻結果為陽性。

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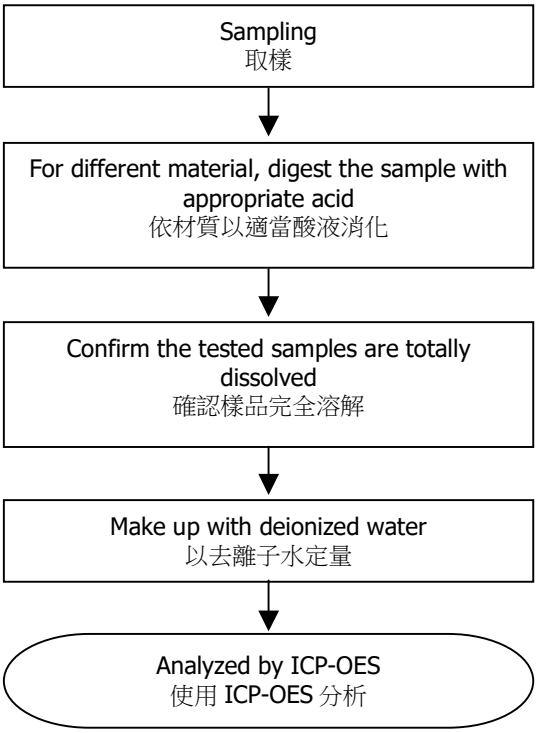
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Heavy Metal (Sb) Content 重金屬(銻)
Reference Method 參考方法：USEPA 3052



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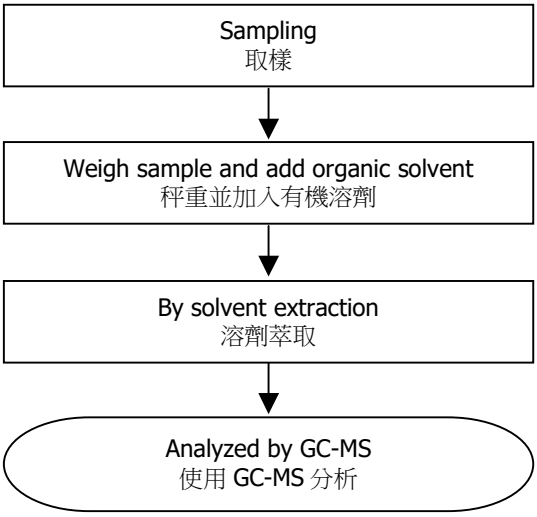
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Phthalates Content 鄰苯二甲酸酯測試
Reference Method 參考方法: IEC 62321-8:2017



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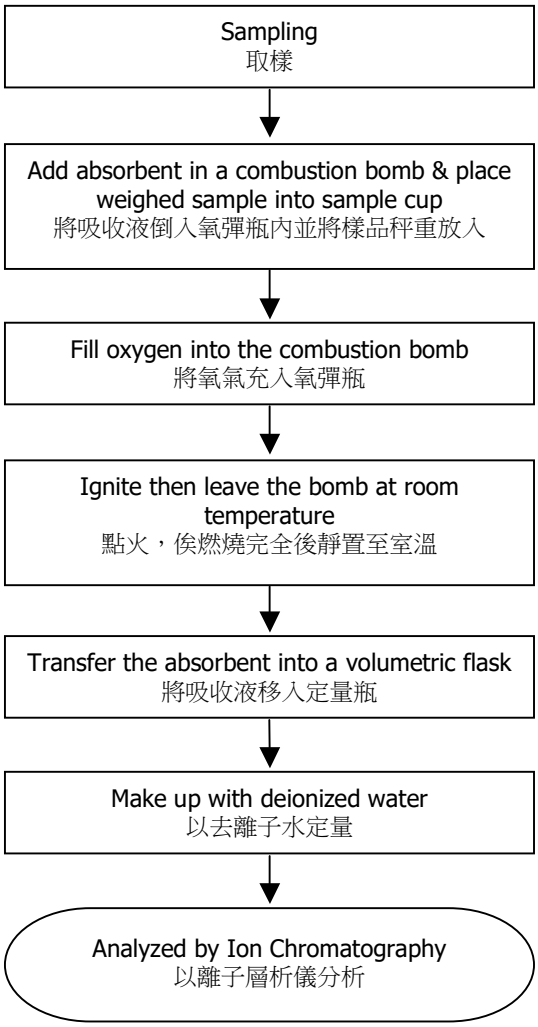
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Halogen Content 鹵素測試
Reference Method 參考方法：EN 14582:2016



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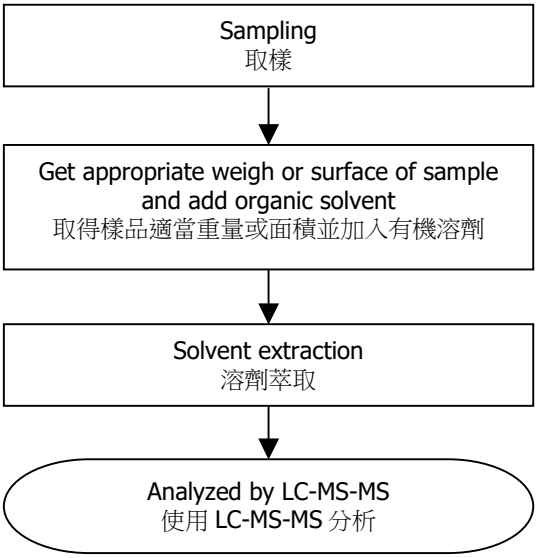
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Perfluorooctane Sulfonates (PFOS) / Perfluorooctanoic Acid (PFOA) Content 全氟辛磺酸 /全氟辛酸測試
Reference Method 參考方法：CEN/TS 15968:2010



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Sample photo 樣品照片：

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Number : TWNC01231369
報告號碼

Sample photo 樣品照片：

End of Report

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Test Report

No.: SHAEC23013103705 **Date:** Aug 31, 2023

Sample Name: NEOFLON FEP

Model No.:

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

SGS Job No.: SHP23-010984

Sample Receiving Date: Aug 22, 2023

Testing Period: Aug 22, 2023 ~ Aug 28, 2023

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

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

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

Test Requirement	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
Alkanes C10-C13, chloro (short chain-chlorinated paraffins) (SCCPs)	See Results
Element(s)	See Results
Halogen	See Results
Phthalates	See Results
Sulfur (S)	See Results
Hexabromocyclododecane (HBCDD)	See Results
Polycyclic Aromatic Hydrocarbons (PAHs)	See Results

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

Tom Ni

Tom Ni
Approved Signatory

scan to see the report

F9F219C0

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA23-0131037-0001.C001	Transparent solid pellet

Remarks:

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

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

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

Test Item(s)	Limit	Unit(s)	MDL	A1
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND
Tetrabromodiphenylether (TetraBDE)	-	mg/kg	5	ND
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND

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Test Item(s)	Limit	Unit(s)	MDL	A1
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND

Notes:
(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
(2) IEC 62321 series is equivalent to EN 62321 series.
(3) 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.

Alkanes C10-C13, chloro (short chain-chlorinated paraffins) (SCCPs)

Test Method: With reference to ISO 18219-1:2021, analysis was performed by GC-NCI-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Short Chain Chlorinated Paraffin(C10-C13)(SCCP)	85535-84-8	mg/kg	50	ND

Element(s)

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

Test Item(s)	Unit(s)	MDL	A1
Phosphorus(P)	mg/kg	20	ND
Antimony(Sb)	mg/kg	10	ND

Halogen

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

Test Item(s)	Unit(s)	MDL	A1
Fluorine(F)	mg/kg	20	>100000
Chlorine(Cl)	mg/kg	50	ND
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

Phthalates

Test Method: With reference to EN 14372:2004, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Diisononyl Phthalate (DINP)	28553-12-0 /68515-48-0	%	0.010	ND
Di-n-Octyl Phthalate(DNOP)	117-84-0	%	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 /68515-49-1	%	0.010	ND

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Dimethyl Phthalate(DMP)	131-11-3	%	0.003	ND
Diethyl Phthalate(DEP)	84-66-2	%	0.003	ND
Dipentyl Phthalate (DnPP)	131-18-0	%	0.003	ND
Di-n-Hexyl Phthalate(DnHP)	84-75-3	%	0.003	ND
Bis(2-methoxyethyl)phthalate(DMEP)	117-82-8	%	0.003	ND
Diisopentyl Phthalate(DIPP)	605-50-5	%	0.003	ND
1,2-Benzenedicarboxylic Acid,di-C6-8-branched alkyl esters,C7-rich(DIHP)	71888-89-6	%	0.010	ND
1,2-Benzenedicarboxylic Acid,Di-C7-11-Branched and Linear Alkyl Esters(DHNUP)	68515-42-4	%	0.010	ND

Sulfur (S)

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

Test Item(s)	Unit(s)	MDL	A1
Sulfur(S)	mg/kg	50	ND

Hexabromocyclododecane (HBCDD)

Test Method: With reference to US EPA 3550C:2007, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Hexabromocyclododecane (HBCDD)	134237-50-6 /134237-51-7 /134237-52-8 /25637-99-4 /3194-55-6	mg/kg	10	ND

Polycyclic Aromatic Hydrocarbons (PAHs)

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

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Benzo(a)pyrene(BaP)	50-32-8	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	192-97-2	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	56-55-3	mg/kg	0.1	ND
Benzo(b)Fluoranthene(BbF)	205-99-2	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)	205-82-3	mg/kg	0.1	ND
Benzo(k)Fluoranthene(BkF)	207-08-9	mg/kg	0.1	ND
Chrysene(CHR)	218-01-9	mg/kg	0.1	ND
Dibenzo(a,h)Anthracene(DBA)	53-70-3	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	191-24-2	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	193-39-5	mg/kg	0.1	ND
Phenanthrene(PHE)	85-01-8	mg/kg	0.1	ND

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Test Item(s)	CAS No.	Unit(s)	MDL	A1
Pyrene(PYR)	129-00-0	mg/kg	0.1	ND
Anthracene(ANT)	120-12-7	mg/kg	0.1	ND
Fluoranthene(FLT)	206-44-0	mg/kg	0.1	ND
Sum of Phenanthrene(PHE), Pyrene(PYR), Anthracene(ANT), Fluoranthene(FLT)	-	mg/kg	-	ND
Naphthalene(NAP)	91-20-3	mg/kg	0.1	ND
Sum of 15 PAHs	-	mg/kg	-	ND
Material Category	-	-	-	-

Notes:

AfPS（German commission for Product Safety）: PAHs requirements

Parameter	Category 1	Category 2		Category 3	
	Materials intended to be placed in the mouth, or materials coming into long-term contact with skin (more than 30s) during the intended use -in toys according to Directive 2009/48/EC or -for the use by children[a,b] up to 3 years of age.	Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact[c] with skin during the intended or foreseeable use[d].		Materials covered neither by category 1 nor by category 2, coming into short-term contact (up to 30s) with skin during the intended or foreseeable use.	
		a. use by children	b. other consumer products	a. use by children	b. 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

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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

Notes:
[a] A “Child” is legally defined as a person before reaching the age of 14 years.
[b] Use by children includes both active and passive contact by children.
[c] Definition “short-term repetitive contact” taken from REACH Annex XVII entry 50 amendment (Regulation (EC) No.1272/2013)
[d] According to the definition of the German Product Safety Act (ProdSG) (chapter 1 Article 2 No. 28) “foreseeable use” shall mean the use of a product in a manner that the person placing it on the market, has not intended, but which could be reasonably foreseeable.

Remark:
The German committee on Product Safety (AfPS) published a new PAHs document (AfPS GS 2019:01 PAK) on April 10, 2020, which will be binding for the issue of GS mark certificate from July 1, 2020.

Results & photo(s) of this report refer to test report SHAEC23013103701.
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (*w*=0) stated in ILAC-G8:09/2019.

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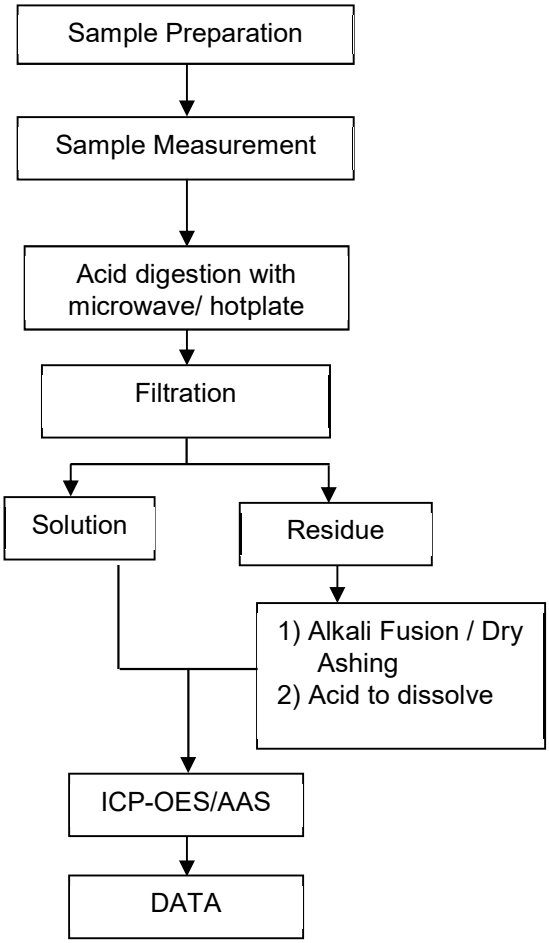
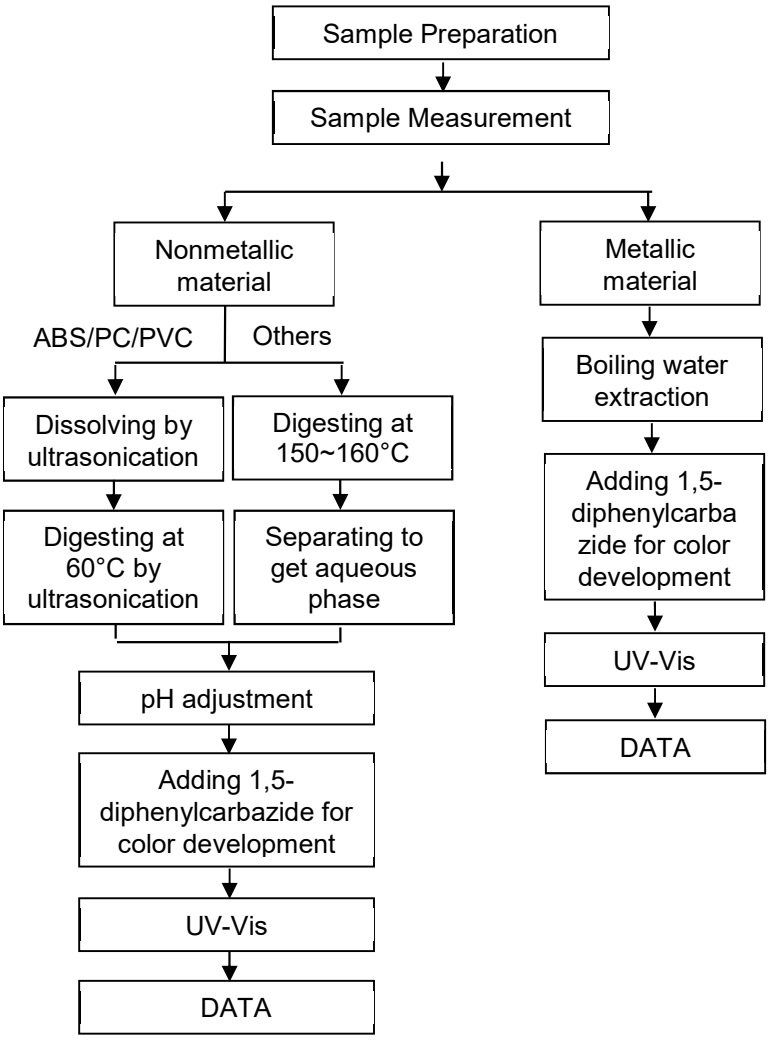
Elements Testing Flow Chart

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



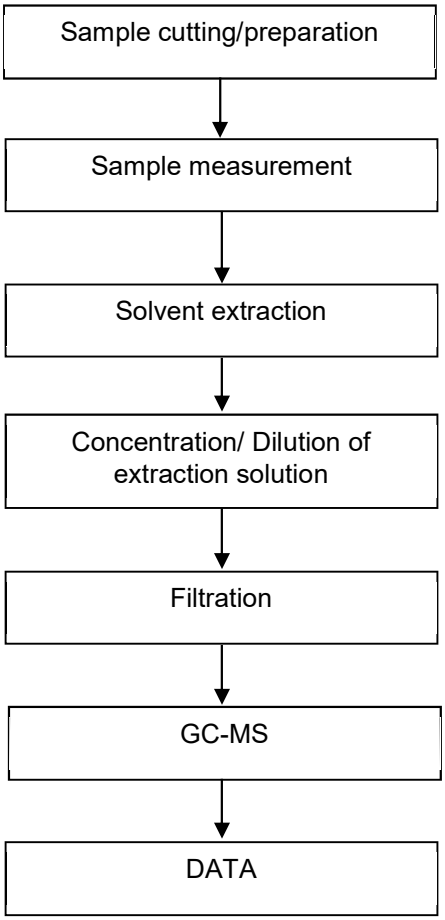
ATTACHMENTS

Hexavalent Chromium (Cr(VI)) Testing Flow Chart



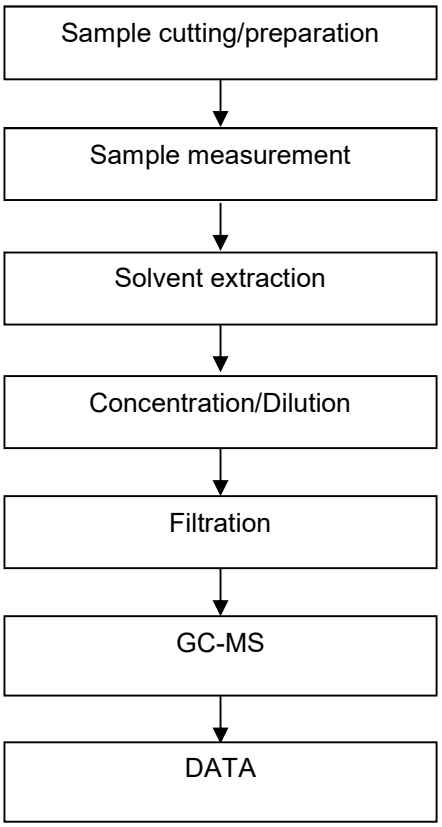
ATTACHMENTS

PBBs/PBDEs Testing Flow Chart



ATTACHMENTS

Phthalates Testing Flow Chart



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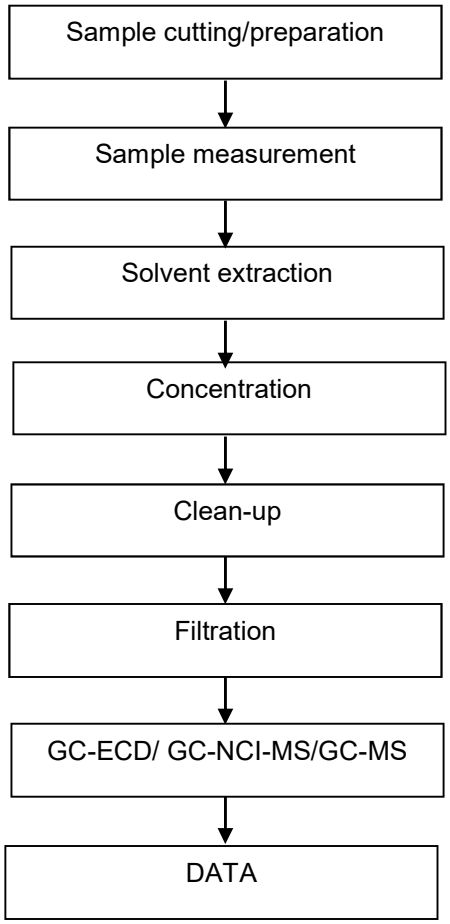
ATTACHMENTS

Chlorinated Paraffin Testing Flow Chart



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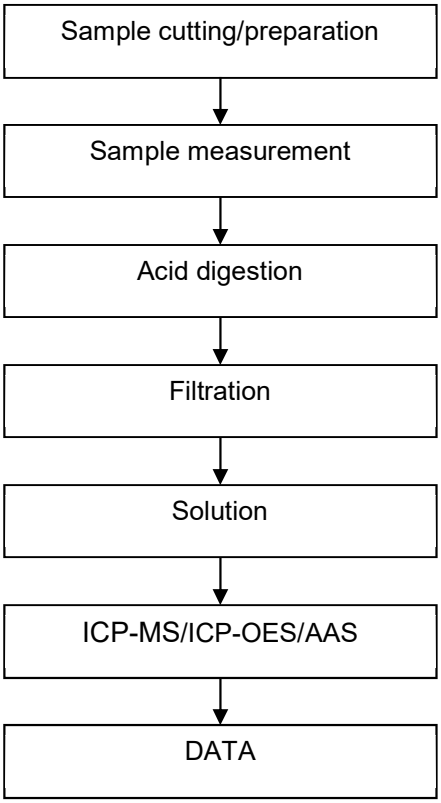
Elements Testing Flow Chart



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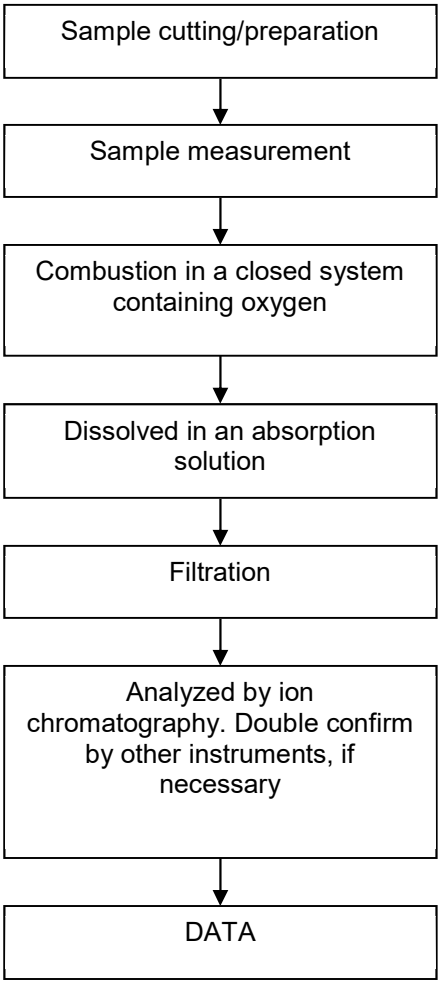
Halogen Testing Flow Chart



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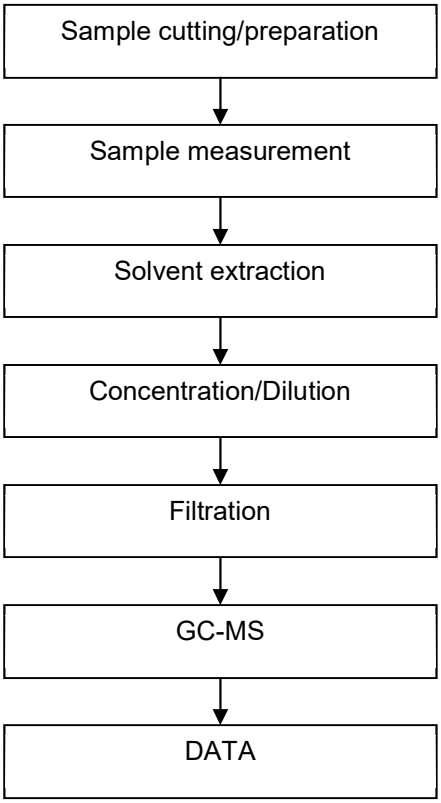
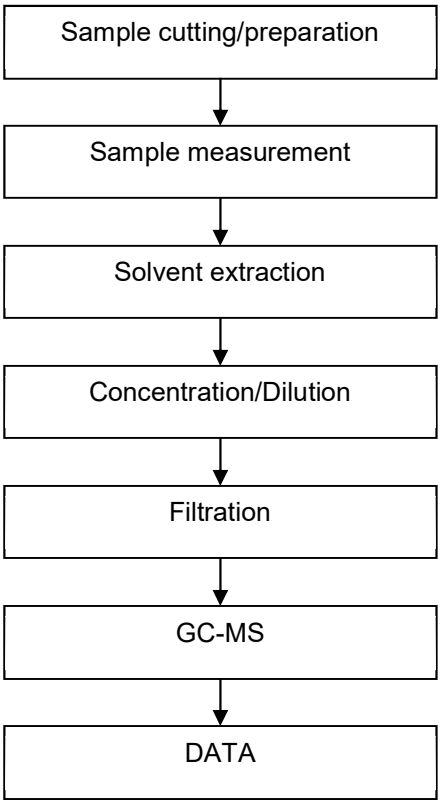
HBCDD Testing Flow Chart



ATTACHMENTS

PAHs Testing Flow Chart



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Sample Photo:

SHA23-0131037-0001.C001

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report 測試報告

Number : TWNC01231370
報告號碼

Applicant: WONDERFUL HI-TECH CO., LTD.
申請廠商 萬泰科技股份有限公司
No.17, Beiyuan Rd., Zhongli Dist.,
Taoyuan City 320, Taiwan (R.O.C.)
桃園市中壢區工業區北園路 17 號

Issue Date : Jan 12, 2024
報告發行日期

Sample Description 樣品敘述:

One (1) Group of Submitted Samples Said To Be :
以下測試樣品乃供應商所提供及確認:

Sample Submitted By 送樣廠商	:	WONDERFUL HI-TECH CO., LTD. 萬泰科技股份有限公司
Sample Description 樣品名稱	:	裸銅線, 鍍銀銅包鋼線, 鍍銀銅線, 鍍錫銅線 (COPPER, SILVER-PLATED COPPER CLAD)
Style / Item No. 產品型號	:	裸銅 COPPER/銅包鋼 SILVER-PLATED COPPER CLAD STEEL/鍍銀層 SILVER-PLATED/ 鍍錫層 TIN-PLATED
Date Sample Received 收件日期	:	Dec 13, 2023
Date Test Started 開始測試日期	:	Dec 13, 2023

Test Conducted 測試執行:

As requested by the applicant, for details please refer to attached pages.
依申請商之要求, 細節請參考附頁.

Conclusion 結論:

Tested Sample 測試樣品	Standard 標準	Result 結果
Test Components of Submitted Samples 測試部位	Restriction of Hazardous Substances (RoHS) 危害物質限制 – As per applicant's request with reference to 2011/65/EU and amendment (EU) 2015/863 依據客戶要求參考歐盟指令 2011/65/EU 及其更新指令(EU) 2015/863	Pass 合格

Tested Components 測試元件:

(1) Coppery metal wire
(2) Silvery metal wire
(3) Silvery metal wire
(4) Silvery metal wire

Authorized By:
On behalf of Intertek Testing Services Taiwan Limited

Matt Wang
General Manager

Signed by:

Thomas Chou
Manager

報告查詢 Report Verification

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www.intertek-twn.com

Test Conducted 測試內容：

Test Result Summary 測試結果：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (1)	Result 結果 (2)	RL
Heavy Metal 重金屬					
Cadmium (Cd) Content 鎘含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Lead (Pb) Content 鉛含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Mercury (Hg) Content 汞含量	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD 1:2017，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Chromium VI (Cr(VI)) Content 六價鉻含量 @	μg/ cm^2	With reference to IEC 62321-7-1: 2015, by boiling water extraction and determined by UV-Vis Spectrophotometer or visual observation. 參考 IEC 62321-7-1: 2015，以沸水萃取並用紫外光-可見光分光光度計分析或目測法判定。	Negative	Negative	0.10

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Fax: (+886-2) 6602-2420
www.intertek-twn.com

Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (1)	Result 結果 (2)	RL
Polybrominated Biphenyls (PBBs) 多溴聯苯					
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	ND	5
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚					
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	ND	5

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Number : TWNC01231370
報告號碼

Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (1)	Result 結果 (2)	RL
Phthalates 鄰苯二甲酸酯					
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS. 參考 IEC 62321-8:2017，以溶劑萃取並用氣相層析質譜儀分析。	ND	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	ND	50
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	ppm		ND	ND	50

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (3)	Result 結果 (4)	RL
Heavy Metal 重金屬					
Cadmium (Cd) Content 鎘含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Lead (Pb) Content 鉛含量	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Mercury (Hg) Content 汞含量	ppm	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD 1:2017，以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	ND	ND	2
Chromium VI (Cr(VI)) Content 六價鉻含量 @	μg/ cm^2	With reference to IEC 62321-7-1: 2015, by boiling water extraction and determined by UV-Vis Spectrophotometer or visual observation. 參考 IEC 62321-7-1: 2015，以沸水萃取並用紫外光-可見光分光光度計分析或目測法判定。	Negative	Negative	0.10

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (3)	Result 結果 (4)	RL
Polybrominated Biphenyls (PBBs) 多溴聯苯					
Monobrominated Biphenyls (MonoBB) 單溴聯苯	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Biphenyls (DiBB) 二溴聯苯	ppm		ND	ND	5
Tribrominated Biphenyls (TriBB) 三溴聯苯	ppm		ND	ND	5
Tetrabrominated Biphenyls (TetraBB) 四溴聯苯	ppm		ND	ND	5
Pentabrominated Biphenyls (PentaBB) 五溴聯苯	ppm		ND	ND	5
Hexabrominated Biphenyls (HexaBB) 六溴聯苯	ppm		ND	ND	5
Heptabrominated Biphenyls (HeptaBB) 七溴聯苯	ppm		ND	ND	5
Octabrominated Biphenyls (OctaBB) 八溴聯苯	ppm		ND	ND	5
Nonabrominated Biphenyls (NonaBB) 九溴聯苯	ppm		ND	ND	5
Decabrominated Biphenyl (DecaBB) 十溴聯苯	ppm		ND	ND	5
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚					
Monobrominated Diphenyl Ethers (MonoBDE) 單溴聯苯醚	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015，以溶劑萃取並用氣相層析質譜儀分析，必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	ND	ND	5
Dibrominated Diphenyl Ethers (DiBDE) 二溴聯苯醚	ppm		ND	ND	5
Tribrominated Diphenyl Ethers (TriBDE) 三溴聯苯醚	ppm		ND	ND	5
Tetrabrominated Diphenyl Ethers (TetraBDE) 四溴聯苯醚	ppm		ND	ND	5
Pentabrominated Diphenyl Ethers (PentaBDE) 五溴聯苯醚	ppm		ND	ND	5
Hexabrominated Diphenyl Ethers (HexaBDE) 六溴聯苯醚	ppm		ND	ND	5
Heptabrominated Diphenyl Ethers (HeptaBDE) 七溴聯苯醚	ppm		ND	ND	5
Octabrominated Diphenyl Ethers (OctaBDE) 八溴聯苯醚	ppm		ND	ND	5
Nonabrominated Diphenyl Ethers (NonaBDE) 九溴聯苯醚	ppm		ND	ND	5
Decabrominated Diphenyl Ether (DecaBDE) 十溴聯苯醚	ppm		ND	ND	5

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Test Conducted 測試內容：

Test Item 測試項目	Unit 單位	Test Method 測試方法	Result 結果 (3)	Result 結果 (4)	RL
Phthalates 鄰苯二甲酸酯					
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	ppm	With reference to IEC 62321-8:2017, by solvent extraction and determined by GC-MS. 參考 IEC 62321-8:2017，以溶劑萃取並用氣相層析質譜儀分析。	ND	ND	50
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	ppm		ND	ND	50
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	ppm		ND	ND	50
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	ppm		ND	ND	50

Remarks: 備註
ppm = Parts per million based on weight of tested sample = mg/kg
百萬分之一，依據測試樣品重量計算 = 毫克/公斤
ND = Not detected 未檢測出
RL = Reporting limit, quantitation limit of analyte in sample
報告極限，測試樣品之定量偵測極限

@ The explanation of Chromium VI (Cr(VI)) analysis results 六價鉻分析結果說明

Colorimetric result 比色結果	Qualitative Result 定性結果	Explanation 說明
< 0.10 μg/cm^2	Negative 陰性	The result of sample is negative for Cr(VI). The sample coating is considered a non-Cr(VI) based coating. 六價鉻結果為陰性。樣品之鍍層可視為不含六價鉻。
≥ 0.10 μg/cm^2 and ≤ 0.13 μg/cm^2	Inconclusive 不確定	The result of sample is considered to be inconclusive. If addition samples are available, recommend to add trials and get the average result for the final determination. 六價鉻結果為不確定。若可取得較多樣品，建議增加測試次數並取得其平均值，以評估最後結果。
> 0.13 μg/cm^2	Positive 陽性	The result of sample is positive for Cr(VI). The sample coating is considered to contain Cr(VI). 六價鉻結果為陽性。樣品之鍍層可視為含有六價鉻。 A result expresses as Positive, while not an actual value, which indicates a visual observation was used. 當結果以陽性表示，而非數值時，為使用目測法判定。

Responsibility of Chemist 分析人員 : Cloud Hsu/ Vita Fu

Date Sample Received 樣品收件日期 : Dec 13, 2023
Test Period 樣品測試期間 : Dec 13, 2023 to Jan 02, 2024

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Test Conducted 測試內容：

RoHS Limit RoHS 限值

Restricted Substances 限用物質	Limits 限值
Cadmium (Cd) content 鎘含量	0.01% (100ppm)
Lead (Pb) content 鉛含量	0.1% (1000ppm)
Mercury (Hg) content 汞含量	0.1% (1000ppm)
Chromium VI (Cr(VI)) content 六價鉻含量	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs) 多溴聯苯	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚	0.1% (1000ppm)
Di(2-ethylhexyl) Phthalate (DEHP) 鄰苯二甲酸二(2-乙基己基)酯	0.1% (1000ppm)
Dibutyl Phthalate (DBP) 鄰苯二甲酸二丁酯	0.1% (1000ppm)
Benzyl Butyl Phthalate (BBP) 鄰苯二甲酸苯基丁酯	0.1% (1000ppm)
Diisobutyl Phthalate (DIBP) 鄰苯二甲酸二異丁酯	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU and Amendment (EU) 2015/863 for homogeneous material.
本限值是依據歐盟指令 2011/65/EU 及其更新指令(EU) 2015/863 之附錄二針對均質材質所訂定。

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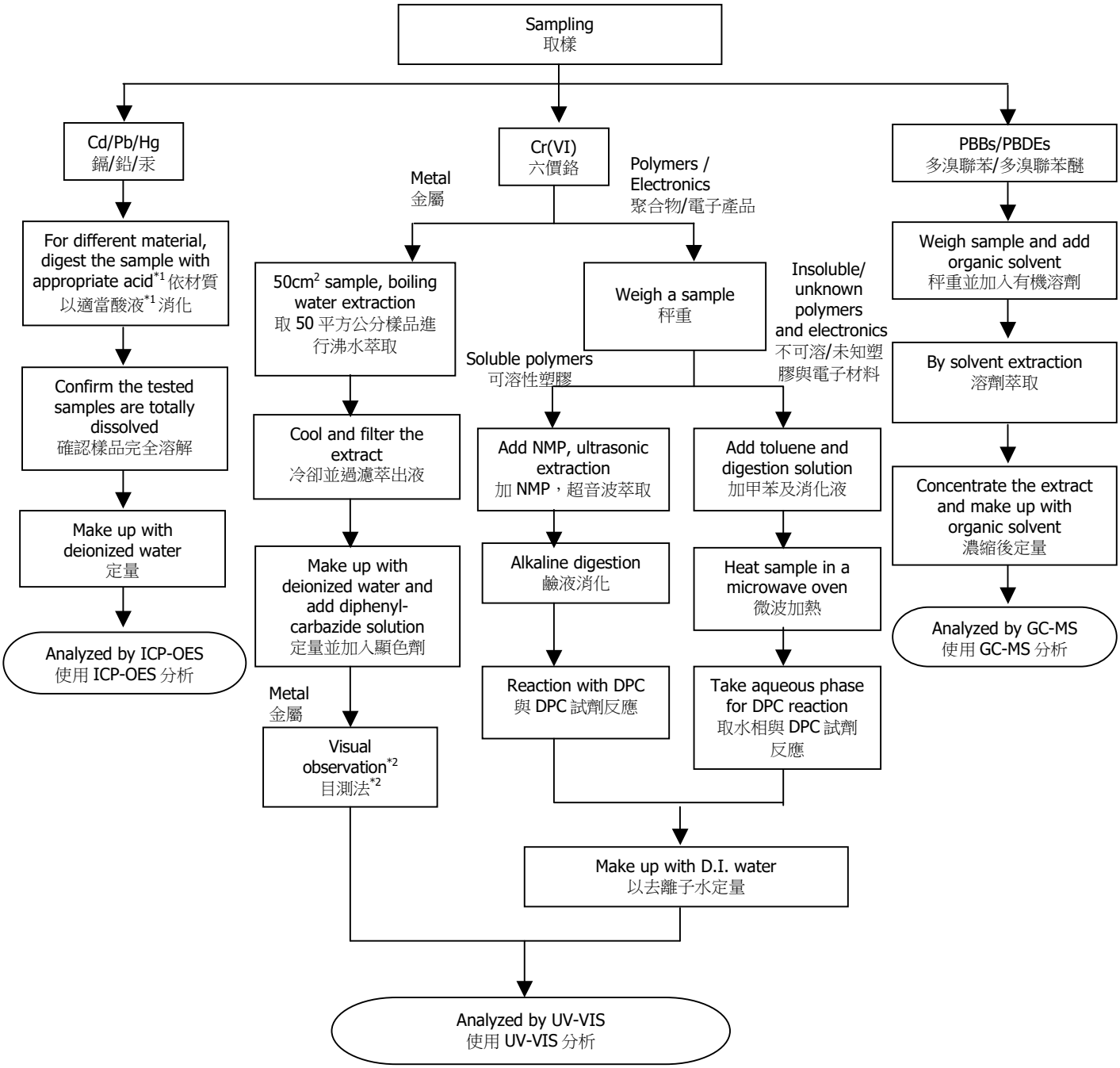
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Cd/Pb/Hg/Chromium (VI)/PBBs/PBDEs Content RoHS 六項測試
Reference Method 參考方法: Cd/Pb: IEC 62321-5:2013; Hg: IEC 62321-4:2013+AMD1:2017;
Chromium (VI): IEC 62321-7-1:2015 (boiling water extraction);
Chromium (VI): IEC 62321-7-2:2017 (solvent and alkaline extraction);
PBBs/PBDEs: IEC 62321-6:2015



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Test Conducted 測試內容：

Remarks 備註:

*1: List of Appropriate Acid 各材質添加酸液如下表：

Material 材質	Acid Added for Digestion 添加酸液種類
Polymers 聚合物	HNO_3,HCl,HF,H_2O_2,H_3BO_3 硝酸、鹽酸、氫氟酸、雙氧水、硼酸
Metals 金屬	HNO_3,HCl,HF 硝酸、鹽酸、氫氟酸
Electronics 電子產品	HNO_3,HCl,H_2O_2,HBF_4 硝酸、鹽酸、雙氧水、氟硼酸

*2: If sample solution is significantly more intense than 0.13 μg/cm^2 equivalent comparison standard, Chromium VI would be determined as detected, the result of visual observation is positive.
當待測樣品溶液顏色明顯比 0.13 μg/cm^2 深，採用目測法判定六價鉻結果為陽性。

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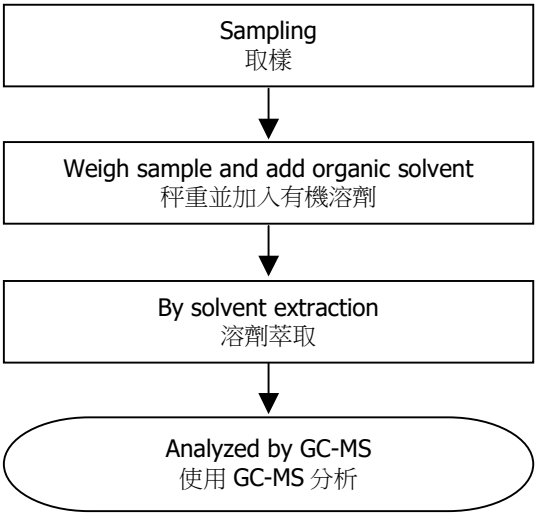
Test Conducted 測試內容：

Measurement Flowchart 測試流程圖:

Test for Phthalates Content 鄰苯二甲酸酯測試
Reference Method 參考方法: IEC 62321-8:2017



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Number : TWNC01231370
報告號碼

Sample photo 樣品照片：

End of Report

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Test Report

No.: EKR23400747 Date: 20-Apr-2023

POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

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

Sample Submitted By	:	POLYPLASTICS TAIWAN CO., LTD.
Sample Name	:	PBT
Style/Item No.	:	310NF ED3002 / Lot No.2X74130

==========

Sample Receiving Date	:	13-Apr-2023
Testing Period	:	13-Apr-2023 to 20-Apr-2023

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) As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample.

Test Results : Please refer to following pages.

Ray Chang, Ph.D./Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory-Kaohsiung

CHECK REPORT
PIN CODE: 25B05396

POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

Test Part Description

No.1 : ED3002 PBT

Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Cadmium (Cd)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Lead (Pb)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Hexavalent Chromium Cr(VI)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.
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.
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.

POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Dibutyl phthalate (DBP)		mg/kg	50	n.d.
Diisobutyl phthalate (DIBP)		mg/kg	50	n.d.
Di-(2-ethylhexyl) phthalate (DEHP)		mg/kg	50	n.d.
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	930
Chlorine (Cl) (CAS No.: 22537-15-1)		mg/kg	50	n.d.
Bromine (Br) (CAS No.: 10097-32-2)		mg/kg	50	n.d.
Iodine (I) (CAS No.: 14362-44-8)		mg/kg	50	n.d.

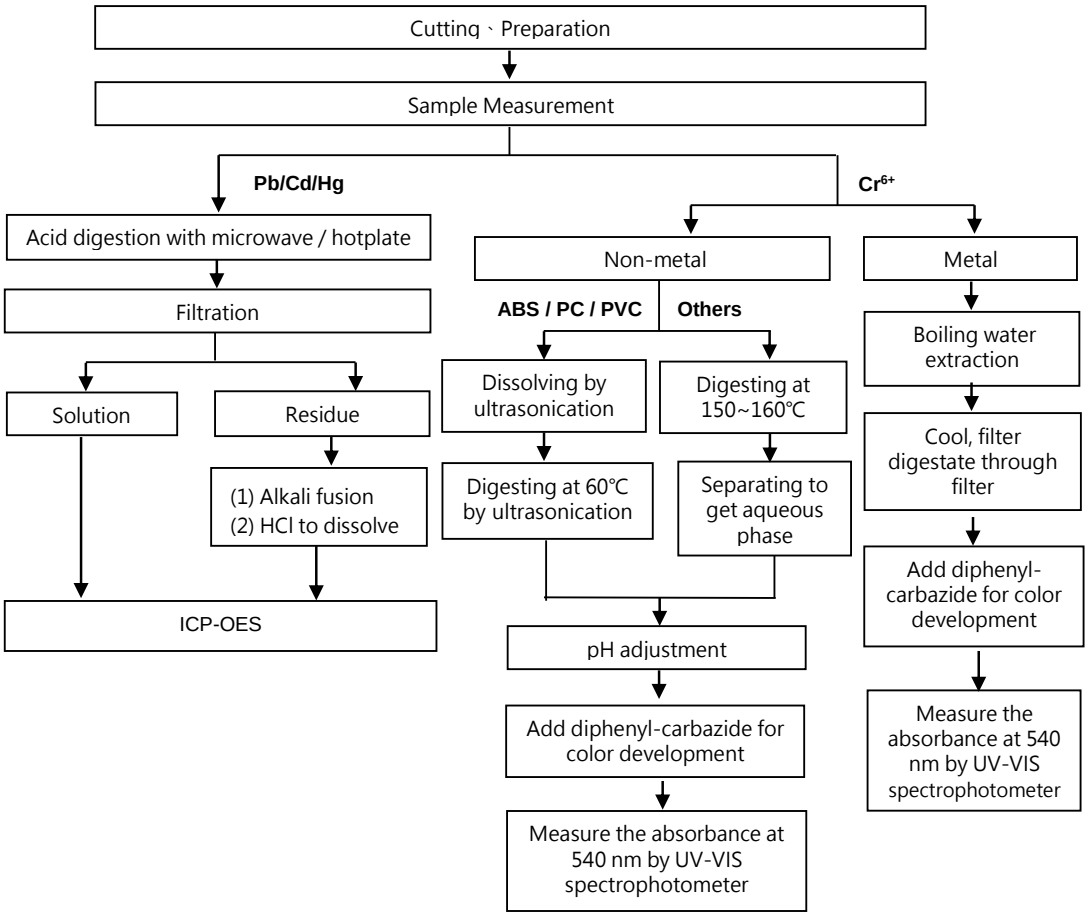
Note：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated

POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

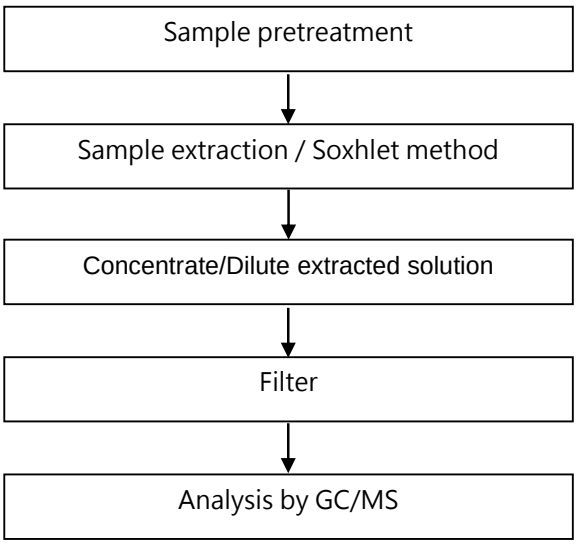
Analytical flow chart of Heavy Metal

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



POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

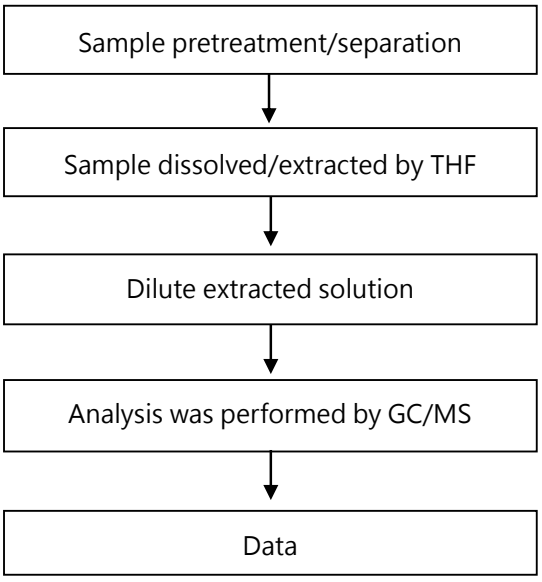
PBB/PBDE analytical FLOW CHART



POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

Analytical flow chart of phthalate content

【Test method: IEC 62321-8】



POLYPLASTICS TAIWAN CO., LTD.
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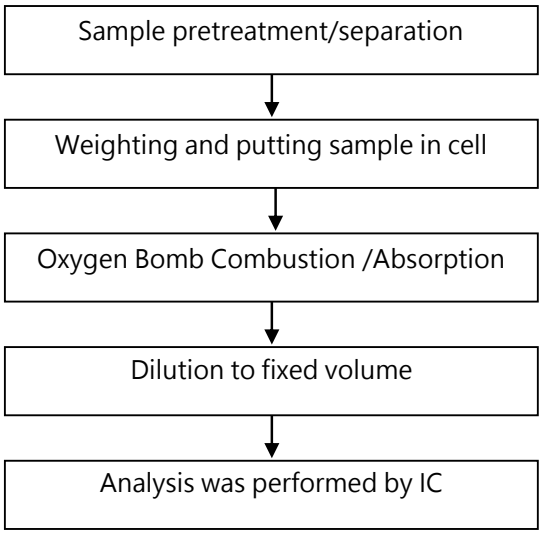
Analytical flow chart of Halogen



POLYPLASTICS TAIWAN CO., LTD.
NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

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

EKR23400747

** End of Report **

Test Report

No.: ETR23803657M01 Date: 31-Aug-2023

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

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

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

==========

Sample Receiving Date	:	16-Aug-2023
Testing Period	:	16-Aug-2023 to 31-Aug-2023

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

CHECK REPORT
PIN CODE: EC27944E

JX 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)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Lead (Pb)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	21.6
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Hexavalent Chromium Cr(VI) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	μg/cm²	0.1	n.d.

Note :

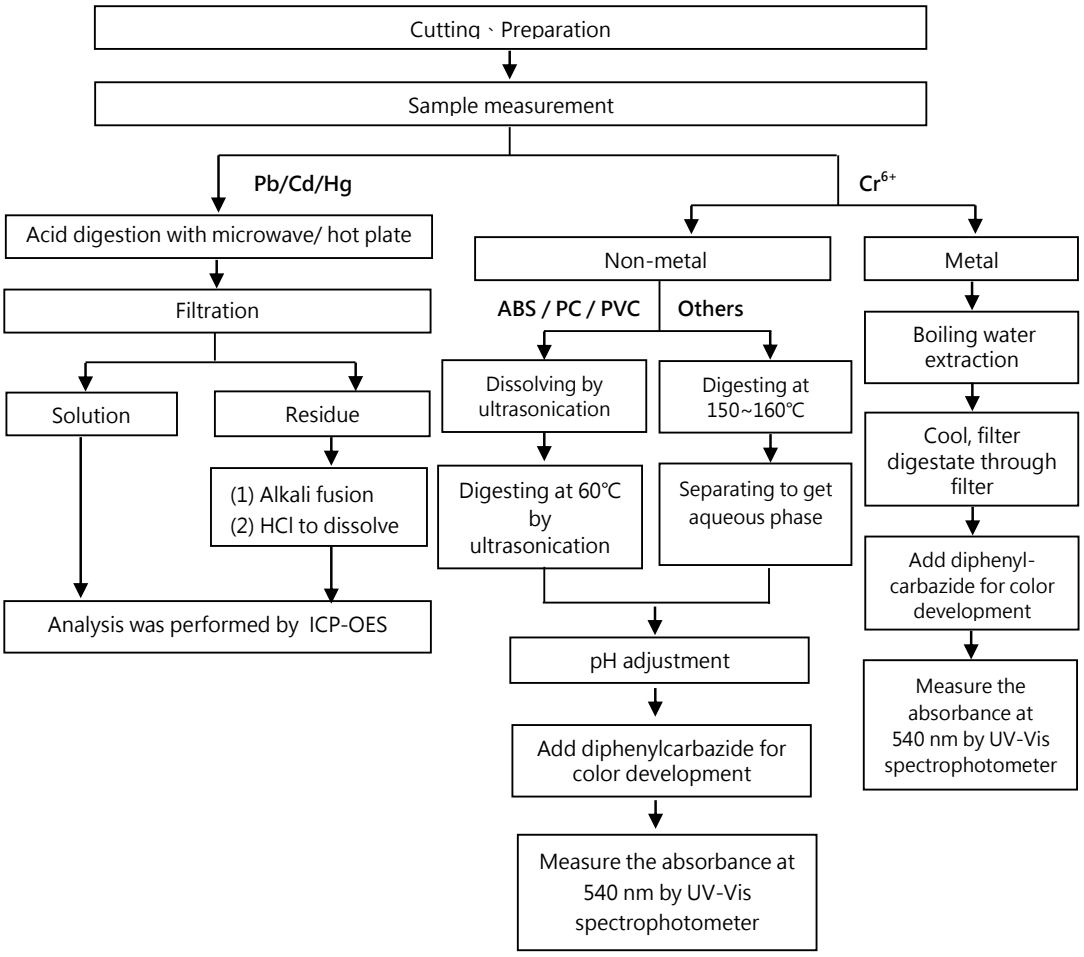
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. (#2) =
   a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 μg/cm². The sample coating is considered to contain Cr(VI).
   b. The sample is negative for 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 ETR23803657.

JX 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)



JX 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. ***

ETR23803657

** End of Report **

Test Report

No.: CANEC23014107402 **Date:** Nov 20, 2023

Client Name: 3M MATERIAL TECHNOLOGY (GUANGZHOU) CO.,LTD.

Client Address: NO.9,NANXIANG 2 ROAD,SCIENCE CITY GUANGZHOU HIGH TECH INDUSTRY DEVELOPMENT DISTRICT

Sample Name: 3M 9888T Tissue Tape

Model No.: 9888T

Client Ref. Information: 9810T, 9183T, 6408

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

SGS Job No.: GZP23-019307

Sample Receiving Date: Nov 15, 2023

Testing Period: Nov 15, 2023 ~ Nov 20, 2023

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

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

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

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

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

Coral Qiu

Coral Qiu
Approved Signatory

scan to see the report
AC1C4427

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch
No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663
中国·广东·广州高新技术产业开发区科学城科珠路198号 邮编: 510663
t (86-20) 82155555 www.sgsgroup.com.cn
t (86-20) 82155555 sgs.china@sgs.com

Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN23-0141074-0001.C001	Colorless transparent double-side adhesive sheet

Remarks:

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

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

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

Test Item(s)	Limit	Unit(s)	MDL	A1
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND
Tetrabromodiphenylether (TetraBDE)	-	mg/kg	5	ND
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND

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Test Item(s)	Limit	Unit(s)	MDL	A1
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND

Notes:

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

(2) IEC 62321 series is equivalent to EN 62321 series.

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

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

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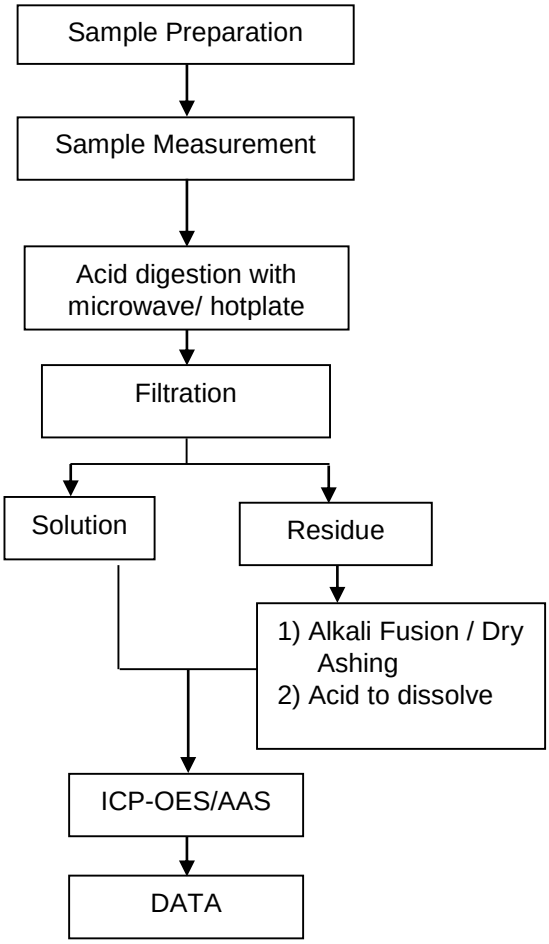
ATTACHMENTS

Elements Testing Flow Chart

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



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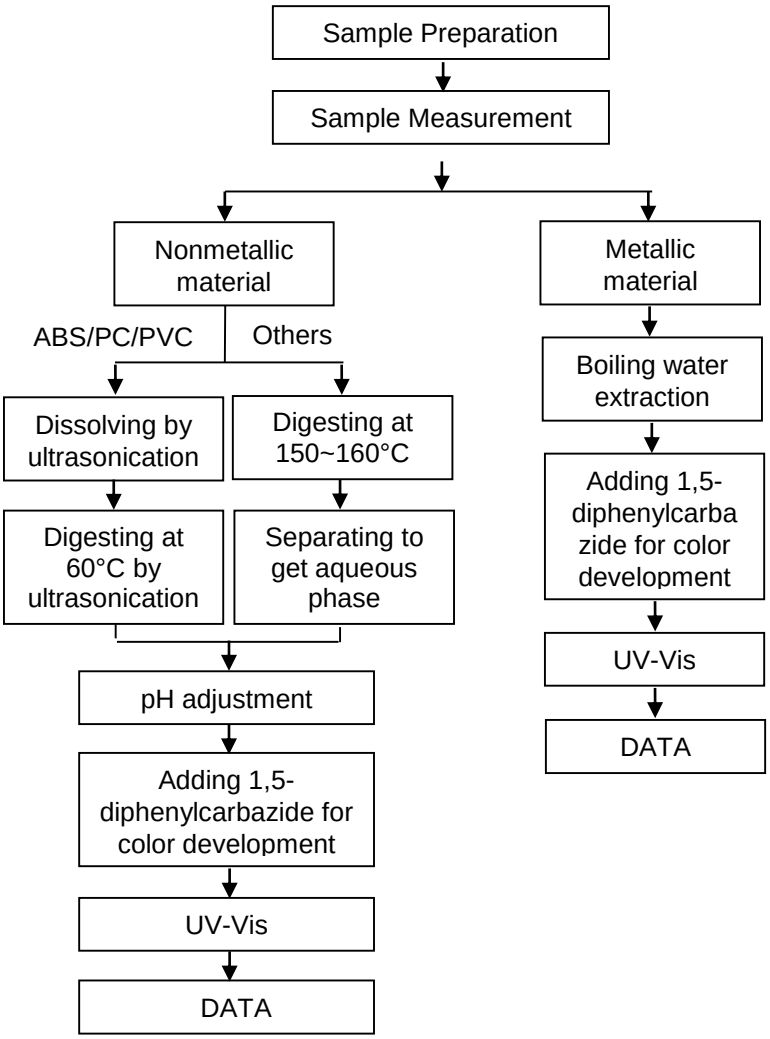
ATTACHMENTS

Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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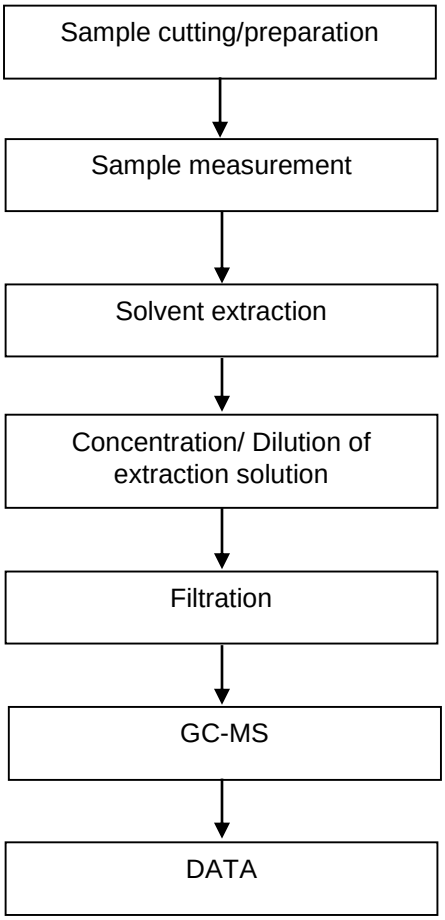
ATTACHMENTS

PBBs/PBDEs Testing Flow Chart



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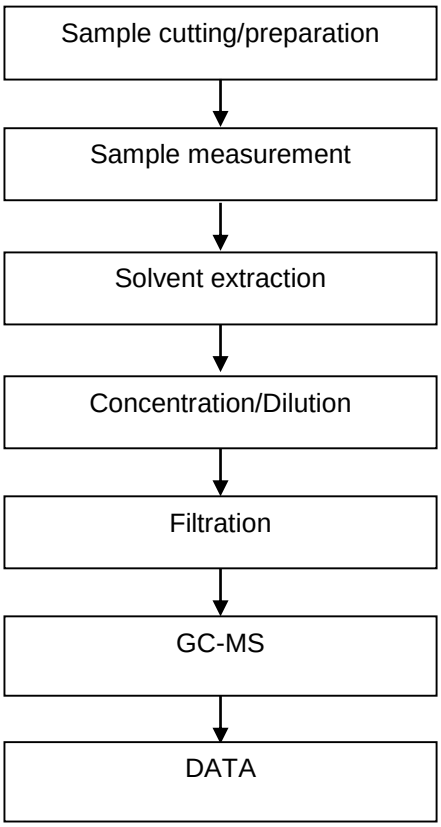
Phthalates Testing Flow Chart



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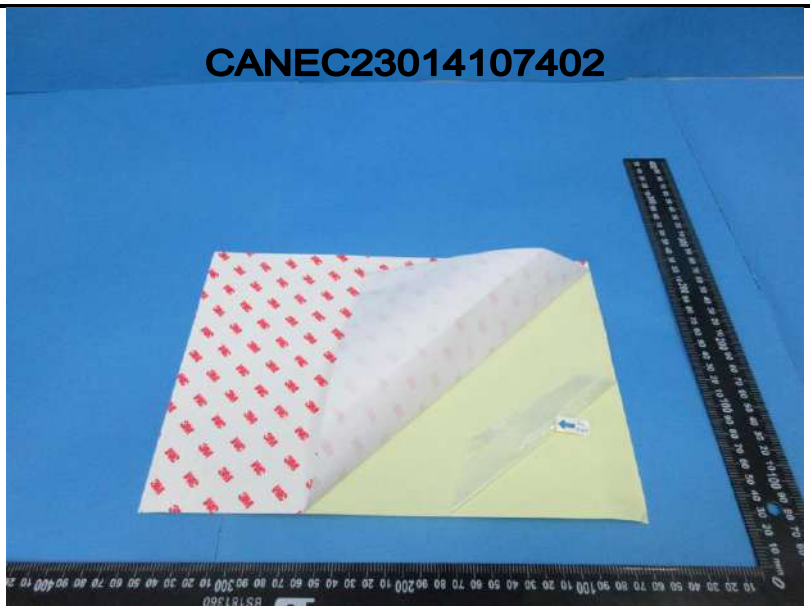
Sample Photo:



CAN23-0141074-0001.C001

SGS authenticate the photo on original report only

*** End of Report ***

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