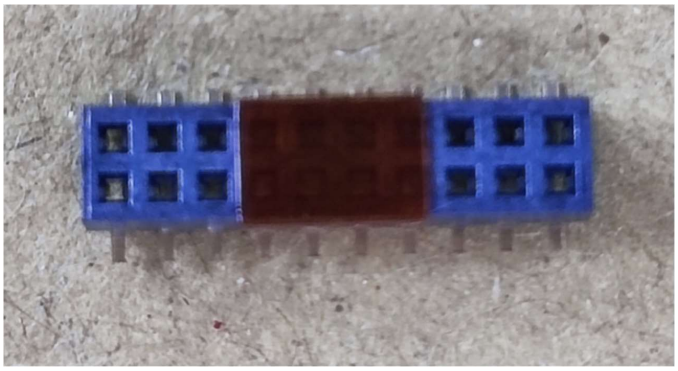

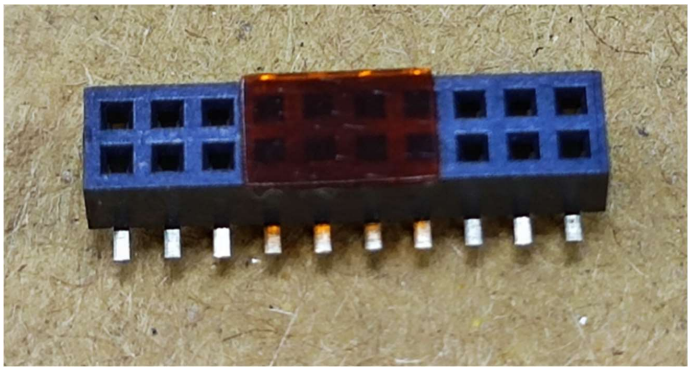

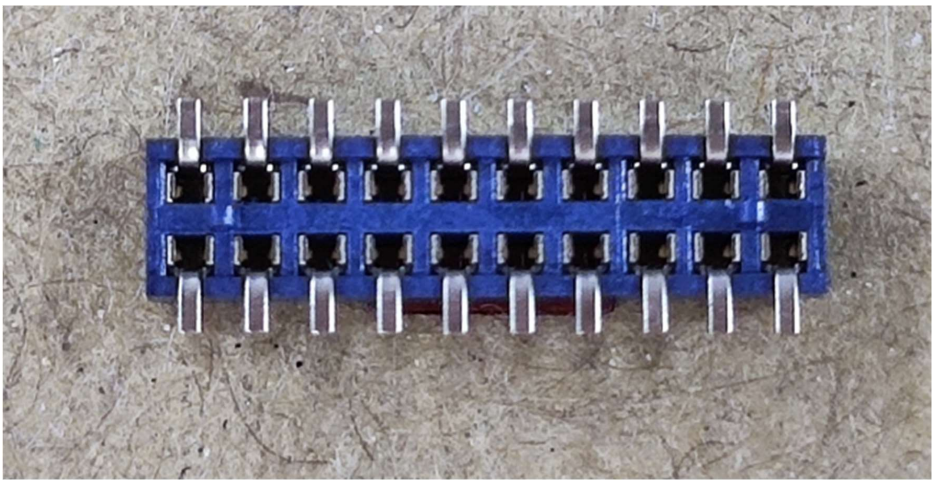

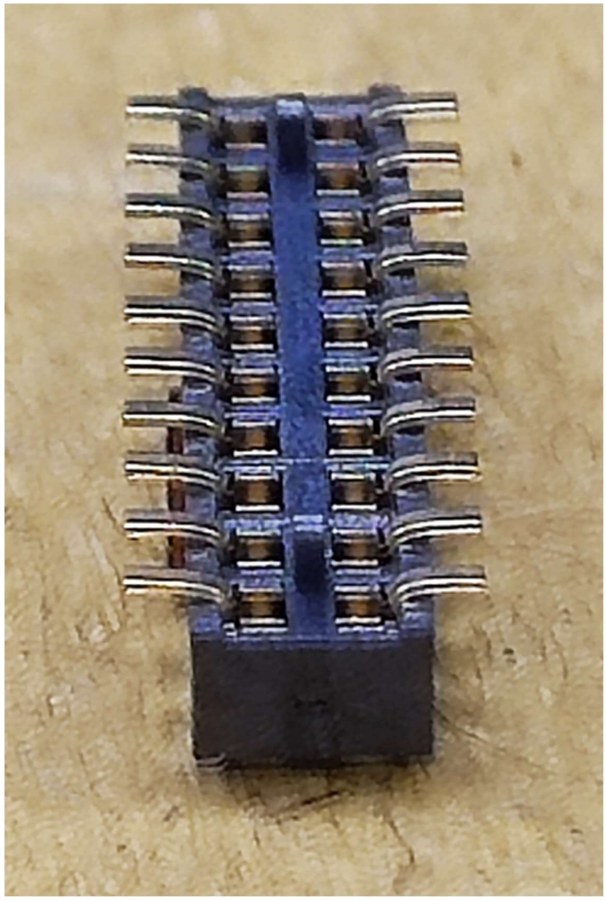

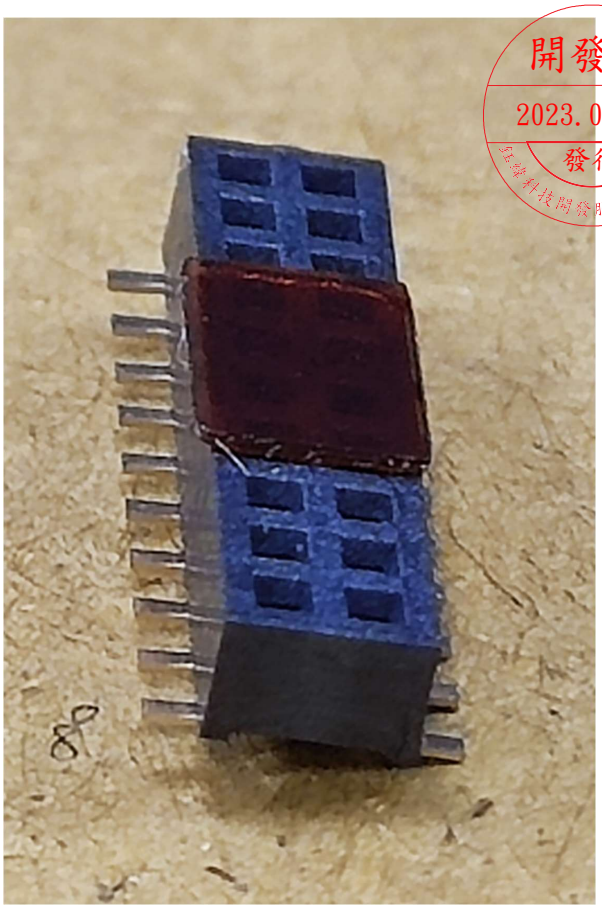

開發部
2023.07.04
發行

TEKCON ® 台捷電子股份有限公司

DATE：2023/07/03

SPECIFICATION FOR APPROVAL

CUSTOMER：鈺緯科技開發股份有限公司

PART NAME：1.27mm Female Header SMT Type

TEKCON P/N：1148-A23-201-03

CUST. P/N：3FF02015710 (F0287)

APPROVED DATE：	/ /
CUSTOMER APPROVED BY ：	開發部 2023.07.04 發行 鈺緯科技開發股份有限公司

TEKCON ®Electronics Corp.
2F., No.4, Lane 95, Anxing Rd., Xindian City, Taipei County 23159, Taiwan, R.O.C.
E-mail：info@tekcon.com.tw
TEL: 886-2-2212-0369
FAX: 886-2-2212-0200

TEKCON ®Electronics Corp.
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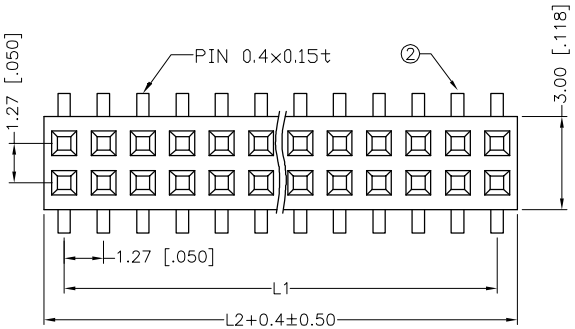
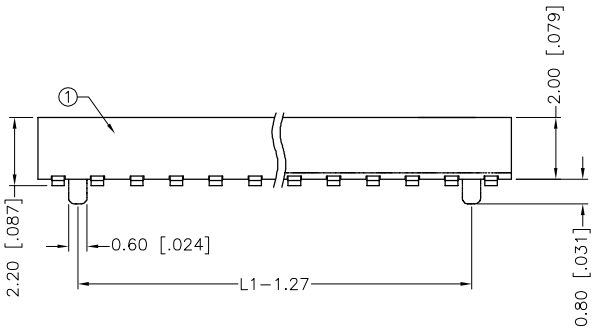
Assistant Sales Manager: Joyce Chen
E-mail: joycechen@tekcon.com.tw
TEL: 886-2-2212-0369 Ext.2580
FAX: 886-2-2212-0200

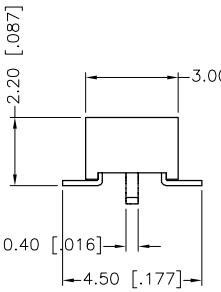
RoHS

REV.	ECN. NO.	NAME	DATE
1	TER23-00043	DEBBIE	07/03/23"

Circuits	Dimension mm	
	L1	L2
2x2	1.27	2.54
2x3	2.54	3.81
2x4	3.81	5.08
2x5	5.08	6.35
2x6	6.35	7.62
2x7	7.62	8.89
2x8	8.89	10.16
2x9	10.16	11.43
2x10	11.43	12.70
2x11	12.70	13.97
2x12	13.97	15.24
2x13	15.24	16.51
2x14	16.51	17.78
2x15	17.78	19.05
2x16	19.05	20.32
2x17	20.32	21.59
2x18	21.59	22.86
2x19	22.86	24.13
2x20	24.13	25.40
2x21	25.40	26.67
2x22	26.67	27.94
2x23	27.94	29.21
2x24	29.21	30.48
2x25	30.48	31.75
2x26	31.75	33.02
2x27	33.02	34.29
2x28	34.29	35.56
2x29	35.56	36.83
2x30	36.83	38.10
2x31	38.10	39.37
2x32	39.37	40.64
2x33	40.64	41.91
2x34	41.91	43.18
2x35	43.18	44.45
2x36	44.45	45.72
2x37	45.72	46.99
2x38	46.99	48.26
2x39	48.26	49.53
2x40	49.53	50.80
2x41	50.80	52.07
2x42	52.07	53.34
2x43	53.34	54.61
2x44	54.61	55.88
2x45	55.88	57.15
2x46	57.15	58.42
2x47	58.42	59.69
2x48	59.69	60.96
2x49	60.96	62.23
2x50	62.23	63.50



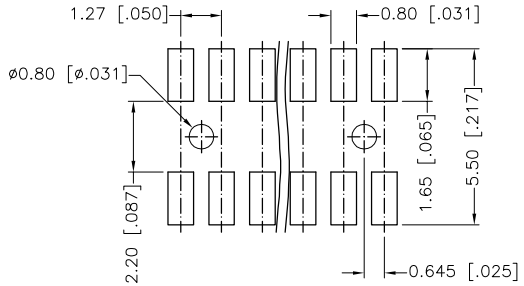




NOTES:
1. THE PRODUCT NUMBERS ARE ASSIGNED AS THE FOLLOWS:
   1148−A 23−XX 1−03
   - NO. OF CONTACT 04~100(A0=100) PIN
   - CONTACT PLATING A− GOLD FLASH OVER ALL

2. ELECTRICAL
   . VOLTAGE RATING: 100 VAC (R.M.S.)
   . CURRENT RATING: 1 AMP.
   . INSULATION RESISTANCE: 1000 MEGOHMS MIN.
   . DIELECTRIC WITHSTANDING VOLTAGE: AC 500 V/MINUTE.
   . CONTACT RESISTANCE: 20 MILLOHMS MAX.

3. ENVIRONMENTAL
   . TEMPERATURE RANGE: −40°C TO +105°C.



RECOMMENDED PCB LAYOUT(TOP VIEW)
TOLERANCE:±0.05mm

開發部
2023.07.04
發行
旺矽科技開發股份有限公司

3FF02015710(F0287)

NO.	PART NAME	Q'TY	MATERIAL	REMARK
②	CONTACT	04~100	COPPER ALLOY	GOLD FLASH OVER ALL
①	INSULATOR	1	LCP, UL 94V−0	COLOR: BLACK

TEKCON®
ELECTRONICS

TITLE	1.27mm Female Header SMT TYPE WITH CAP CONNECTOR
DWG.NO.	1148−A23−XX1−03
(A4)	
APP.	
CHK.	
DR.	
UNIT: mm [inch]	
TOLERANCE UNLESS OTHERWISE SPECIFIED	
LINEAR	0.0 ±0.38 [.00 ±.015]
	0.00±0.25 [.000±.010]
ANGLES	± 3°
DWG.PATH: RD\54\1148A23XX103−1	SCALE / SHEET 1 OF 1 / REV: 1

TEKCON ELECTRONICS CORP.

成品包裝規範 PACKING SPECIFICATION			主題 Title	1.27mm Female Header SMT TYPE WITH CAP CONNECTOR 包裝規範 1.27mm Female Header SMT TYPE WITH CAP CONNECTOR PACKING SPECIFICATION		
文件編號 Document No.	TES-02-1135	文件版本 Document Rev.	1	生效日期 Effective Date		共 2 頁 第 1 頁 Page 1 of 2

一、概述: Description:

本規範說明 1.27mm Female Header SMT TYPE WITH CAP CONNECTOR 成品之包裝材料和作業方法。

This specification is define the packaging materials & methods for 1.27mm Female Header SMT TYPE WITH CAP CONNECTOR

二、材料 Material:

項次 S/No	品名 Part Name	數量/箱 Q'TY / Carton	產品料號 Connector Part No	數量/ TUBE Q'TY/ TUBE	TUBE/ 外箱 TUBE/ Carton	數量/ 外箱 Q'TY/ Carton
1	TUBE	400	1148-A23-201-03	47 PCS	400 PCS	18,800 PCS
2	外箱 Carton	1				

Dimension of Carton（外箱尺寸）:

L X W X H = 66cm x 22cm x 14 cm。

Weight（重量）:

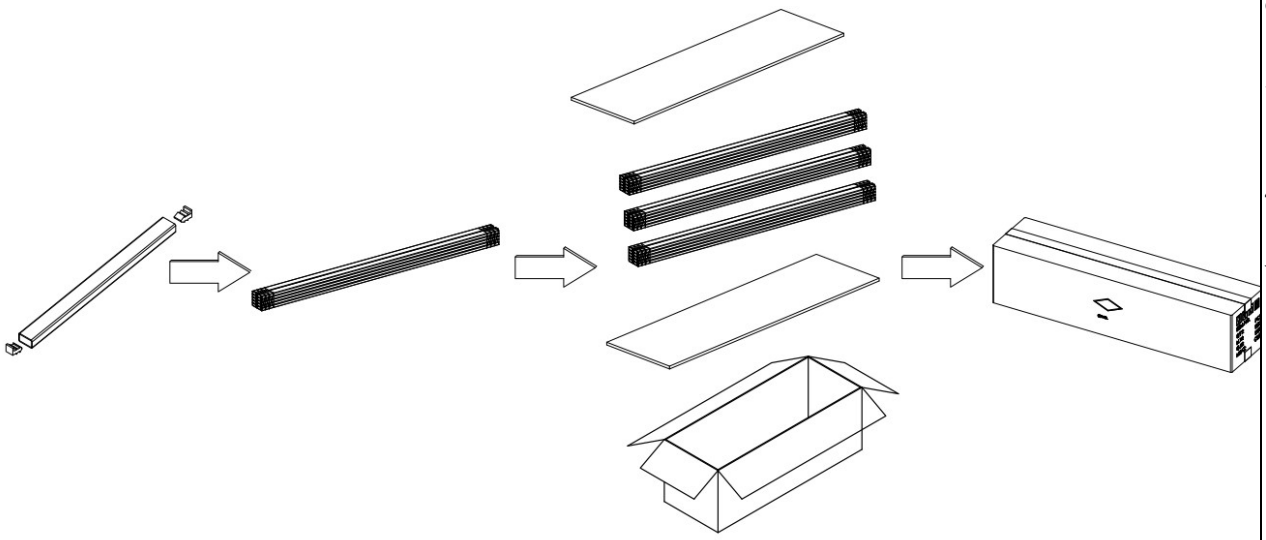
NET（淨重）=3.05kg，GROSS（毛重）= 6.96kg。

*出貨時，每箱淨、毛重應以實測重量為准。 While producing the goods, the net weight and gross weight of each carton are subject to actual weight.

TEKCON ELECTRONICS CORP.

成品包裝規範 PACKING SPECIFICATION			主題 Title	1.27mm Female Header SMT TYPE WITH CAP CONNECTOR 包裝規範 1.27mm Female Header SMT TYPE WITH CAP CONNECTOR PACKING SPECIFICATION		
文件編號 Document No.	TES-02-1135	文件版本 Document Rev.	1	生效日期 Effective Date		共 2 頁 第 2 頁 Page 2 of 2

三. 包裝作業圖示說明. Packaging Operation Diagram And Instruction.



備　註(Remark)

1. 將成品依序放入 TUBE 管，每管 47 PCS。
   Puts in the TUBE in order the end product, each 47 PCS.

2. 裝滿成品之 TUBE，依序放入外箱，每箱 400 PCS。
   TUBE of well-lined end product, puts in 1PCS Carton order, each 400 PCS.

3.封好外箱，完成包裝。
   Seals Carton, completes the packing.

4. 客戶特殊需求之包材上標籤請參閱”TES-02-314”。
   Label that Customer's special request please accord with ”TES-02-314”.

測試報告
Test Report

號碼(No.): ETR22C03648　　日期(Date): 28-Dec-2022　　

名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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

送樣廠商(Sample Submitted By)	:	名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
樣品名稱(Sample Name)	:	PHOSPHOR BRONZE(磷青銅)
樣品型號(Style/Item No.)	:	C5210 (PBS)

==========

收件日(Sample Receiving Date)	:	21-Dec-2022
測試期間(Testing Period)	:	21-Dec-2022 to 28-Dec-2022

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: 24D3398A

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測試報告
Test Report

號碼(No.): ETR22C03648　　日期(Date): 28-Dec-2022　　

名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

測試部位敘述 (Test Part Description)

No.1　：　銅色金屬片 (COPPER COLORED METAL 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)) (CAS No.: 7440-43-9)	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	21.6	1000
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	參考IEC 62321-4: 2013+ AMD1: 2017，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	1000
六價鉻 (Hexavalent Chromium) Cr(VI) (CAS No.: 18540-29-9) (#2)	參考IEC 62321-7-1: 2015，以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.)	μg/cm²	0.1	n.d.	-
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000

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測試報告
Test Report

名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)		mg/kg	50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)		mg/kg	50	n.d.	1000
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)	參考BS EN 14582: 2016，以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.	-
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1)		mg/kg	50	n.d.	-
溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2)		mg/kg	50	n.d.	-
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		mg/kg	50	n.d.	-
全氟辛烷磺酸及其鹽類 (PFOS and its salts) (CAS No.: 1763-23-1 and its salts)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸及其鹽類 (PFOA and its salts) (CAS No.: 335-67-1 and its salts)		mg/kg	0.01	n.d.	-

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測試報告
Test Report

名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	參考US EPA 3050B: 1996，以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)		mg/kg	2	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.	-
四溴雙酚-A (TBBP-A) (Tetrabromobisphenol A (TBBP-A)) (CAS No.: 79-94-7)	參考RSTS-E&E-121，以液相層析儀/質譜儀分析。(With reference to RSTS-E&E-121, analysis was performed by LC/MS.)	mg/kg	10	n.d.	-

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. 全氟辛烷磺酸及其鹽類包含等物質 (PFOS and its salts including) :
   CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0 and others.
6. 全氟辛酸及其鹽類包含等物質 (PFOA and its salts including) :
   CAS No.: 335-67-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0, 3825-26-1 and others.
7. (#2) =
   a. 當六價鉻結果大於0.13 μg/cm²，表示樣品表層含有六價鉻。(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. 當六價鉻結果為n.d. (濃度小於0.10 μg/cm²)，表示表層不含六價鉻。(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. 當六價鉻結果介於 0.10 及 0.13 μg/cm² 時，無法確定塗層是否含有六價鉻。(The result between 0.10 μg/cm² and 0.13 μg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.)
8. 除非另有說明，參照ILAC-G8:09/2019，採用簡單二元(w=0)允收規則進行符合性判定；根據此規則，符合性結果之判定係以測試結果與限值做比較。(Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.)

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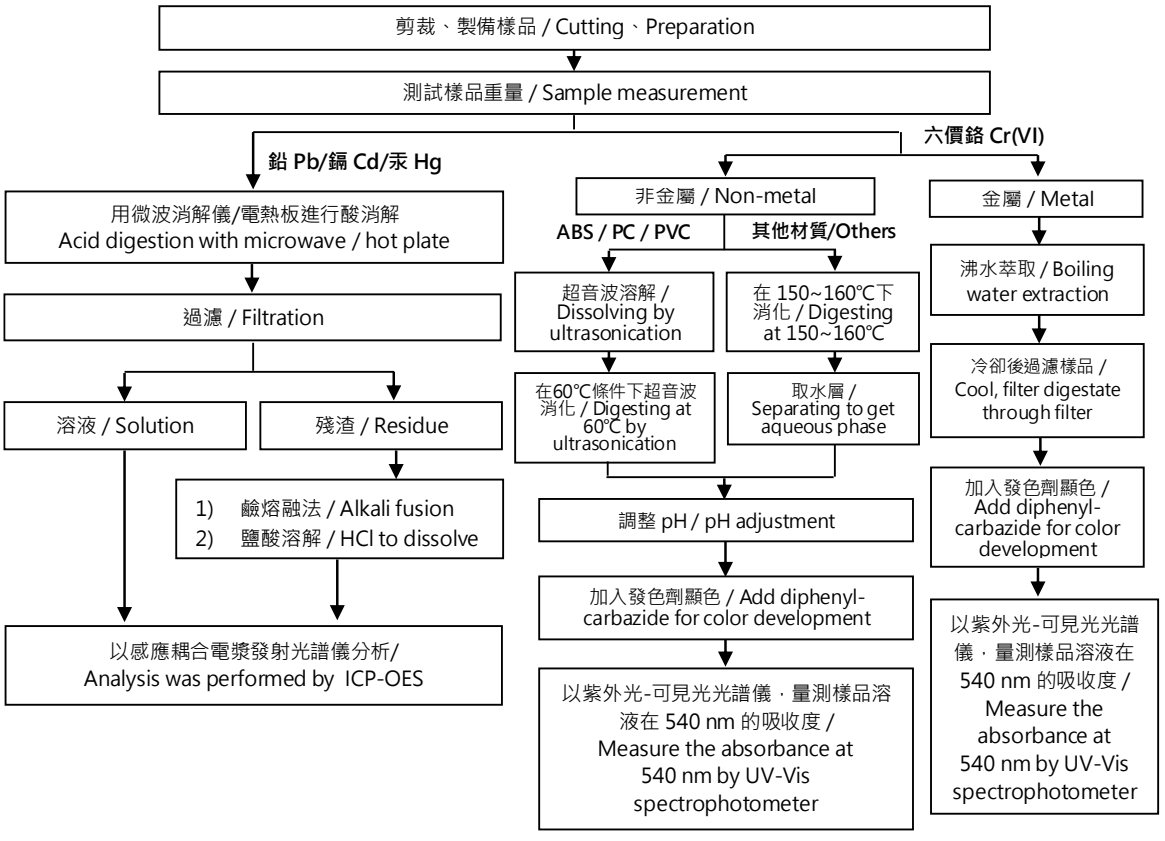
名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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

根據以下的流程圖之條件，樣品已完全溶解。（六價鉻測試方法除外）

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

（Cr^{6+} test method excluded）



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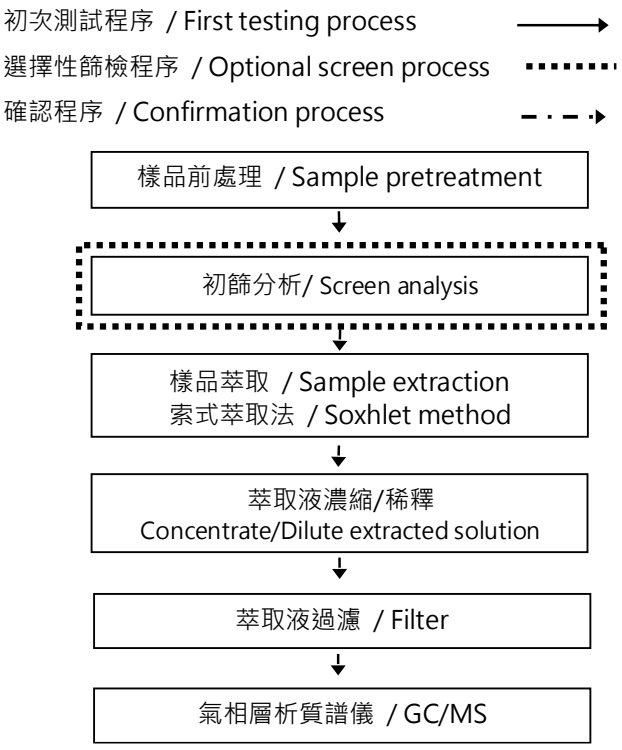
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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



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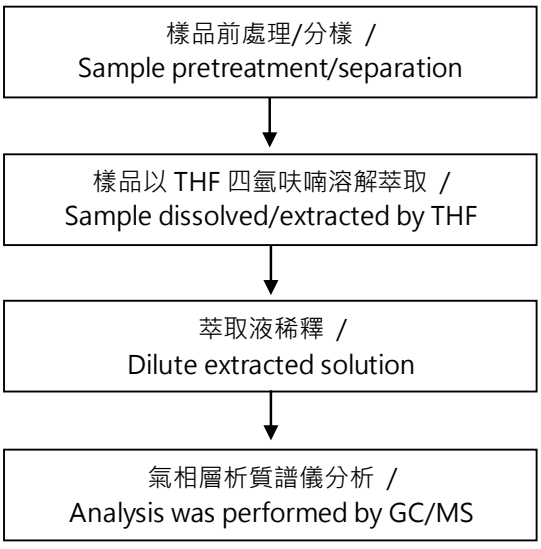
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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

【測試方法/Test method: IEC 62321-8】



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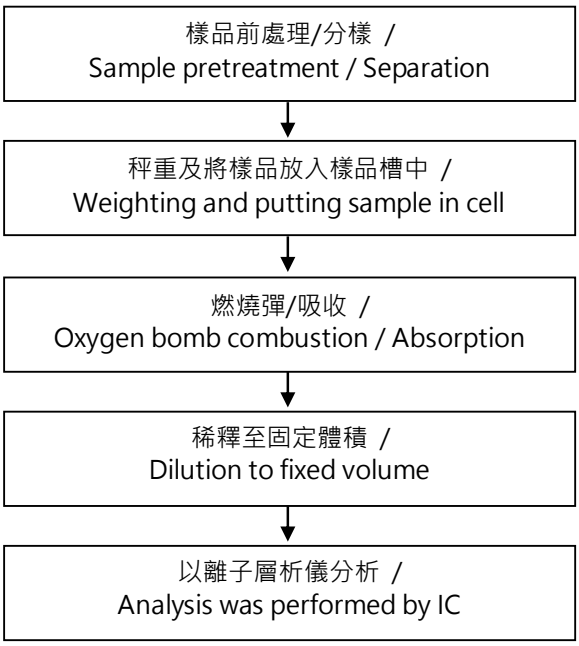
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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



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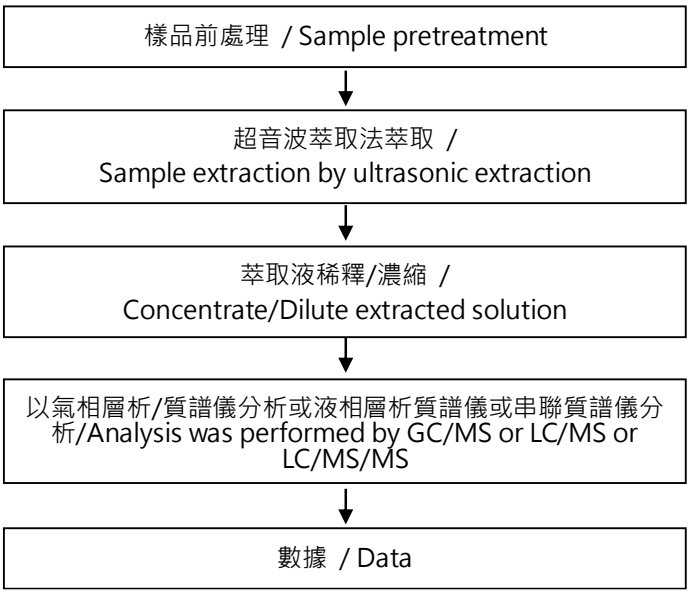
全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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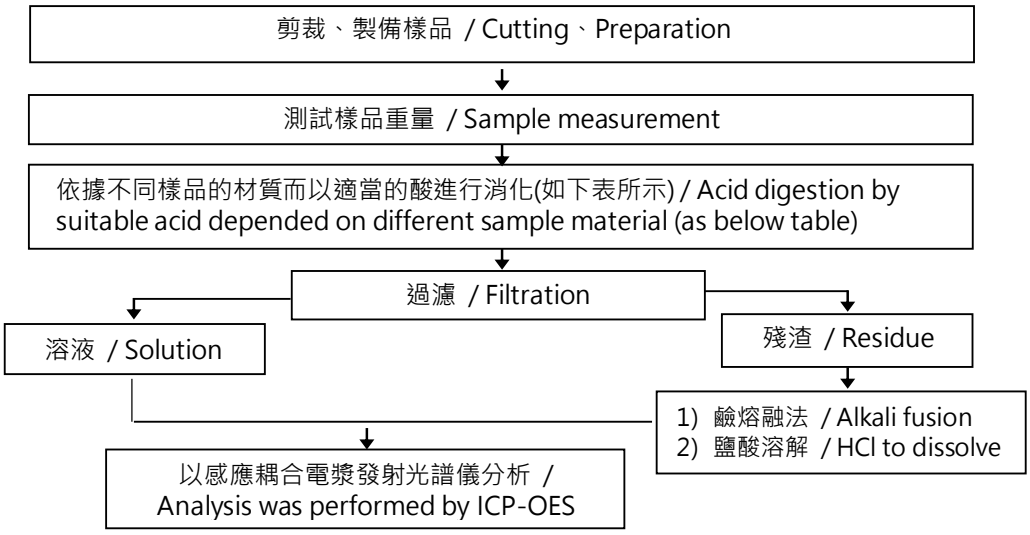
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

元素以 ICP-OES 分析的消化流程圖

(Flow chart of digestion for the elements analysis performed by ICP-OES)

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.



鋼,銅,鋁,焊錫 / Steel, copper, aluminum, solder	王水,硝酸,鹽酸,氫氟酸,雙氧水 / Aqua regia, HNO_3, HCl, HF, H_2O_2
玻璃 / Glass	硝酸,氫氟酸 / HNO_3,HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO_3
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H_2SO_4, H_2O_2, HNO_3, HCl
其他 / Others	加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion

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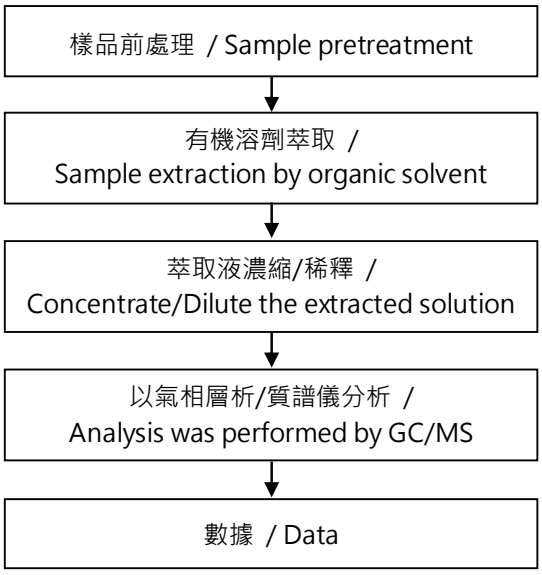
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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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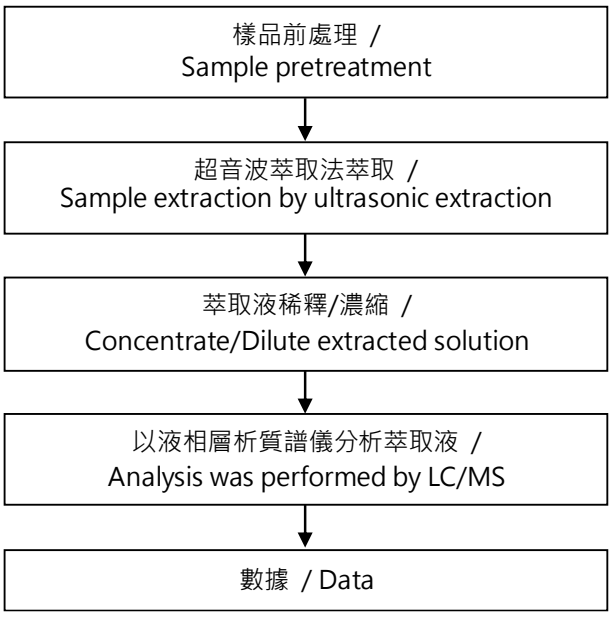
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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



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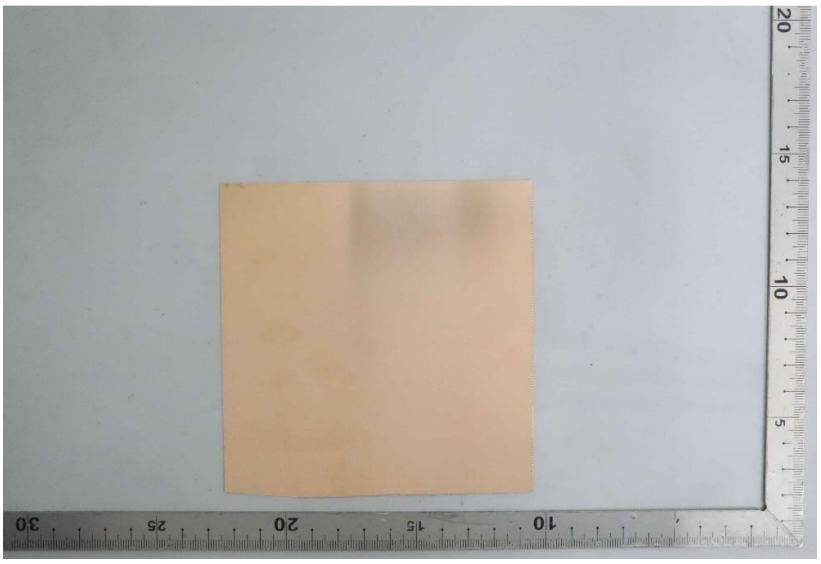
測試報告
Test Report

名佳利金屬工業股份有限公司 (MINCHALI METAL INDUSTRY CO., LTD.)
桃園市中壢區北園路11號 (NO.11, BEIYUAN RD., ZHOMGLI DIST., TAOYUAN CITY 320, TAIWAN)

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

ETR22C03648



** 報告結尾 (End of Report) **

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測試報告
Test Report

號碼(No.): ETR23101925M03　　日期(Date): 11-Jan-2023　　

福興實業股份有限公司 (FU HSING INDUSTRIAL CO., LTD.)
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

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

送樣廠商(Sample Submitted By)	:	福興實業股份有限公司 (FU HSING INDUSTRIAL CO., LTD.)
樣品名稱(Sample Name)	:	LAPEROS LCP
樣品型號(Style/Item No.)	:	E130i BK205P

==========

收件日(Sample Receiving Date)	:	06-Jan-2023
測試期間(Testing Period)	:	06-Jan-2023 to 11-Jan-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) 依據客戶指定，測試 PAHs 及其他測項。 (As specified by client, to test PAHs and other item(s).)

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

結　　論(Conclusion) :

(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.)

(2) 根據客戶所提供的樣品，多環芳香烴測試結果符合德國產品安全委員會(AfPS) GS PAHs 第 1 類 之限值要求。(Based upon the performed tests on the submitted sample(s), the test results of PAHs (15 items) comply with the limits of PAHs requirement (Category 1) as set by German Committee on Product Safety (AfPS) GS PAHs.)

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

CHECK REPORT
PIN CODE: 29CA72D9

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測試報告
Test Report

福興實業股份有限公司 (FU HSING INDUSTRIAL CO., LTD.)
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

測試部位敘述 (Test Part Description)

No.1 : 黑色塑膠粒 (BLACK PLASTIC PELLETS)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	4.17	1000
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	參考IEC 62321-4: 2013+ AMD1: 2017，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	1000
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI)) (CAS No.: 18540-29-9)	參考IEC 62321-7-2: 2017，以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.	1000
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)		mg/kg	50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)		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.	-
鄰苯二甲酸二乙酯 (DEP) (Di-ethyl phthalate (DEP)) (CAS No.: 84-66-2)		mg/kg	50	n.d.	-

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測試報告
Test Report

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鄰苯二甲酸二正戊酯 (DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0)	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	-
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3)		mg/kg	50	n.d.	-
鄰苯二甲酸雙(2-甲氧基乙基)酯 (DMEP) (Bis(2-methoxyethyl) phthalate (DMEP)) (CAS No.: 117-82-8)		mg/kg	50	n.d.	-
鄰苯二甲酸二異戊酯 (DIPP) (Diisopentyl phthalate (DIPP)) (CAS No.: 605-50-5)		mg/kg	50	n.d.	-
鄰苯二甲酸二(C7-11支鏈與直鏈)烷基酯 (DHNUP) (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)) (CAS No.: 68515-42-4)		mg/kg	50	n.d.	-
鄰苯二甲酸二 (C6-8支鏈)烷基酯，富C7 (DIHP) (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)) (CAS No.: 71888-89-6)		mg/kg	50	n.d.	-
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)	參考BS EN 14582: 2016，以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	816	-
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1)		mg/kg	50	n.d.	-
溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2)		mg/kg	50	n.d.	-
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)		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)
多環芳香烴 (Polycyclic Aromatic Hydrocarbons) (PAHs)					
苯駢(a)芘 (Benzo[a]pyrene) (CAS No.: 50-32-8)	參考AfPS GS 2019:01 PAK，以氣相層析儀/質譜儀分析。(With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.)	mg/kg	0.2	n.d.	Δ
苯駢(e)芘 (Benzo[e]pyrene) (CAS No.: 192-97-2)		mg/kg	0.2	n.d.	Δ
苯駢蒽 (Benzo[a]anthracene) (CAS No.: 56-55-3)		mg/kg	0.2	n.d.	Δ
苯(b)苯駢芴 (Benzo[b]fluoranthene) (CAS No.: 205-99-2)		mg/kg	0.2	n.d.	Δ
苯(j)苯駢芴 (Benzo[j]fluoranthene) (CAS No.: 205-82-3)		mg/kg	0.2	n.d.	Δ
苯(k)苯駢芴 (Benzo[k]fluoranthene) (CAS No.: 207-08-9)		mg/kg	0.2	n.d.	Δ
䓛 (Chrysene) (CAS No.: 218-01-9)		mg/kg	0.2	n.d.	Δ
二苯駢蒽 (Dibenzo[a,h]anthracene) (CAS No.: 53-70-3)		mg/kg	0.2	n.d.	Δ
苯駢苝 (Benzo[g,h,i]perylene) (CAS No.: 191-24-2)		mg/kg	0.2	n.d.	Δ
茚酮芘 (Indeno[1,2,3-c,d]pyrene) (CAS No.: 193-39-5)		mg/kg	0.2	n.d.	Δ
蒽 (Anthracene) (CAS No.: 120-12-7)		mg/kg	0.2	n.d.	Δ
苯駢芴 (Fluoranthene) (CAS No.: 206-44-0)		mg/kg	0.2	n.d.	Δ
菲 (Phenanthrene) (CAS No.: 85-01-8)		mg/kg	0.2	n.d.	Δ
芘 (Pyrene) (CAS No.: 129-00-0)		mg/kg	0.2	n.d.	Δ
萘 (Naphthalene) (CAS No.: 91-20-3)		mg/kg	0.2	n.d.	Δ
多環芳香烴15項總和 (Sum of 15 PAHs)		mg/kg	-	n.d.	Δ

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321: 2008，以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
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.	-
四溴雙酚-A (TBBP-A) (Tetrabromobisphenol A (TBBP-A)) (CAS No.: 79-94-7)	參考RSTS-E&E-121，以液相層析儀/質譜儀分析。(With reference to RSTS-E&E-121, analysis was performed by LC/MS.)	mg/kg	10	n.d.	-
聚氯乙烯 (Polyvinyl chloride) (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	-
砷 (As) (Arsenic (As)) (CAS No.: 7440-38-2)	參考US EPA 3052: 1996，以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	參考US EPA 3052: 1996，以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	-
三氧化二銻 (Sb_2O_3) (Antimony trioxide (Sb_2O_3)) (CAS No.: 1309-64-4)	由銻結果計算得之。(Calculated from the result of Antimony.)	mg/kg	2▲	n.d.	-
紅磷 (Red Phosphorus)	以熱裂解-氣相層析儀/質譜儀分析。(Analysis was performed by Pyrolyzer-GC/MS.)	**	-	Negative	-

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全氟丁酸 (PFBA) (Perfluorobutane Acid (PFBA)) (CAS No.: 375-22-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟丁磺酸 (PFBS) (Perfluorobutane Sulfonate (PFBS)) (CAS No.: 375-73-5)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟丁基磺酸鉀 (PFBS-K) (Perfluorobutane Sulfonate K-salt (PFBS-K)) (CAS No.: 29420-49-3)	由全氟丁磺酸測試結果計算得之。(Calculated from the result of PFBS.)	mg/kg	0.01▲	n.d.	-
全氟丁基磺酸氟 (PFBS-F) (Perfluorobutane sulfonyl fluoride (PFBS-F)) (CAS No.: 375-72-4)	由全氟丁磺酸測試結果計算得之。(Calculated from the result of PFBS.)	mg/kg	0.01▲	n.d.	-
全氟丁基磺酸四乙基銨 (PFBS-N(CH3CH2)4) (Tetraethylammonium perfluorobutanesulfonate (PFBS-N(CH3CH2)4)) (CAS No.: 25628-08-4)	由全氟丁磺酸測試結果計算得之。(Calculated from the result of PFBS.)	mg/kg	0.01▲	n.d.	-
全氟戊酸 (PFPA) (Perfluoropentane Acid (PFPA)) (CAS No.: 2706-90-3)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟已酸 (PFHxA) (Perfluorohexane Acid (PFHxA)) (CAS No.: 307-24-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟已酸銨 (PFHxA-NH4) (Ammonium perfluorohexanoate (PFHxA-NH4)) (CAS No.: 21615-47-4)	由全氟已酸測試結果計算得之。(Calculated from the result of PFHxA.)	mg/kg	0.01▲	n.d.	-
全氟己基碘 (PFHxI) (Perfluorohexyl iodide (PFHxI)) (CAS No.: 355-43-1)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-

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全氟己基乙烯 (PFHxE) (Perfluorohexyl ethylene (PFHxE)) (CAS No.: 25291-17-2)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	1	n.d.	-
1H,1H,2H,2H-全氟辛基碘 (6_2FOI) (1H,1H,2H,2H-Perfluorooctyl iodide (6_2FOI)) (CAS No.: 2043-57-4)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟-1-辛醇 (6:2 FTOH) (1H,1H,2H,2H-Perfluoro-1-octanol (6:2FTOH)) (CAS No.: 647-42-7)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟辛基丙烯酸酯 (6:2 FTA) (1H,1H,2H,2H-Perfluorooctylacrylate (6:2FTA)) (CAS No.: 17527-29-6)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟辛基甲基丙烯酸酯 (6_2 FTMAC) (1H,1H,2H,2H-perfluorooctyl methacrylate (6_2 FTMAC)) (CAS No.: 2144-53-8)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟辛磺酸 (H4PFOS 6:2) (1H,1H,2H,2H-Perfluorooctanesulphonic Acid (H4PFOS 6:2)) (CAS No.: 27619-97-2)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟己基磺酸及其鹽類 (PFHxS) (Perfluorohexane-1-sulphonic acid and its salts (PFHxS)) (CAS No.: 355-46-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟己基磺酸鈉 (PFHxS-Na) (Perfluorohexanesulfonate NA-salt (PFHxS-Na)) (CAS No.: 82382-12-5)	由全氟己基磺酸測試結果計算得之。(Calculated from the result of PFHxS.)	mg/kg	0.01▲	n.d.	-
全氟己基磺酸鉀 (PFHxS-K) (Perfluorohexanesulfonate K-salt (PFHxS-K)) (CAS No.: 3871-99-6)	由全氟己基磺酸測試結果計算得之。(Calculated from the result of PFHxS.)	mg/kg	0.01▲	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟己基磺酸胺 (PFHxS-NH4) (Perfluorohexanesulfonate ammonium salt (PFHxS-NH4)) (CAS No.: 68259-08-5)	由全氟己基磺酸測試結果計算得之。 (Calculated from the result of PFHxS.)	mg/kg	0.01▲	n.d.	-
全氟己基磺酸鋰 (PFHxS-Li) (Perfluorohexanesulfonate Li-salt (PFHxS-Li)) (CAS No.: 55120-77-9)	由全氟己基磺酸測試結果計算得之。 (Calculated from the result of PFHxS.)	mg/kg	0.01▲	n.d.	-
全氟己基磺酸鋅 (PFHxS-Zn) (Perfluorohexanesulfonate Zn-salt (PFHxS-Zn)) (CAS No.: 70136-72-0)	由全氟己基磺酸測試結果計算得之。 (Calculated from the result of PFHxS.)	mg/kg	0.01▲	n.d.	-
全氟己基磺醯氟 (PFHxS-F) (Perfluorohexanesulfonate sulfonyl fluoride (PFHxS-F)) (CAS No.: 423-50-7)	由全氟己基磺酸測試結果計算得之。 (Calculated from the result of PFHxS.)	mg/kg	0.01▲	n.d.	-
全氟庚酸 (PFHpA) (Perfluoroheptane Acid (PFHpA)) (CAS No.: 375-85-9)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
7H-十二氟庚酸 (HPFHpA) (7H-Dodecanefluoroheptane Acid (HPFHpA)) (CAS No.: 1546-95-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟庚基磺酸 (PFHpS) (Perfluoroheptane Sulfonate (PFHpS)) (CAS No.: 375-92-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟庚基磺酸鈉 (PFHpS-Na) (Perfluoroheptanesulfonate Na-salt (PFHpS-Na)) (CAS No.: 68555-66-8)	由全氟庚基磺酸測試結果計算得之。 (Calculated from the result of PFHpS.)	mg/kg	0.01▲	n.d.	-
全氟辛烷磺酸 (PFOS) (Perfluorooctane sulfonates (PFOS)) (CAS No.: 1763-23-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟辛基磺酸鉀 (PFOS-K) (Potassium Perfluorooctanesulfonate (PFOS-K)) (CAS No.: 2795-39-3)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸鋰 (PFOS-Li) (Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)) (CAS No.: 29457-72-5)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸銨 (PFOS-NH4) (Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH4)) (CAS No.: 29081-56-9)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸二乙醇銨 (PFOS-NH(OH)2) (Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH)2)) (CAS No.: 70225-14-8)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸四乙基銨 (PFOS-N(C2H5)4) (Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-N(C2H5)4)) (CAS No.: 56773-42-3)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸二癸二甲基銨 (PFOS-DDA) (N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-DDA)) (CAS No.: 251099-16-8)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺醯氟 (POSF) (Perfluorooctane sulfonyl fluoride (POSF)) (CAS No.: 307-35-7)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸鎂 (PFOS-Mg) (Perfluorooctanesulfonic acid, magnesium salt (PFOS-Mg)) (CAS No.: 91036-71-4)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-
全氟辛基磺酸鈉 (PFOS-Na) (Perfluorooctanesulfonic acid, sodium salt (PFOS-Na)) (CAS No.: 4021-47-0)	由全氟辛烷磺酸測試結果計算得之。 (Calculated from the result of PFOS.)	mg/kg	0.01▲	n.d.	-

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測試報告
Test Report

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
N-乙基全氟正辛磺醯胺 (EtFOSA) (N-ethylperfluoro-1-octanesulfonamide (EtFOSA)) (CAS No.: 4151-50-2)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-甲基全氟正辛磺醯胺 (N-Me-FOSA) (N-Methyl-Perfluorooctanesulfonamide (N-Me-FOSA)) (CAS No.: 31506-32-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-乙基全氟辛基磺醯胺乙醇 (N-Et-FOSE alcohol) (N-Ethyl-Perfluorooctanesulfonamidoethanol (N-Et-FOSE alcohol)) (CAS No.: 1691-99-2)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-甲基全氟辛基磺醯胺乙醇 (N-Me-FOSE alcohol) (N-Methyl-Perfluorooctanesulfonamidoethanol (N-Me-FOSE alcohol)) (CAS No.: 24448-09-7)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛基磺醯胺 (PFOSA) (Perfluorooctanesulfonamide (PFOSA)) (CAS No.: 754-91-6)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸(PFOA) (Perfluorooctanoic Acid (PFOA)) (CAS No.: 335-67-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸鈉 (PFOA-Na) (Sodium perfluorooctanoate (PFOA-Na)) (CAS No.: 335-95-5)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛酸鉀 (PFOA-K) (Potassium perfluorooctanoate (PFOA-K)) (CAS No.: 2395-00-8)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛酸銀 (PFOA-Ag) (Silver perfluorooctanote (PFOA-Ag)) (CAS No.: 335-93-3)	由全氟辛酸測試結果計算得之。(Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-

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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟辛氟 (PFOA-F) (Perfluorooctanoyl fluoride (PFOA-F)) (CAS No.: 335-66-0)	由全氟辛酸測試結果計算得之。 (Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
全氟辛酸銨 (APFO) (Ammonium pentadecafluorooctanoate (APFO)) (CAS No.: 3825-26-1)	由全氟辛酸測試結果計算得之。 (Calculated from the result of PFOA.)	mg/kg	0.01▲	n.d.	-
1H,1H,2H,2H-全氟癸磺酸 (8:2 FTS) (1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)) (CAS No.: 39108-34-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛酸甲酯 (Me-PFOA) (Methyl perfluorooctanoate (Me-PFOA)) (CAS No.: 376-27-2)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
全氟辛酸乙酯 (Et-PFOA) (Ethyl perfluorooctanoate (Et-PFOA)) (CAS No.: 3108-24-5)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟-1-癸醇 (8:2 FTOH) (1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)) (CAS No.: 678-39-7)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟癸基丙烯酸酯 (8:2 FTA) (1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)) (CAS No.: 27905-45-9)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟癸基甲基丙烯酸鹽 (8:2 FTMA) (1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)) (CAS No.: 1996-88-9)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
全氟辛基碘烷 (PFOI) (Perfluoro-1-iodooctane (PFOI)) (CAS No.: 507-63-1)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-

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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)
全氟壬酸 (PFNA) (Perfluorononan-1-oic acid (PFNA)) (CAS No.: 375-95-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟壬酸鈉 (PFNA-Na) (Perfluorononanoate NA-Salt (PFNA-Na)) (CAS No.: 21049-39-8)	由全氟壬酸測試結果計算得之。(Calculated from the result of PFNA.)	mg/kg	0.01▲	n.d.	-
全氟壬酸銨 (APFN) (Perfluorononanoate ammounium salt (APFN)) (CAS No.: 4149-60-4)	由全氟壬酸測試結果計算得之。(Calculated from the result of PFNA.)	mg/kg	0.01▲	n.d.	-
全氟-3,7-二甲基辛酸 (PF-3,7-DMOA) (Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)) (CAS No.: 172155-07-6)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟癸酸 (PFDA) (Nonadecafluorodecanoic acid (PFDA)) (CAS No.: 335-76-2)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟癸酸鈉 (PFDA-Na) (Perfluorodecanoate Na-salt (PFDA-Na)) (CAS No.: 3830-45-3)	由全氟癸酸測試結果計算得之。(Calculated from the result of PFDA.)	mg/kg	0.01▲	n.d.	-
全氟癸酸銨 (APFDA) (Perfluorodecanoate ammonium salt (APFDA)) (CAS No.: 3108-42-7)	由全氟癸酸測試結果計算得之。(Calculated from the result of PFDA.)	mg/kg	0.01▲	n.d.	-
全氟十一烷酸 (PFUnDA) (Henicosafluoroundecanoic acid (PFUnDA)) (CAS No.: 2058-94-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟十二烷酸 (PFDoDA) (Tricosafluorododecanoic acid (PFDoDA)) (CAS No.: 307-55-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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全氟十二烷酸銨 (APFDoDA) (Ammonium Perfluorododecanoate (APFDoDA)) (CAS No.: 3793-74-6)	由全氟十二烷酸測試結果計算得之。 (Calculated from the result of PFDoDA.)	mg/kg	0.01▲	n.d.	-
全氟癸烷磺酸 (PFDS) (Perfluorodecane Sulfonate (PFDS)) (CAS No.: 126105-34-8/ 335-77-3)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟癸烷磺酸鈉 (PFDS-Na) (Perfluorodecanesulfonate Na-salt (PFDS-Na)) (CAS No.: 2806-15-7)	由全氟癸烷磺酸測試結果計算得之。 (Calculated from the result of PFDS.)	mg/kg	0.01▲	n.d.	-
全氟癸烷磺酸鉀 (PFDS-K) (Perfluorodecanesulfonate K-salt (PFDS-K)) (CAS No.: 2806-16-8)	由全氟癸烷磺酸測試結果計算得之。 (Calculated from the result of PFDS.)	mg/kg	0.01▲	n.d.	-
全氟癸基磺酸銨 (PFDS-NH4) (Perfluoroaliphatic Dean-sulfonate salt of NH4 (PFDS-NH4)) (CAS No.: 67906-42-7)	由全氟癸烷磺酸測試結果計算得之。 (Calculated from the result of PFDS.)	mg/kg	0.01▲	n.d.	-
全氟十三烷酸 (PFTrDA) (Pentacosafluorotridecanoic acid (PFTrDA)) (CAS No.: 72629-94-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟十四烷酸 (PFTDA) (Heptacosafluorotetradecanoic acid (PFTDA)) (CAS No.: 376-06-7)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟十五烷酸 (PFPeDA, C15) (Pentadecanoic acid, nonacosafluoro (PFPeDA,C15)) (CAS No.: 141074-63-7)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟十六烷酸 (PFHxDA,C16) (Hexadecanoic acid, hentriacontafluoro (PFHxDA,C16)) (CAS No.: 67905-19-5)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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福興實業股份有限公司 (FU HSING INDUSTRIAL CO., LTD.)
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟十八烷酸 (PFODA,C18) (Octadecanoic acid, pentatriacontafluoro (PFODA,C18)) (CAS No.: 16517-11-6)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
1H,1H,2H,2H-全氟十二烷基丙烯酸酯 (10:2 FTA) (1H,1H,2H,2H-Perfluorododecylacrylate (10:2FTA)) (CAS No.: 17741-60-5)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟-1-十二醇 (10:2 FTOH) (1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2FTOH)) (CAS No.: 865-86-1)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
2H,2H-全氟癸酸 (H2PFDA) (2H,2H-Perfluorodecane Acid (H2PFDA)) (CAS No.: 27854-31-5;882489-14-7)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
2H,2H,3H,3H-全氟癸酸(4HPFUnA) (2H,2H,3H,3H-Perfluoroundecanoic Acid (4HPFUnA)) (CAS No.: 34598-33-9)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
1H,1H,2H,2H-全氟-1-己醇 (4:2 FTOH) (1H,1H,2H,2H-Perfluoro-1-hexanol (4:2FTOH)) (CAS No.: 2043-47-2)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
1H,1H,2H,2H-全氟癸基碘 (8_2 FTI) (1H,1H,2H,2H-Perfluorodecyl iodide (8_2 FTI)) (CAS No.: 2043-53-0)	參考CEN/TS 15968: 2010，以氣相層析儀/質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by GC/MS.)	mg/kg	0.1	n.d.	-
2,3,3,3-四氟-2-(七氟丙氧基)丙酸 (HFPO-DA) (2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy)propionic acide (HFPO-DA)) (CAS No.: 13252-13-6)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
1H,1H,2H,2H-全氟己磺酸 (4:2 FTS) (1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2 FTS)) (CAS No.: 757124-72-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟辛烷磺酰胺乙酸 (FOSAA) (Perfluorooctane sulfonamidoacetic acid (FOSAA)) (CAS No.: 2806-24-8)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-甲基全氟辛烷磺酰胺乙酸 (N-MeFOSAA) (N-methylperfluorooctane sulfonamidoacetic acid (N-MeFOSAA)) (CAS No.: 2355-31-9)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
N-乙基全氟辛烷磺酰胺乙酸 (N-EtFOSAA) (N-ethylperfluorooctane sulfonamidoacetic acid (N-EtFOSAA)) (CAS No.: 2991-50-6)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟戊磺酸 (PFPeS) (Perfluoropentane sulfonic acid (PFPeS)) (CAS No.: 2706-91-4)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
2-全氟己基乙酸 (6:2 FTCA) (2-Perfluorohexyl ethanoic acid (6:2 FTCA)) (CAS No.: 53826-12-3)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
3-全氟戊基丙酸 (5:3 FTCA) (3-Perfluoropentyl propanoic acid (5:3 FTCA)) (CAS No.: 914637-49-3)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟壬烷磺酸 (PFNS) (Perfluorononane sulfonic acid (PFNS)) (CAS No.: 68259-12-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-

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測試報告
Test Report

福興實業股份有限公司 (FU HSING INDUSTRIAL CO., LTD.)
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
全氟十一烷磺酸 (PFUnS) (Perfluoroundecane sulfonic acid (PFUnS)) (CAS No.: 749786-16-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
全氟十二烷磺酸 (PFDoDS) (Perfluorododecane sulfonic acid (PFDoDS)) (CAS No.: 79780-39-5)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
雙(1H,1H,2H,2H-全氟癸基)磷酸酯 (8_2diPAP) (Bis(1H,1H,2H,2H-Perfluorodecyl)phosphate (8_2diPAP)) (CAS No.: 678-41-1)	參考CEN/TS 15968: 2010，以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.	-
鄰苯二甲酸二甲酯 (DMP) (Dimethyl phthalate (DMP)) (CAS No.: 131-11-3)	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	-

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備註(Note)：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出)；小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. **= Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. ▲：MDL是針對元素/測試化合物之評估。(The MDL was evaluated for element / tested substance.)
   換算公式 (Conversion Formula)：AX = A × F

AX	A	F
三氧化二銻 (Antimony trioxide) (Sb_2O_3)	銻 (Antimony)	1.1971

   參數換算表 (Parameter Conversion Table)：
   https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others
8. 除非另有說明，參照ILAC-G8:09/2019，採用簡單二元(w=0)允收規則進行符合性判定；根據此規則，符合性結果之判定係以測試結果與限值做比較。(Unless otherwise stated , the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019. According to this rule, the judgement of conformity is based on the comparing test results with limits.)
9. 本報告為 ETR23101925 之異動報告。(This is the additional test report of ETR23101925.)

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Remark：

Δ 德國產品安全委員會(AfPS): GS PAHs 要求

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

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

單位(Unit)：mg/kg

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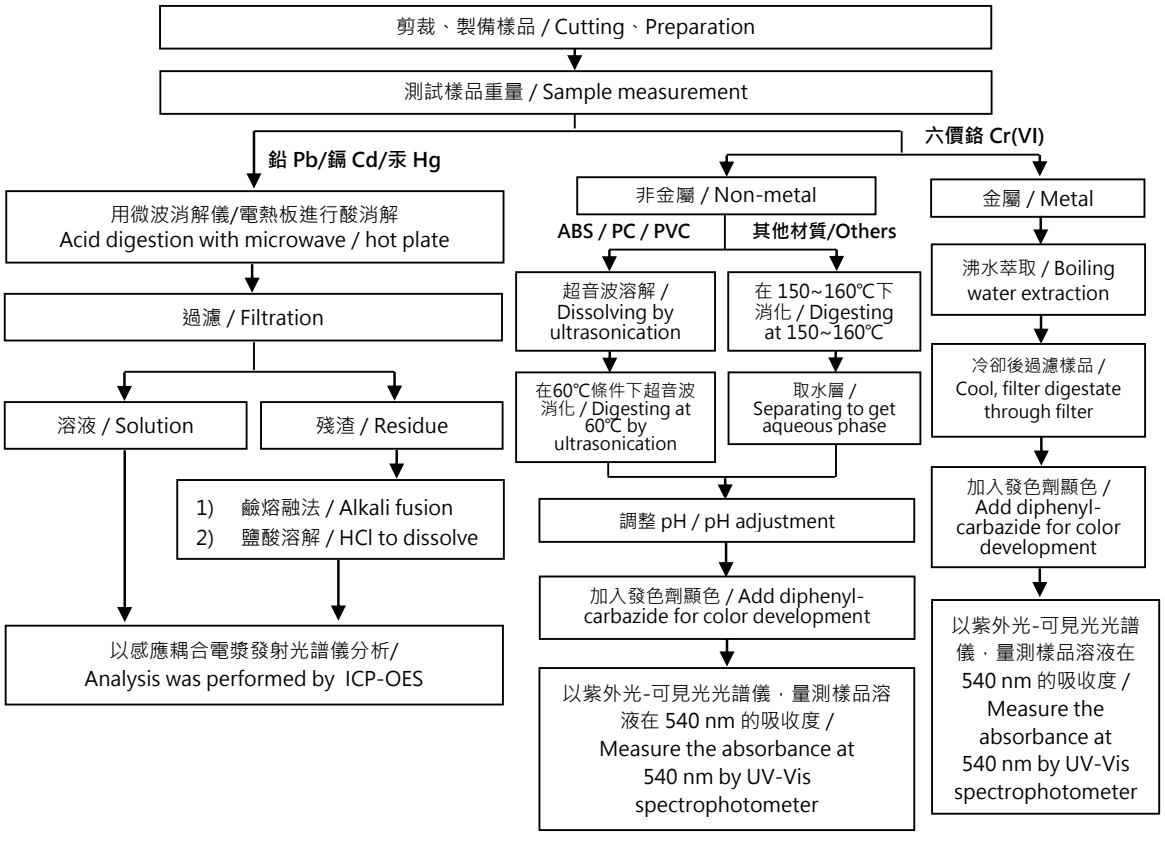
重金屬流程圖 / Analytical flow chart of heavy metal

根據以下的流程圖之條件，樣品已完全溶解。（六價鉻測試方法除外）

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



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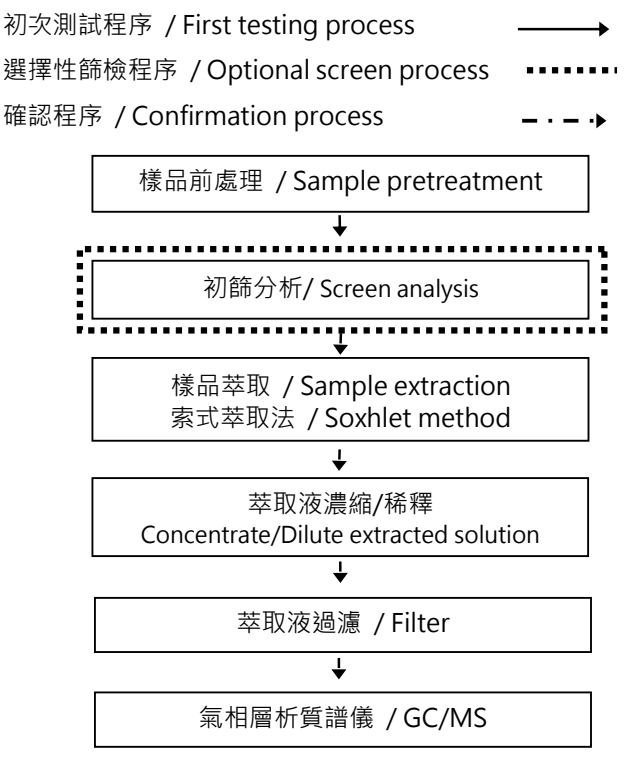
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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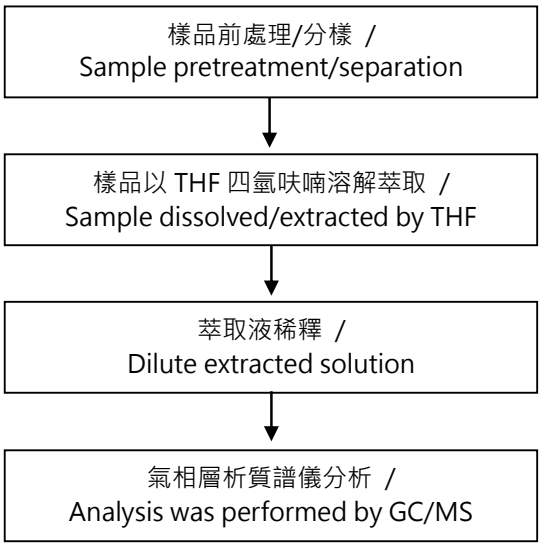
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

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

【測試方法/Test method: IEC 62321-8】



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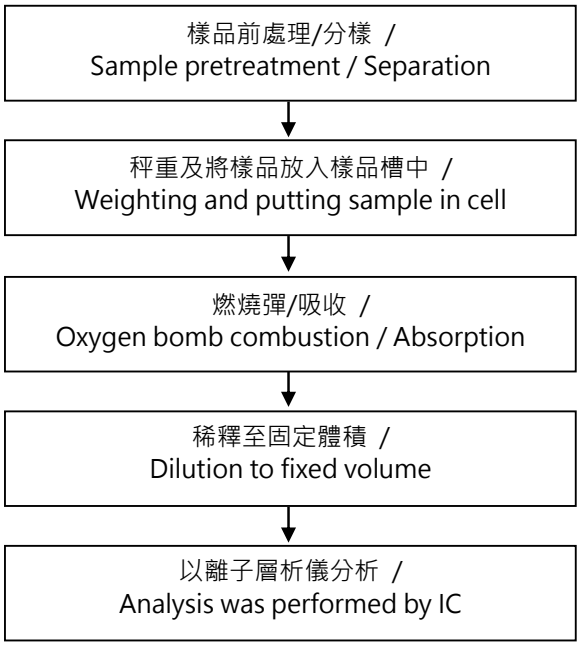
鹵素分析流程圖 / Analytical flow chart - Halogen



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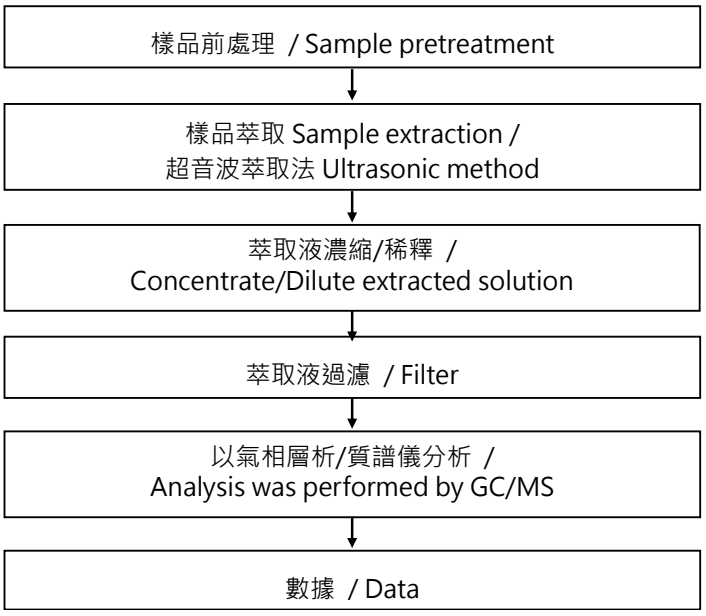
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

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



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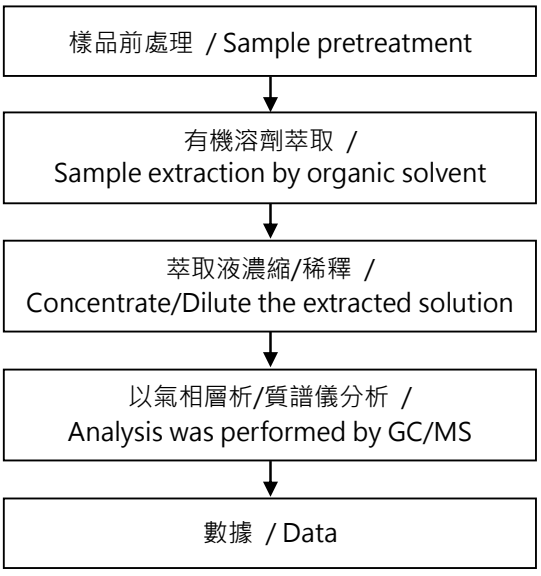
分析流程圖 / Analytical flow chart

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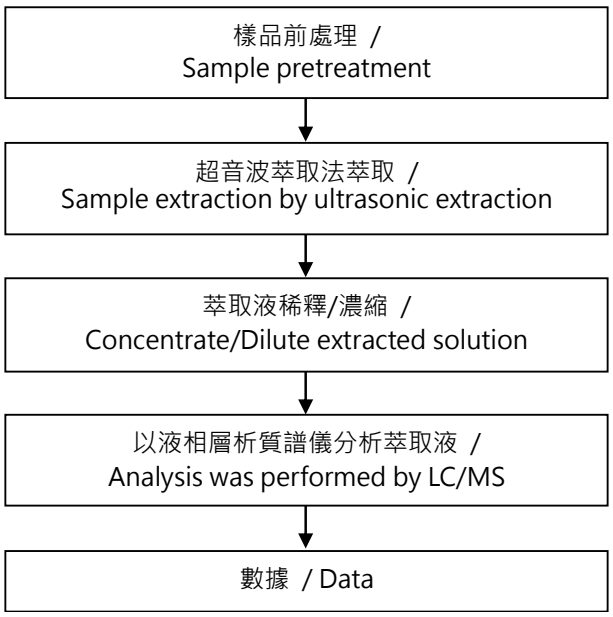
四溴雙酚-A 分析流程圖 / Analytical flow chart - TBBP-A



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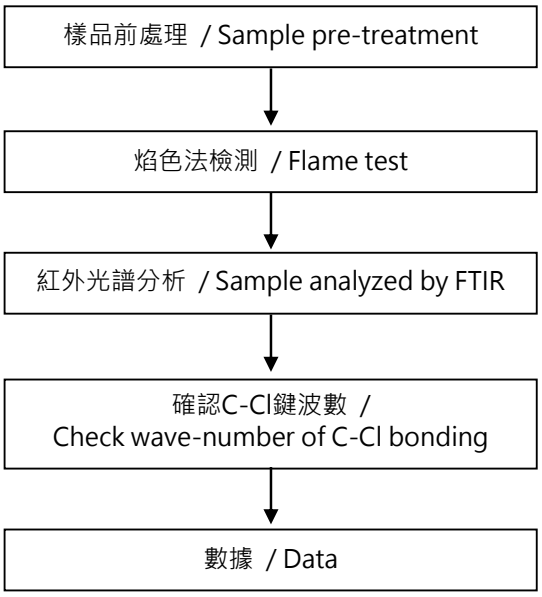
聚氯乙烯物質判定分析流程圖 / Analysis flow chart - PVC



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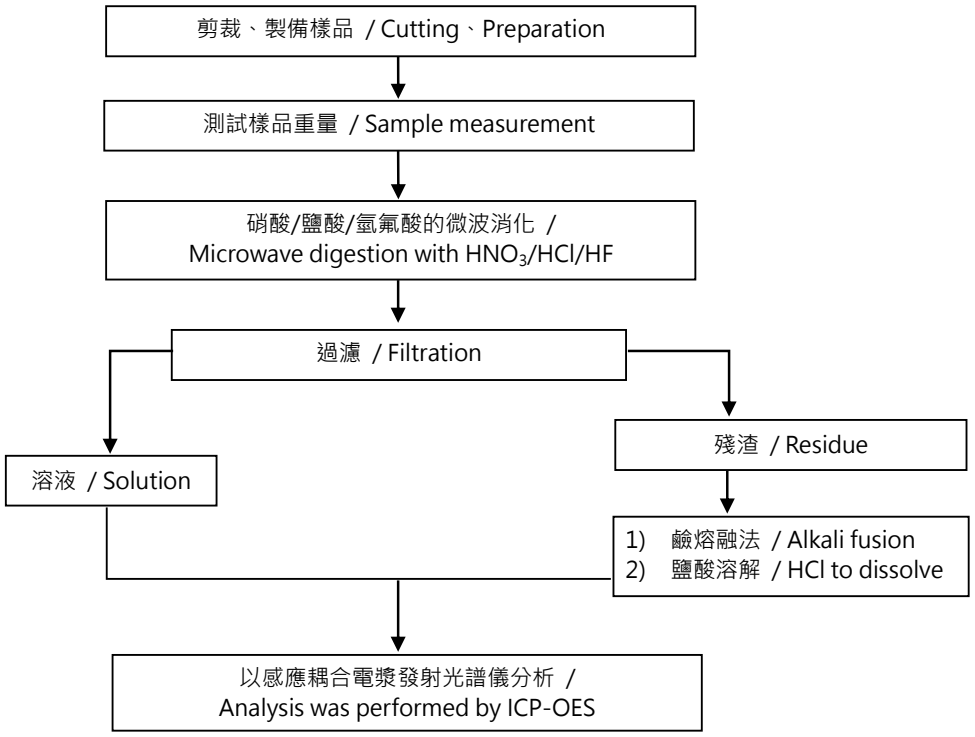
元素(含重金屬)分析流程圖 / Analytical flow chart of elements (Heavy metal included)

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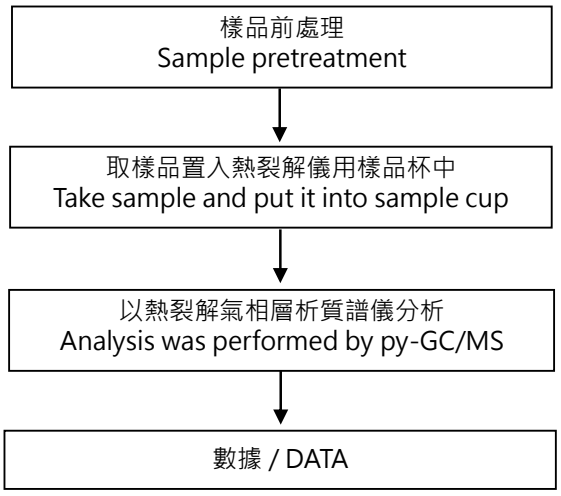
紅磷分析流程 / Analytical flow chart - Red phosphorus



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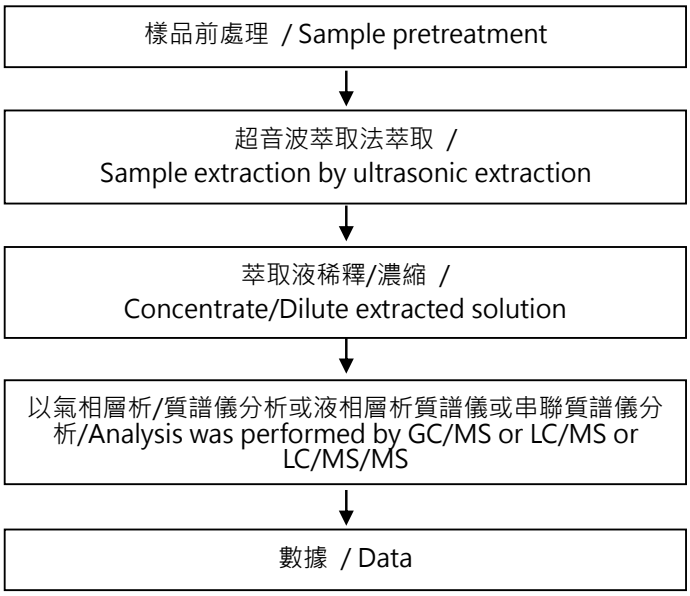
全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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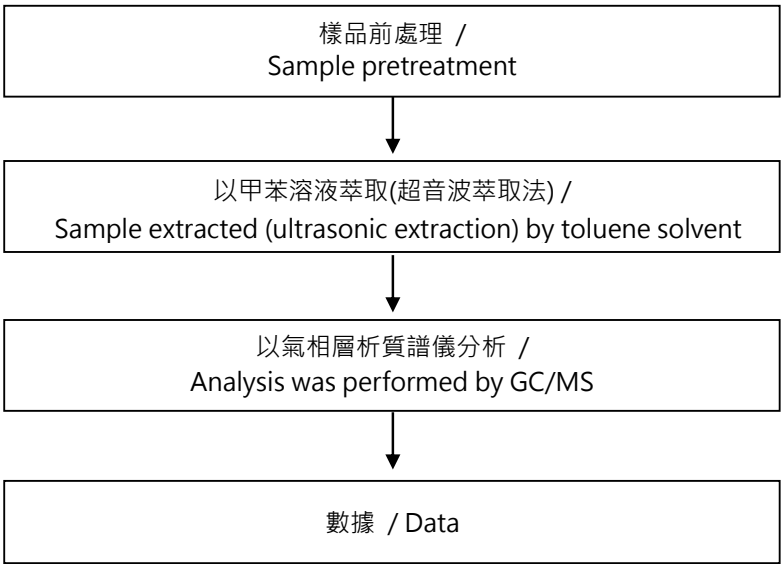
多環芳香烴分析流程圖 /
Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)



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測試報告
Test Report

福興實業股份有限公司 (FU HSING INDUSTRIAL CO., LTD.)
台北市延平南路74號 (74, YEN PING SOUTH RD., TAIPEI CITY, 10042, TAIWAN)

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

ETR23101925



** 報告結尾 (End of Report) **

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安全資料表

C5111,C5102,C5191,C5210,C5212,C5240

名佳利安全資料表編號： MCL001	初版: 04-28-2003	改版日期：05-21-2015
版次：10		前次改版：05-18-2015

一、化學品與廠商資料

化學品中（英）文名稱：	磷青銅(PHOSPHOR BRONZE ALLOYS)		
化學品代號：	JIS C5111,C5102,C5191,C5210,C5212,C5240		
化學名稱：	銅(Cu) –錫(Sn)金屬合金		
類別：	銅金屬合金		
製造者、輸入者或供應商名稱：	名佳利金屬工業股份有限公司		
製造者、輸入者或供應商地址：	台灣桃園市中壢工業區北園路 11 號		
製造者、輸入者或供應商電話：	8863-4519898	傳真：	8863-4514870
製造者、輸入者或供應商網址：	www.minchali.com.tw		
緊急聯絡電話：	8863-4519898		

二、危害辨識資料

警告！ 曝露於粉塵及燻煙的工作環境下，對於眼睛、呼吸系統、皮膚會造成刺激傷害。其含有之金屬可能對血液、腎臟產生反覆性及神經性之影響，也可能致癌。必須保持足夠且良好之通風。避免直接接觸眼睛、皮膚及衣物。配戴保護器具，包括護目鏡、適當衣物，必須要保護全部身體。身體及衣物被接觸之部位，必須徹底清洗乾淨。	
種類名稱 ：	銅(Cu) 、錫(Sn)之金屬混合物
危險標示類別：	金屬粉塵或燻煙將對皮膚、眼睛造成刺激性且對肺具有毒性，但金屬合金本身不具危害性。
HMIS 危害級數(粉塵及燻煙)：	健康 ：2 ；可燃性：0 (0＝低、4＝極高)； 物性危害：無
IDLH 對生命或健康有立即性危害濃度值	IDLH(3/1/95)無本金屬立即性危險濃度數值 。 銅(Cu)粉塵或燻煙、鉛(Pb)、錫(Sn)：100 mg / m^3 磷(P)：5 mg/m^3 氧化鐵(Fe)粉塵或燻煙 ：2500 mg / m^3 氧化鋅 ：500 mg / m^3

Hazardous Materials Identification System (HMIS)

嚴重症狀：

眼睛：其粉塵或燻煙皆具刺激性，會引起紅腫及疼痛。經常曝露於此環境時，可能導致結膜炎。

皮膚：此物質不會經由皮膚滲入體內被吸收。但接觸其粉塵時，皮膚有可能會引起輕微刺激而出現紅腫現象。

吸入：吸入人體是有害的。吸入高濃度粉塵或燻煙可能會導致劇烈呼吸、鼻刺激、咳嗽、呼吸困難。吸入高濃度銅金屬粉塵或燻煙也可能出現噁心、嘔吐及胃痛現象。金屬燻煙可能引起類似流行性感冒（flu-like）症狀之金屬燻煙熱；其症狀包括喉嚨不適、呼吸困難、咳嗽、哮喘、嘶啞、嘔吐、頭痛、發冷、發熱、肌痛、虛弱、昏睡、流汗、關節痛。這些症狀通常會在 24 小時後消失，但也有可能更長時間。

食入：大量食入粉塵時，可能引起噁心、腹瀉及/或胃痛現象。

慢性影響：皮膚長期或者重複性接觸其粉塵時可能引起劇烈刺激或皮膚炎。長期或者重複性吸入其粉塵或燻煙可能會導致更劇烈刺激。慢性曝露於鉛中會引起人體腎臟損害、貧血症、復發性及成長性影響、永久性神經系統損傷。

三、成份辨識資料(重量比例 %)

CAS 編號	化學名稱	**C5111**	**C5102**	**C5191**	**C5210**	**C5212**	**C5240**
7440-50-8	銅(Cu)	>94.5	>93.65	>92.15	>90.0	>90.15	>90
7440-31-5	錫(Sn)	3.5~4.5	4.5~5.5	5.5~7.0	7.0~9.0	7.0~9.0	9.0~11.0
7723-14-0	磷(P)	0.03~0.35	0.03~0.35	0.03~0.35	0.03~0.35	0.03~0.35	0.03~0.35
7440-66-6	鋅(Zn)	<0.20	<0.20	<0.20	<0.20		
7439-92-1	鉛(Pb)	<0.05	<0.02	<0.02	<0.05		
7439-89-6	鐵(Fe)	<0.10	<0.10	<0.10	<0.10		

OSHA 管理狀態：在固體時不具危害性。其粉塵及燻煙對肺藏、血液、腎臟具有致癌、刺激性。反覆產生之毒性及神經性毒素。

OHSA：本合金產品在固體時不具危害性。其粉塵及燻煙具有危害性。

(美國)職業安全衛生署 OSHA

四、急救措施

對於粉塵及燻煙危害：

眼睛接觸：	以大量清淨水沖洗上下眼皮內部（至少 15 分鐘），若眼睛被刺激不適者，立即送醫檢查
皮膚接觸：	以清水清洗乾淨。衣物被接觸之部位，必須徹底清洗乾淨後才能再穿戴。若仍有皮膚發生刺激、出疹現象或情況持續、復發時，應至醫院診療。
吸入時：	送至通風良好較陰涼處休息，以毛布保暖，嚴重者迅速送醫院檢查診斷。
食入時：	大量喝水並催吐，迅速送醫院檢查

醫療提示：對於本產品組成之元素物質並無特殊解毒劑可供使用。必須視不同症狀給予適當治療。

五、滅火措施

燃燒性資料：

爆炸性：	無
可燃性：	無
燃燒性：	無
閃火點：	不適用
自燃性：	不適用

滅火劑：

小區域之材料粉末起火時，可使用乾沙、乾石灰粉、食鹽或蘇打粉予以悶熄。其它周邊處起火時需以適當之滅火器滅火。

意外及爆炸危害：

注意粉塵可能導致爆炸或產生可燃燒氣體。

六、洩漏處理方法

本產品在加工中產生粉塵時，有可能產生爆炸危害，必須將火源移除。也惟有粉塵型態時才可能產生洩漏，所以必須裝設通風設備及集塵裝置過濾空氣中之粉塵，以降低其粉塵濃度。

七、安全處置與儲存方法

處置注意事項：

板帶產品之端面易割傷皮膚應小心取用。 切削加工時會產生粉塵應小心眼睛、皮膚及呼吸應配戴保護器具。 小心粉塵不可洩漏至空氣中。 需注意產品有翻倒之危險性易造成壓傷，吊運時要十分注意。 打包帶剪除時，小心其末端會彈起，對人員之身體、皮膚及眼睛造成割傷。 衣物或器具上之粉塵應以水洗或 HEPA 吸塵器清潔，不可用拍打或其它方式處理。

儲存條件：

倉儲最高容許溫度：無 避免放置於潮濕或酸／鹼性物質或酸／鹼性氣體之場所

八、暴露預防措施

CAS 編號	曝露標準：	OSHA(PEL)	ACGIH(TLV)
銅(Cu) 7440-50-8	燻煙	0.1 mg/m^3	0.2 mg/m^3
	粉塵及霧狀	1 mg/m^3	1 mg/m^3
錫(Sn) 7440-31-5	粉狀	2 mg/m^3	2 mg/m^3
磷(P) 7723-14-0	-	0.1 mg/m^3	0.1 mg/m^3
鋅(Zn) 7440-66-6	-	無資料	無資料
鉛(Pb) 7439-92-1	粉塵及燻煙	0.05 mg/m^3	0.05 mg/m^3
鐵(Fe) 7439-89-6	-	無資料	無資料
本產品材料若經加熱會產生燻煙，氧化鋅燻煙可能形成。 OSHA(PEL)以及 ACGIH(TLV)對氧化鋅燻煙之限制值為 5 mg/m^3			
呼吸防護：	一般情況下不需配戴口罩。但當超過上述 PEL/TLV 標準值時必須配戴 NIOSH 認證之全罩或半罩式 HEPA 濾心防塵口罩。		
通風防護：	工作場所中，若是會產生燻煙及粉塵時，必須要有通風設備裝置及集塵裝置，且工作中不可飲食及抽煙		
眼睛及臉部防護：	需要配戴護目鏡。		
皮膚防護：	作業時應穿著適當之工作服、安全鞋及防護手套，以避免皮膚與材料直接接觸並防止割傷。		

(美國）職業安全衛生署**OSHA**(Occupational Safety and Health Administration)

(美國）國家職業安全衛生研究所 **NIOSH**(National Institute for Occupational Safety and Health)

立即對生命或健康有危險 **IDLH**(Immediately Dangerous to Life or Health)

時量平均濃度 **TWA**(Time Weighted Average)；

容許暴露濃度值 **PEL**(Permissible Exposure Limit)

九、物理及化學性質

外觀：	淺紅色光澤的固態金屬
熔點：	C5102(950~1060℃),C5191(900~1045℃), C5210(870~1030℃),C5212(870~1030℃),C5240(845~1000℃)
沸點：	無資料
比重：	C5102(8.86),C5191(8.83), C5210(8.80),C5212(8.8),C5240(8.8)
蒸氣壓：	不適用
溶解度：	不適用
PH 值 25℃：	不適用

十、安定性及反應性

安定性	在正常一般室溫及大氣壓下為穩定性物質，非活性物質。
應避免之狀況	遭受機械撞擊或通電時並不會產生化性反應。
應避開之材料	氯　：與金屬黃銅、銅細粉塵形成劇烈或爆炸性反應。 乙炔：與銅形成爆炸性化合物。
危害之分解物	當加熱至分解溫度時，會產生金屬氧化物和金屬燻煙。有可能引起類似流行性感冒（flu-like）症狀之金屬燻煙熱。
危害之聚合反應	無。

十一、毒性資料

潛在之暴露途徑：

粉塵：食入、皮膚接觸、吸入、眼睛接觸。
煙霧：吸入、睛眼接觸。
本合金產品不具毒性。

動物急毒性資料：動物半致死劑量(LD_{50})及濃度(LC_{50})

針對本合金產品之粉塵或燻煙	銅(Cu)	錫(Sn)	磷(P)	鋅(Zn)	鉛(Pb)	鐵(Fe)
口服 (LD_{50})	3.5mg/Kg(鼠，腹腔內)	無資料	無資料	無資料	無資料	30mg/Kg(鼠)
皮膚 (LD_{50})	375mg/Kg(兔，皮下注射)	無資料	無資料	無資料	無資料	無資料
吸入 (LC_{50})	無資料	無資料	無資料	無資料	無資料	無資料

亞慢性及慢性毒性：本合金產品不具毒性。鉛對實驗室中動物之血液、腎臟及神經系統會造成損害。 致癌性：本合金產品尚未被報告具致癌性。鉛被 IARC(International Agency for Research on Cancer)列入對人類可能致癌，屬 2B 類 致基因突變性：本合金產品尚未被報告具致基因突變性。鉛則在幾項細胞體外試驗中顯示有致基因突變性。 復發性及成長性影響：本合金產品不具復發性及成長性影響。鉛會導致實驗室中動物之胎兒發育，包括天生畸形缺陷及影響雄性生殖能力。 神經性影響：本合金產品尚未被報告具有神經性影響。鉛會導致實驗室中動物之中樞、末稍神經系統損傷及行為影響。

十二、生態資料

本合金產品對生態之毒性：無資料
其單一成份之毒性說明如下： 生態毒性 ecotoxicity：水中的銅濃度，在 0.1～1.0mg/l 範圍內已備許多研究者證實對大多數魚類不具有毒性。但濃度在 0.015-3.0mg/l 時，尤其在軟水中，曾有報告會對許多種類的魚、甲殼類的動物及軟體動物、浮游生物具有毒性。 鉛對大翻車魚(Bluegill)/藍鰓魚(Lepomis macrochirus)LC_{50}(48Hrs)資料為 2~5mg/l。鉛對水鳥類皆具毒性。 流動性：分解的鉛會轉移入土壤內。 持續性 / 可分解性：鉛在環境中會持續且積存。 生物累積性(Bioaccumulation)：無資料。

十三、廢棄處置方法

本合金產品不屬於危害性廢棄物；須丟棄時可以委託當地回收商予以回收再生利用。

十四、運送資料

USA DOT：未被列入。 運送時本產品不要直接與水接觸，並且要注意會有滑落、翻落的危險發生。

十五、法規資料

通常無特定法令規定，但是在會產生粉塵的場所必須遵守勞工安全衛生法勞工作業環境空氣中有害物質容許濃度標準
USA／OHSA：Occupational Safety & Health Administration
USA／ACGIH Guide to protective Clothing. Cincinnati, OH:American Conference of Government Industrial Hygienists,1987
USA／SARA313

十六、其他資料

參考文獻	---	
製表單位	名稱：名佳利金屬工業股份有限公司	
	地址/電話：台灣桃園市中壢工業區北園路 11 號	
製 表 人	職稱：品保室/副股長	姓名(簽章)： 鄭韶華
製表日期	2015-05-21	

注意：本 SDS 內容資料應被所有使用、運送、儲存或曝露於本合金產品之公司／人員充份了解與接受並將其應用於使用、加工、製造或管理與本合金產品有關之相關作業規定上；使用者請依應用需求，自行判斷其可用性。本 SDS 資料內容在編訂時已儘可能將最新之資料納入，但對所有內容並不能予以任何保證。

MATERIAL SAFETY DATA SHEET (MSDS)

File No. 4052-1 Prepared on Sep. 1, 2001

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

CHEMICAL PRODUCT NAME	: Vectra E130i
NAME OF COMPANY	: Polyplastics Co., Ltd.
SECTION IN CHARGE	: Quality Assurance Department
ADDRESS	: 3-2-5 Kasumigaseki, Chiyoda-ku, Tokyo
TELEPHONE NUMBER	: 03-3593-2181
FACSIMILE NUMBER	: 03-3593-2189

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE/MIXTURE	: Mixture
CHEMICAL NAME	: not open
SYNONYM(S)	: Aromatic Liquid Crystal Polymer(LCP)
CAS REGISTRY NUMBER	: not open
INGREDIENTS AND COMPOSITION	: LCP 70%, Glass fiber 30%
CHEMICAL FORMULA	: not open
File No. in Official gazette	: not open
	(Japanese Chemical Substances Control Law)
UN CLASS	: Not applicable
UN NUMBER	: Not applicable

3. HAZARDS IDENTIFICATION

CLASS OF HAZARDOUS CHEMICALS FOR MSDS IN JAPAN :Not applicable

PHYSICAL AND CHEMICAL HAZARDS: Neither dangerous reaction, fire nor explosion can be caused under normal conditions .

4. FIRST-AID MEASURES

EYE CONTACT

Cool and rinse the eye with clean water for at least 15 minutes when the eyes had contact with molten polymer.

In case of wearing contact lenses, remove the lenses as soon as possible, and ask a physician for advice.

When the eye had contact with the polymer in an ordinary solid form, rinse the eye with clean water without delay.

If the discomfort persists, ask a physician for advice.

SKIN CONTACT

Cool the contacted skin with clean water without delay, if a contact with the polymer in a molten form. Do not force to remove the solid resin on the skin. If any burns are observed on the skin, ask a physician for advice.

INHALATION

When a gas generated from the molten polymer has been inhaled, remove fresh air without delay and wait until the victim is recovered.

If sick feeling continues, ask a physician for advice.

INGESTION

Help to vomit as much as possible. If sick feeling continues, and ask a physician for advice.

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5. FIRE-FIGHTING MEASURES

FIRE-EXTINGUISHING MEASURES:

Extinguish the fire with water. A method of extinguishing an ordinary fire may be applied.

(Caution) 1) Incomplete combustion leads to generation of toxic gases such as carbon monoxide , in addition to carbonic acid gas and water.

2) In case the fire gained force, use a gas mask or other protective equipment.

3) Do not apply water directly to processing machines.

FIRE-EXTINGUISHING AGENTS:

Water, foam fire-extinguishing agent, powder fire-extinguishing agent, and carbon dioxide gas.

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6. ACCIDENTAL LEAKAGE MEASURES

When pellets were spilled on the road or floor, wipe them off with a besom or cleaner. Handle the spillage in accordance with provisions given in the "Resin pellet spillage preventive manual", in order to prevent intakes by marine animals and birds.

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7. HANDLING AND STORAGE

HANDLING: 1) LCP resin in a pellet form will neither ignite nor explode at room temperatures.

2) LCP resin pellets spilled on the floor are likely to cause slipping. Remove such spillage at any times.

3) For molding work, effective means for local exhaust are required to discharge gases generated by melt processing.

4) Avoid inhaling of gases generated in moulding work.
Do not directly touch resin of high temperature.

5) Avoid retaining hot resin in the processing machines for many hours.

6) Glass fibers are not generally exposed in a single substance under normal processing and handling conditions as they are compounded in pellets. However, the following measures will be necessary to minimize the exposure to glass fibers or dusts containing glass fibers, when pellets or molded parts containing glass fibers are cut, ground or burnt, depending on environmental and operational conditions.

Handling

- Those who are sensitive in skin to glass fiber should wear suitable(protective) clothes to minimize the exposure of their skin.
- Wash working clothes apart from other laundry, so that the latter will not cause contamination with glass fibers.
- Provide the workshop with partitions to prevent diffusion of glass fiber dusts.
- Pay precautions not to rub face, neck or arms with hands. Wash hands and gargle after working without fall.
- Keep dust sources totally enclosed.
- Provide local air exhausters and implement periodical inspections and adjustments at least once a year.
- Reduce cutting and grinding processes to the possible minimum, and devise working procedures to minimize dust generation.
- Provide dust-preventive masks, protective glasses and gloves for personal hygiene.
- Determine the operational environment at indoor working places and confirm the effects of environmental improvement.

Note) Glass fibers are, like road dusts, told to be least hazardous to human bodies, but proper measures are required to avoid useless inhaling.

STORAGE : 1) Keep the substance away from any fire or heat sources for the sake of safe storage.

2) LCP resin should be handled in accordance with municipal rules and regulations.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

CONTROL CONCENTRATION : None at present

PERMISSIBLE EXPOSURE CONCENTRATION:

OSHA PEL (nuisance/inert dust)

total	15 mg/m^3
respirable	5 mg/m^3

ACGIH TLV (nuisance particulates)

total	10 mg/m^3
respirable	3 mg/m^3

Japan Industrial Hygienists Society/1992 Class 3 dust

total	8 mg/m^3
respirable	2 mg/m^3

ENGINEERING MEASURES:

When handling dust: Use totally enclosed containers resisting dust explosion.

When heat melted in molding: Effective local ventilation must be provided.

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION : Wear a dust-proof mask.

EYE PROTECTION : Wear protective glasses or goggles.

HAND PROTECTION : Wear heat-resisting gloves against burns, when handling molten polymer.

SKIN & BODY PROTECTION : Wear long sleeve clothes against burns, when handling molten polymer.

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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	: Pellet
DENSITY	: 1.61 g/cm^3
BOILING POINT	: Not applicable
MELTING POINT	: 335℃～345℃
VAPOR PRESSURE	: Not applicable
VOLATILITY	: Not applicable
SUBLIMATION	: None
SOLUBILITY IN WATER	: Insoluble

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10. PHYSICAL HAZARD (STABILITY AND REACTIVITY)

FLASH POINT :

IGNITION POINT : 540℃ or higher

DUST EXPLOSIVENESS

UPPER EXPLOSION LIMIT : Not applicable

LOWER EXPLOSION LIMIT : 35 g/cm^3

INFLAMMABILITY	: Self-extinguishing
SPONTANEOUS COMBUSTIBILITY	: None
REACTIVITY WITH WATER	: None
OXIDIZABILITY	: None
SELF-REACTIVITY	: None
STABILITY	: Stable for normal storage or handling
OTHERS	: None

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11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY (INCLUDING LD_{50})	: No finding
SUBACUTE TOXICITY	: No finding
CHRONIC TOXICITY	: No finding
SKIN CORROSIVE PROPERTIES	: No finding
SENSITIZING & IRRITANT EFFECTS	: Gas generated in drying or melting is irritating eyes and skins.
CARCINOGENECITY	: No finding

MUTAGENECITY (Micro organisms, chromosomal aberration): No finding

REPRODUCTIVE TOXICITY	: No finding
TERATOGENICITY	: No finding

OTHERS (Including generation of hazardous gases by reaction with water, for example) : No finding

(Remarks) "No finding" in this report means that there will be no hazard in general, but no proving data is available at the time of reporting.

OTHER CAUTIONS:

1) With regard to dust, the maximum permissible concentration and limits are fixed by OSHA, ACGIH and Japan Industrial Hygienists Society.
2) Information on hazards of glass fibers as filler.

Effects on Human Bodies

(1) Effects on the skin

Stimulation to the skin with glass fibers may be caused when glass fibers diameter is larger than 4.5～5μm. They give mechanical stimulation followed by itchiness to the skin, but further continuous exposure reportedly results in extinction of stimulation. It may sometimes leads to irritable dermatitis complicated with urticaria or eczema-like reaction. It is, however reported that such dermatitis is not so serious in general and does not last too long. Therefore, skin stimulation can be prevented by proper use of glass fibers.

(2) Effects on Tumor

Investigations made on glass fibers till today reveal that there is neither increase in mortality of glass fiber production workers due to lung cancer or mesothelioma nor such cases reported.

Animal Test Report

It is suggested that carcinogenecity of mineral fibers is dependent on their shapes rather than on their constituents. According to a report on experiments using 17 kinds of artificial mineral fibers in various sizes prepared by Dr.Stanton of National Cancer Institute, in USA, statistical studies on corelations between the diameter and length of fibers and the coincidence of mesothelioma have revealed that mineral fibers having a diameter smaller than 0.25 μm and a length larger than 8 μm are closely related to the coincidence of cancers. Since these experiments were performed by artificially dosing the subject animals with a large quantity of glass fibers and consequently they are quite different from the actual exposures to human bodies, it is told to be problematic to make a conclusion that mineral fibers are hazardous to human health, basing on the results obtained from these experiments. Upto the present time, there is no result obtainable to demonstrate a mechanism of glass fibers causing lung cancers in spite of experiment by long exposure to glass fibers with high concentration.

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12. ECOLOGICAL INFORMATION

BIODEGRADABILITY	:	No finding
BIOACCUMULATION	:	No finding
FISH TOXICITY	:	No finding
OTHERS	:	

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13. DISPOSAL CONSIDERATION

(1) This is designated as waste plastics among industrial wastes by the Wastes Disposal Law. Dispose waste Vectra through licensed wastes handlers or local autonomous bodies if they are handling wastes disposal.

(2) When disposed by incineration, use the well controlled incinerators in accordance with the Wastes Disposal Law, Air Pollution Control Law and Water Pollution Prevention Law.

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14. TRANSPORT CONSIDERATION

(1) Handle with care so as not to give damages to containers or not to be subjected to wetting.

(2) Secure the containers firmly so as not to cause collapsing.

15. REGULATORY INFORMATION

(1) Wastes Disposal Law designates it as waste plastics among industrial wastes.

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16. OTHER INFORMATION

HANDLING OF THE DETAILS GIVEN ABOVE:

This MSDS is the English version translated from the Japanese MSDS which is prepared for domestic use.

Details given above are based on references, information and data available at this moment, but no warranty can be made on exactness of these details. They are also prepared on the assumption that the product will be handled in a normal way. For special handling, adequate safety and environmental measures should be taken in respect to its applications. Our products are not specifically intended for implants for medical and dental applications, and therefore they are not recommended for such applications.

Please contact Quality Assurance Department of Polyplastics Co., Ltd. for further information.

(Telephone Number 03-3593-2181).

Component - Plastics

E52579

MITSUI CHEMICALS INC

SHIODOME CITY CENTER, #1-5-2, HIGASHI-SHINBASHI, MINATO-KU, TOKYO 105-7117 JP

E630N(e)

Polyamide (PA), "Arlen", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.75	V-0	-	-	120	110	110
	1.5	V-0	-	-	120	120	120
	3.0	V-0	-	-	120	120	120

Comparative Tracking Index (CTI): 1

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

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

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

(e) - with or without one or two letters A-ZZ incl except N. For grade CH230N(e)(r), letter H should also be excepted and for grade C230(e)(r) and C240(e), letter NK should also be excepted.

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

Report Date: 2005-10-26

Last Revised: 2008-12-01

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thickness Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.75	V-0 (ALL)
			1.5	V-0 (ALL)
			3.0	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-2	kJ/m^2	-	-

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