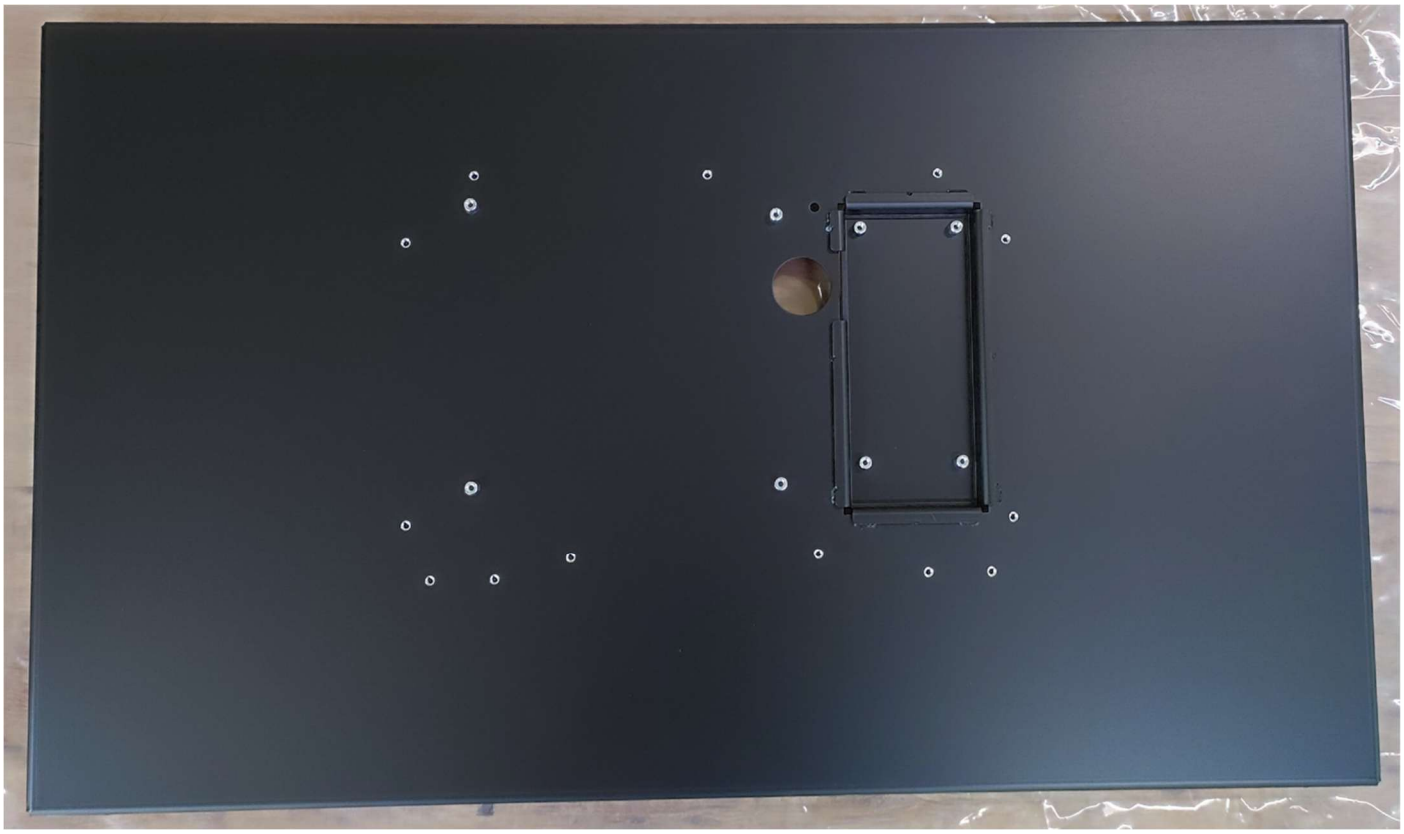
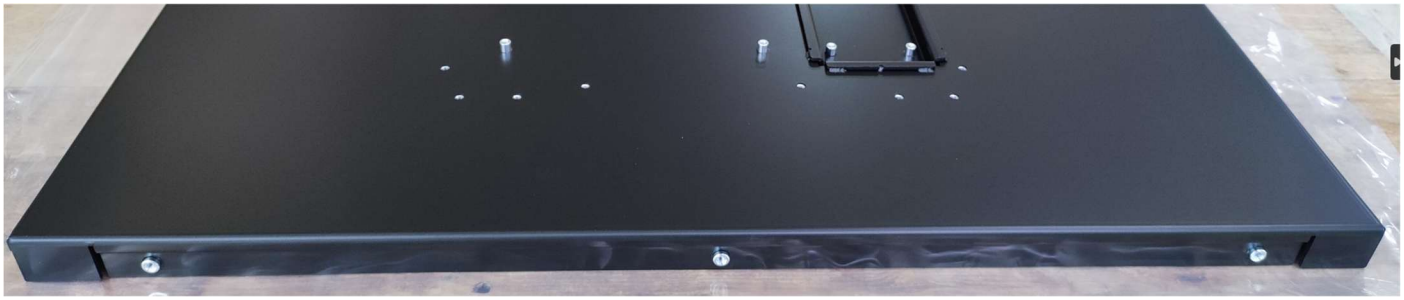
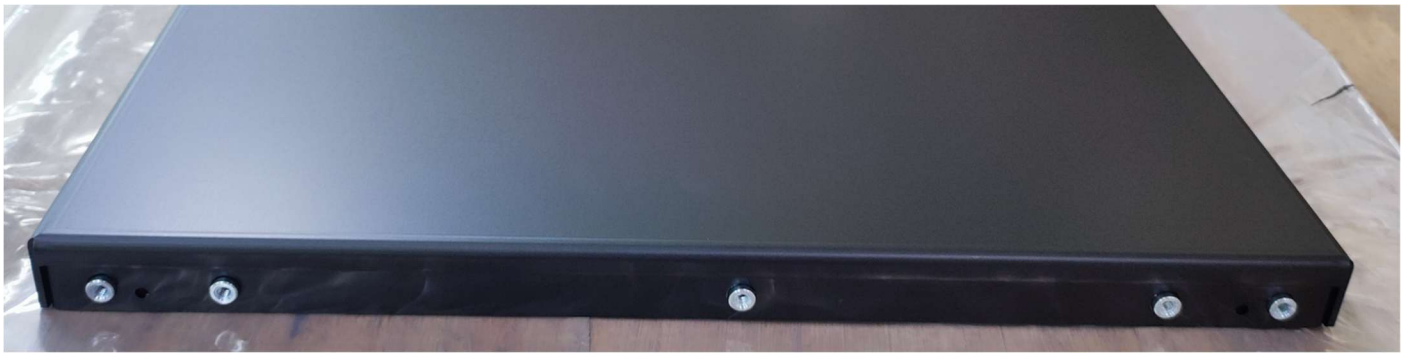


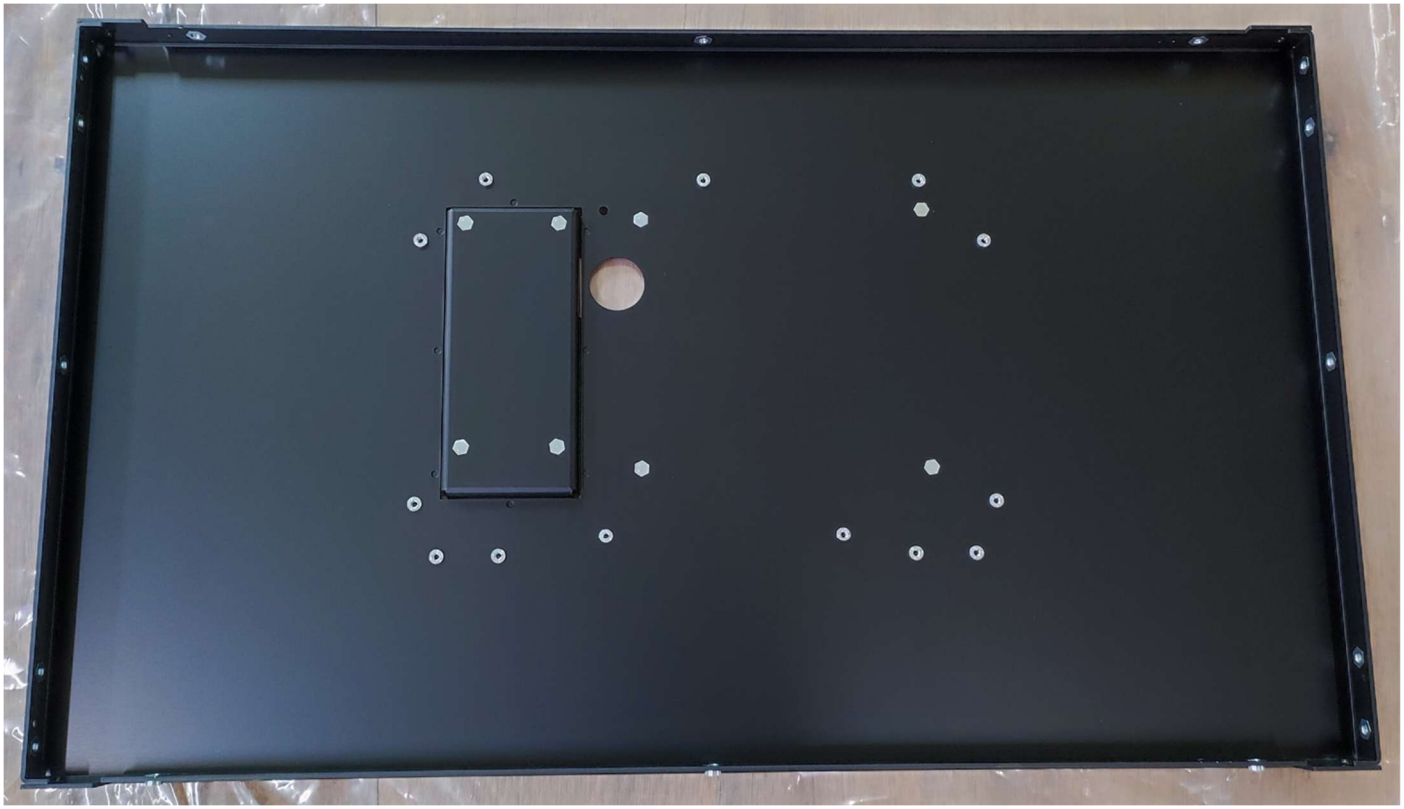






設計驗證
工程課
2025-01-16
發行
紅華科技開發股份有限公司





設計驗證
工程課
2025-01-16
發行
紅華科技開發股份有限公司

雄業實業股份有限公司

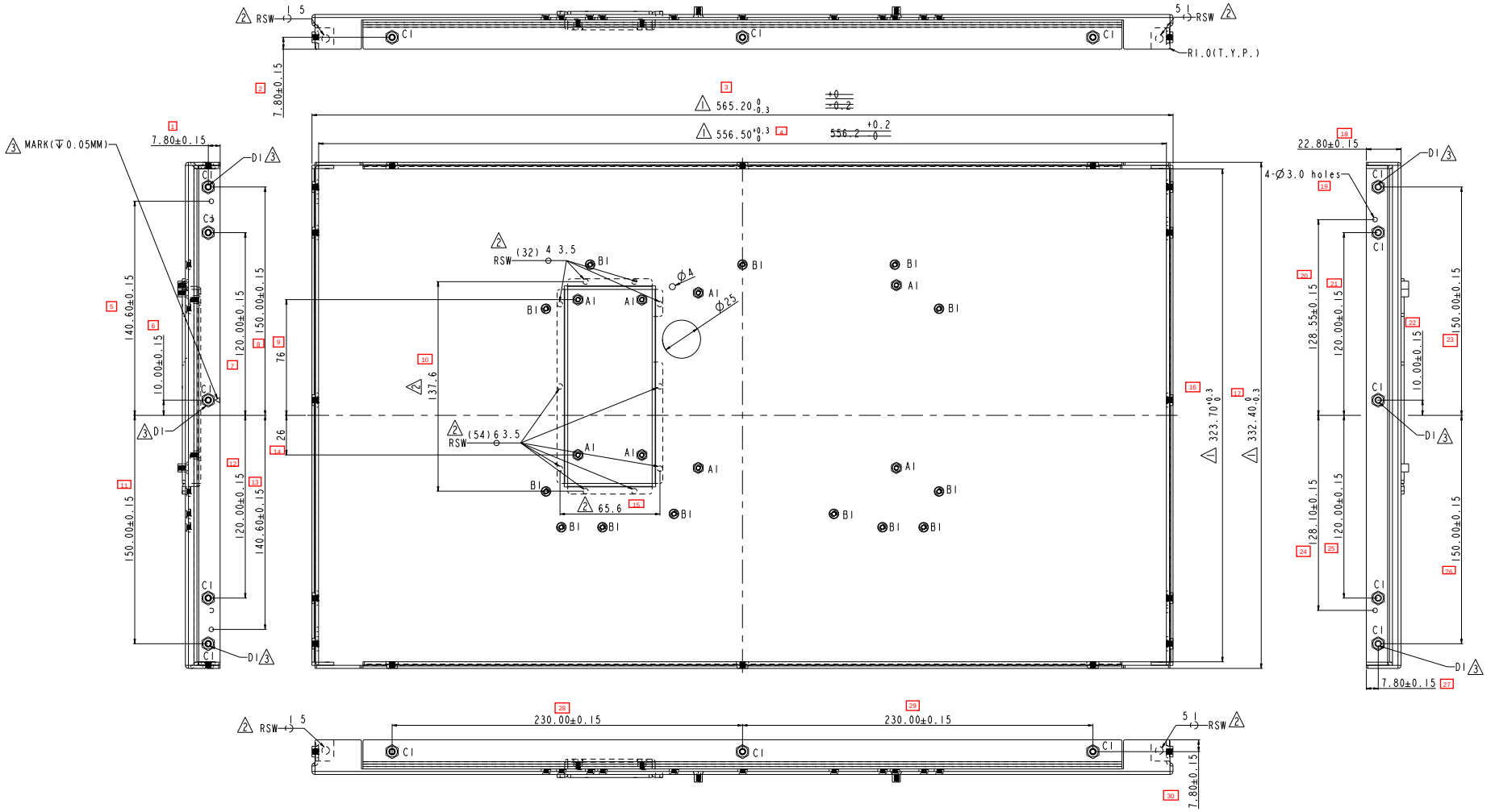
樣 品 承 認 書



客　　戶：	鈺緯科技
料　　號：	3MDLDWME020(M1854)
品　　名：	MAIN BRACKET
日　　期：	114/1/10
送樣數量：	3　　PCS

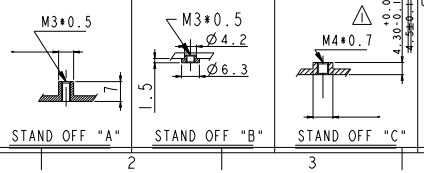


REV.	DATE	DESCRIPTION	BY	APVD
1	2012/11/16	change dim.	Leon Hu	
2	2012/12/20	add spot welding dim.	Leon Hu	
3	2024/7/4	add notes& marks	Owen	Laglie



設計驗證
工程課
2025-01-16
發行
鈺緯科技開發股份有限公司

1	3MDLDWME020	A1	B1	C1	TTK	M1854	CL24001-C0D01
	PART No. / LOCATION / STAND OFF / HOLE	STAND OFF "A"	STAND OFF "B"	STAND OFF "C"	USED ON	APPD No.	REMARK



△7. MARK "D1" NEEDS TO USE M4*0.7-8mm SCREWS TO CHECK THE THREADS
△6. NO RESTRICTION ON WELDING METHODS
△5. GLOVES MUST BE WORN DURING WORK
4. NO MENTION TOLERRANCE:±0.2
3. DISTORTION<1.0MM
2. NO OIL ON SURFACE.
Notes: 1. BURRY<0.03MM

RANGE OF DIMENSION	TOLERANCE CLASS DESIGNATION		
		V	
	fine	medium	coarse
UP TO 3	±0.05	±0.1	±0.2
OVER 3~6	±0.05	±0.1	±0.3
OVER 6~30	±0.1	±0.2	±0.5
OVER 30~120	±0.15	±0.3	±0.8
OVER 120~400	±0.2	±0.5	±1.2
OVER 400~1000	±0.3	±0.8	±2.0
OVER 1000~2000	±0.5	±1.2	±3.0
OVER 2000~4000	-	±2.0	±8.0
ANGLE ±1° (±1.75/100)			

THIRD ANGLE PROJECTION

UNITS: mm	SCALE: 1/1	SHEET: 1 OF 1	MODEL NO. CL24001-C0D01
MATERIAL: AL5052 T=2.0		TREATMENT: ANODIZING(BLACK)	
DSGD by	LEON HU	2012/12/20	PART NAME: MAIN BRACKET
CHK by			DIVA P/N: 3MDLDWME020
APVD by	Laglie	2024-12-31	Qisda NO.:
APVD NO.: M1854		3D FILE NAME: MAIN_BKT	DIVA Laboratories ,Ltd.

Test Result	

DIVA FAI DATA SHEET

Part Number :	3MDLDWME020 (M1854)	Supplier :	雄業	Date:	2025/1/2
Part Description :	MAIN BRACKET			Cavity / Tool # :	
Revision :	0	Material Spec:	AL5052 T=2.0mm	Inspector:	李宥廷

MOI-Method of inspection abbreviation: HG = Height gauge, MIC = Micrometer, DC = Dial Caliper, P = Protractor, OC = Optical Comparator, CG = Checking Gauge, CMM = Coordinate Measuring Machine, OMM = Optical Coordinate Measuring Machine, HT = Hardness Trester, TG = Thickness Gauge, VIS = V D

OTHER:

DRAWING SPECIFICATIONS						INSPECTION RESULTS							INSPECTION ANALYSIS					
						Sample Number							% Tolerance		Alert/Rej		Supplier	RD Engineering
ITEM	LOCATION	NOMINAL	+TOL	-TOL	Method	1	2	3	1	2	3	Mean	UPPER	LOWER	HIGH	LOW	Remarks	Disposition
1	C2	7.80	0.15	0.15		7.850	7.880	7.860	0.050	0.080	0.060	7.863	53%	0%				
2	B2	7.80	0.15	0.15		7.860	7.900	7.880	0.060	0.100	0.080	7.880	67%	0%	Alert			
3	B6	565.20	0.00	0.30		565.120	565.100	565.100	-0.080	-0.100	-0.100	565.107		33%				
4	B6	556.50	0.30	0.00		556.650	556.680	556.660	0.150	0.180	0.160	556.663	60%					
5	D1	140.60	0.15	0.15		140.540	140.610	140.560	-0.060	0.010	-0.040	140.570	7%	40%				
6	D2	10.00	0.15	0.15		9.980	10.000	10.000	-0.020	0.000	0.000	9.993	0%	13%				
7	D2	120.00	0.15	0.15		119.970	120.030	120.000	-0.030	0.030	0.000	120.000	20%	20%				
8	D2	150.00	0.15	0.15		150.030	150.050	150.000	0.030	0.050	0.000	150.027	33%	0%				
9	D2	76.00	0.30	0.30		76.030	76.050	76.010	0.030	0.050	0.010	76.030	17%	0%				
10	D3	137.60	0.50	0.50		137.570	137.620	137.600	-0.030	0.020	0.000	137.597	4%	6%				
11	E1	150.00	0.15	0.15		150.030	149.970	150.000	0.030	-0.030	0.000	150.000	20%	20%				
12	E2	120.00	0.15	0.15		120.030	120.000	120.040	0.030	0.000 (M1854)	0.040	120.023	27%	0%				
13	E2	140.60	0.15	0.15		140.630	140.570	140.600	0.030	-0.030	0.000	140.600	20%	20%				
14	E3	26.00	0.20	0.20		26.030	26.000	26.000	0.030	0.000	0.000	26.010	15%	0%				
15	E5	65.60	0.30	0.30		65.630	65.600	65.610	0.030	0.000	0.010	65.613	10%	0%				
16	E9	323.70	0.30	0.00		323.880	323.900	323.900	0.180	0.200	0.200	323.893	67%		Alert			
17	E9	332.40	0.00	0.30		332.250	332.220	332.230	-0.150	-0.180	-0.170	332.233		60%				
18	C10	22.80	0.15	0.15		22.780	22.800	22.800	-0.020	0.000	0.000	22.793	0%	13%				
19	C10	3.00	0.20	0.20		2.970	3.020	3.000	-0.030	0.020	0.000	2.997	10%	15%				
20	D9	128.55	0.15	0.15		128.600	128.570	128.590	0.050	0.020	0.040	128.587	33%	0%				
21	D10	120.00	0.15	0.15		120.030	120.050	120.010	0.030	0.050	0.010	120.030	33%	0%				
22	D10	10.00	0.15	0.15		10.030	10.000	10.020	0.030	0.000	0.020	10.017	20%	0%				
23	D11	150.00	0.15	0.15		150.000	150.030	150.010	0.000	0.030	0.010	150.013	20%	0%				
24	E10	128.10	0.15	0.15		128.130	128.100	128.120	0.030	0.000	0.020	128.117	20%	0%				
25	E10	120.00	0.15	0.15		120.030	120.040	120.000	0.030	0.040	0.000	120.023	27%	0%				
26	E11	150.00	0.15	0.15		150.040	150.010	150.020	0.040	0.010	0.020	150.023	27%	0%				
27	F10	7.80	0.15	0.15		7.840	7.880	7.860	0.040	0.080	0.060	7.860	53%	0%				
28	G4	230.00	0.15	0.15		230.040	230.080	230.080	0.040	0.080	0.080	230.067	53%	0%				
29	G7	230.00	0.15	0.15		230.060	230.030	230.040	0.060	0.030	0.040	230.043	40%	0%				
30	G9	7.80	0.15	0.15		7.880	7.860	7.860	0.080	0.060	0.060	7.867	53%	0%				

Instructions:
1.Inspector mest fillout the yellow area.
2. The table will automatically calculate the data in green area.

測試報告
Test Report

號碼(No.): EKR24501928　　日期(Date): 07-Jun-2024　　

中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

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)	:	中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
樣品名稱(Sample Name)	:	ALUMINIUM PLATE /SHEET (鋁板/片)
樣品型號(Style/Item No.)	:	ALUMINIUM ALLOY 5052

==========

收件日(Sample Receiving Date)	:	30-May-2024
測試期間(Testing Period)	:	30-May-2024 to 07-Jun-2024

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

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

結　　論(Conclusion) : 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.)

報告簽署人/張伯睿 博士/部經理
Ray Chang, Ph.D./ Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
化學實驗室-高雄/Chemical Laboratory-Kaohsiung

PIN CODE: 94B0F8E6

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測試報告
Test Report

中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

測試部位敘述 (Test Part Description)

No.1 : 銀色金屬 (SILVER COLORED METAL)

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	12.3	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 (Hexavalent Chromium) Cr(VI) (#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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高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

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))	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
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP))		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

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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. (#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.)
6. 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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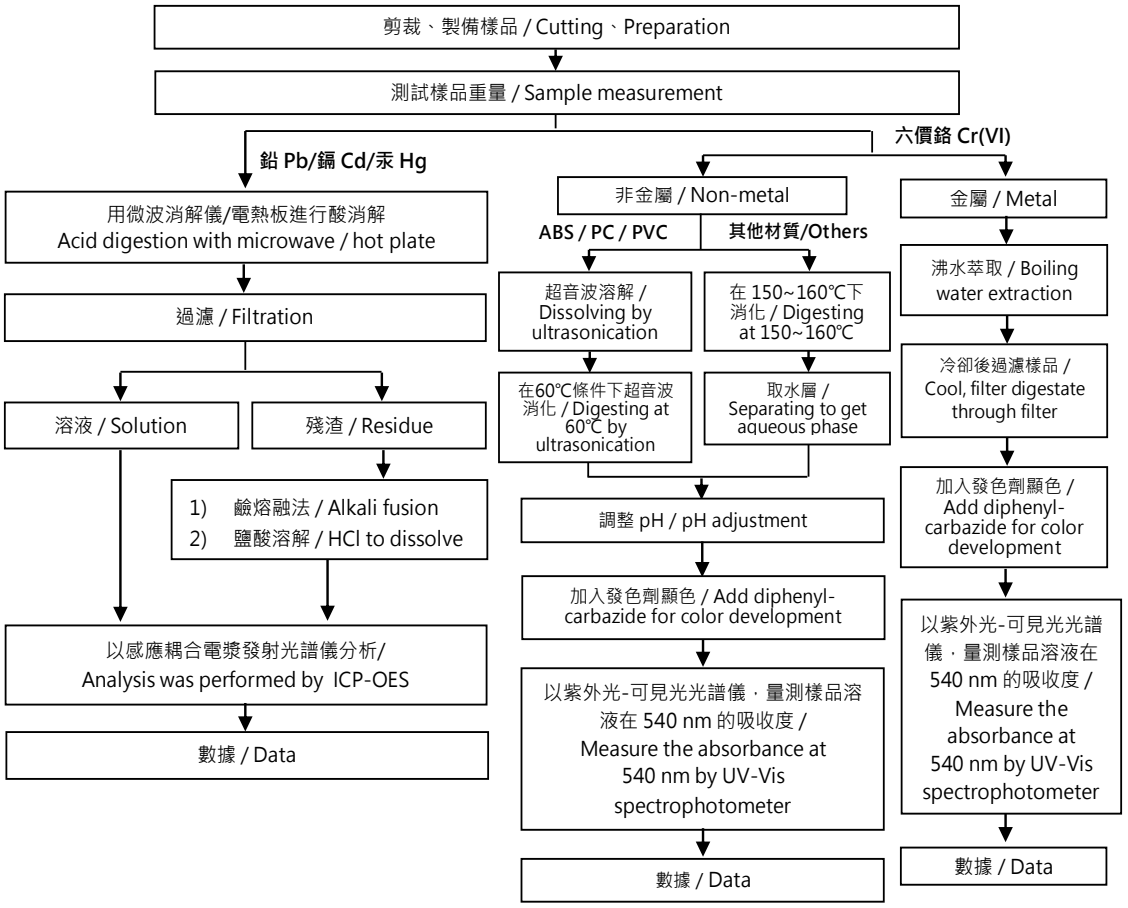
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

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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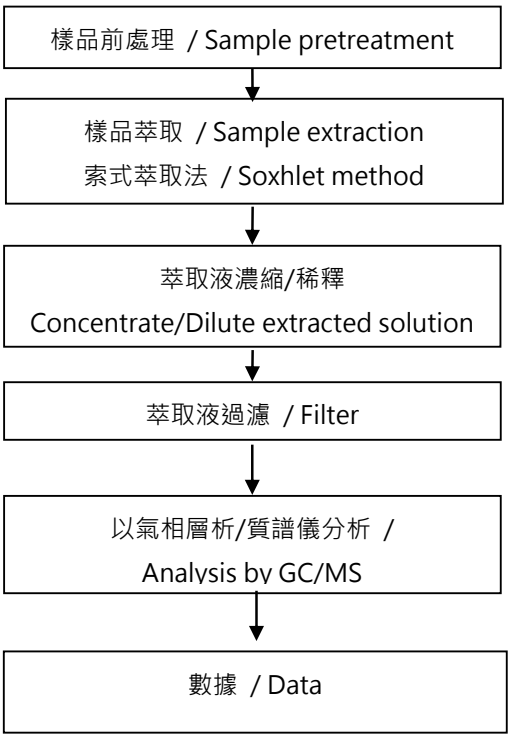
中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART



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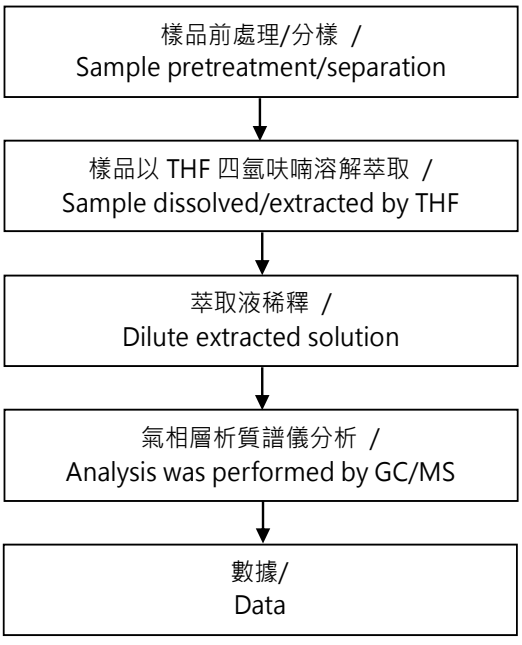
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

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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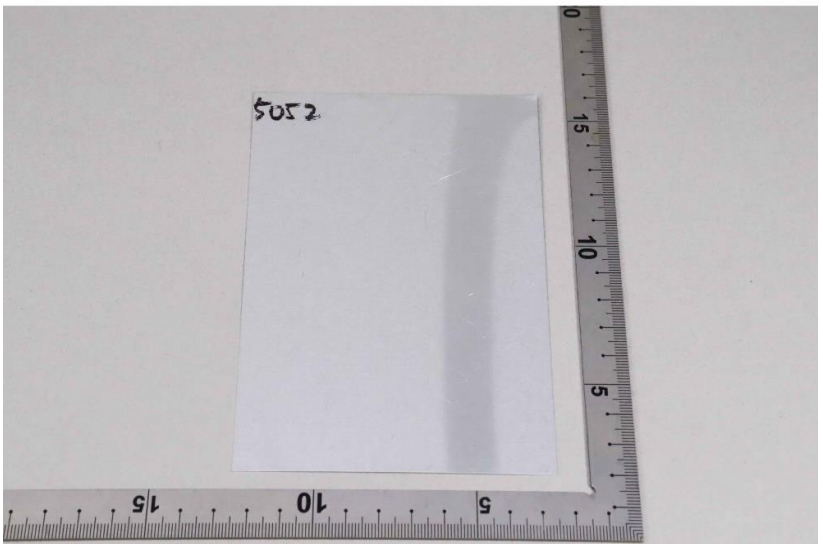
Test Report

中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

*** 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.)

EKR24501928



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測試報告
Test Report

號碼(No.): EKR24501941　　日期(Date): 07-Jun-2024　　

中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

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)	:	中鋼鋁業股份有限公司 (C.S. ALUMINIUM CORPORATION)
樣品名稱(Sample Name)	:	ALUMINIUM PLATE /SHEET (鋁板/片)
樣品型號(Style/Item No.)	:	ALUMINIUM ALLOY 5052

==========

收件日(Sample Receiving Date)	:	30-May-2024
測試期間(Testing Period)	:	30-May-2024 to 07-Jun-2024

測試需求(Test Requested) : 依據客戶指定，測試鹵素-氟、氯、溴、碘。 (As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample.)

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

報告簽署人/張伯睿 博士/部經理
Ray Chang, Ph.D./ Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
化學實驗室-高雄/Chemical Laboratory-Kaohsiung

PIN CODE: BC7877B9

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高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

測試部位敘述 (Test Part Description)

No.1 : 銀色金屬 (SILVER COLORED METAL)

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
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)	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.
溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2)	參考BS EN 14582: 2016，以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)	參考BS EN 14582: 2016，以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.

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

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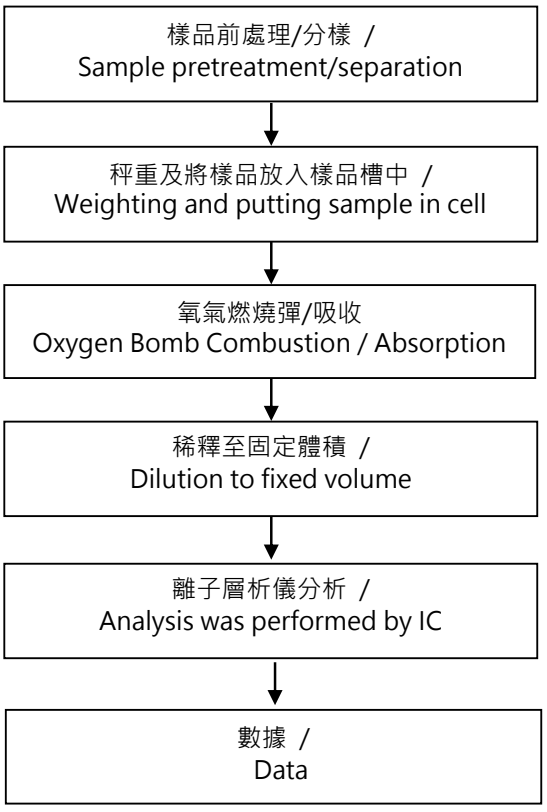
高雄市小港區東林路17號 (NO.17 TUNG LIN ROAD ,HSIAOKANG DISTRICT, KAOHSIUNG CITY)

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



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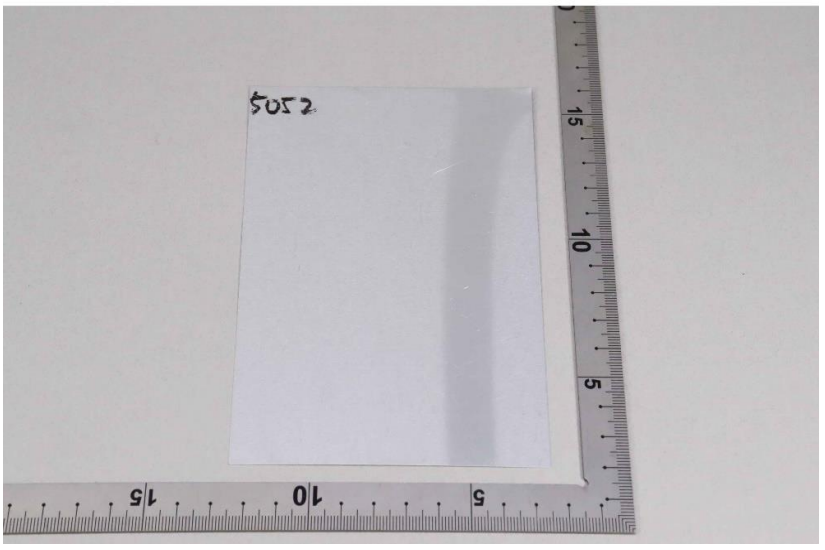

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Safety Data Sheet

REVISION DATE：01/02/2024

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME： Aluminum Alloy

CATALOG CODE： 5XXX Series Alloys

MANUFACTURER：

C.S Aluminium Corporation NO.17 Tung Lin Road Hsiao Kang Kaohsiung,812 Taiwan.R.O.C

Tel：886(7)871-8666

Fax：886(7)872-1967

SECTION 2 – HAZARDS IDENTIFICATION

Health：1

Flammability：1

Reactivity：1

Precautionary statements：

This product is present in a massive form as an alloys. Aluminum alloys are alloys in which aluminum (Al) is the predominant metal. Aluminum alloys are considered an “article” and not hazardous in its solid form. Fine particles from processing (such as cutting, sawing, welding, grinding, polishing, milling, and machining) may be readily ignitable.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredients	Typical Percent (Wt %)	CAS Numbers
Aluminum (Al)	Rem.	7429-90-5
Silicon (Si)	<0.40	7440-21-3
Iron (Fe)	<0.70	7439-89-6
Copper (Cu)	<0.20	7440-50-8
Manganese (Mn)	<1.00	7439-96-5
Magnesium (Mg)	0.50-5.0	7439-95-4
Zinc (Zn)	<0.25	7440-66-6

SECTION 4 – FIRST AID MEASURES

SKIN：For minor burns, apply cold water. For severe burns, seek immediate medical attention.

EYE：Immediately flush with water for 15 minutes. Seek medical attention if irritation persists.

INHALATION：Remove to fresh air.

INGESTION：None necessary.

SECTION 5 – FIRE FIGHTING MEASURES

FLAMMABILITY：YES? NO? X

FLASH POINT (Method Used)：N/A

WHAT CONDITIONS? N/A

UEL：N/A

LEL：N/A

MEANS OF EXTINCTION：

This product is non-combustible in bulk form. For fires involving aluminum fines or chips, use dry sand or Class D extinguishing agents approved for this use. DO NOT USE water or other liquids, foam, or halogenated extinguishing agents.

SPECIAL PROCEDURES：

Suspended aluminum dust, allowed to accumulate in a confined area, may be explosive. If remelted, moisture present in cavities or on external surfaces may cause an explosion.

AUTO IGNITION TEMPERATURE：N/A

HAZARDOUS COMBUSTION PRODUCTS：None known

SENSITIVITY TO STATIC DISCHARGE：None known

SENSITIVITY TO IMPACT：None known

ND = NOT DETERMINED N/A = NOT APPLICABLE

SECTION 6 – ACCIDENTAL RELEASE MEASURES

These products are solid aluminium sheets and plates, with no spill or leak hazards.

Put on appropriate personal protective equipment (see section 8).

PERSON-RELATED SAFETY PRECAUTIONS：Put on appropriate personal protective equipment (see section 8).

ENVIRONMENTAL PRECAUTIONS：

Collect scrap for recycling. (Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.) Ensure adequate ventilation.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP：

Sweep or vacuum up and place in an appropriate closed container. Avoid generating dust.

SECTION 7 – HANDLING AND STORAGE

HANDLING PROCEDURES：

Ensure good ventilation and exhaust at the workplace. In the case of operations generating dust, avoid excessive generation of dust or prolonged contact with skin and eyes.

STORAGE REQUIREMENTS：Tightly closed. In a cool, dry location. Remelting of return material for re-use, make certain no water or moisture is present in cavities or on external surfaces.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS：

If ventilation is used to convey aluminum dust, generated by grinding, sawing, etc., special ventilation procedures may be necessary to avoid explosion hazards**.**

PERSONAL PROTECTIVE EQUIPMENT：

GLOVES：As needed.

EYEWEAR：Safety glasses, goggles, face shield, or welding helmet, etc., as needed.

RESPIRATORY：Use NIOSH/MSHA-approved respirator for dusts/fume/mist, if TLVs or PELs are exceeded.

FOOTWEAR：Safety shoes, as needed.

CLOTHING：Appropriate protective work clothing.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE：Solid	FLASHPOINT：N/A
APPEARANCE/ODOR：Odorless, silvery gray color	VAPOR PRESSURE：N/A
ODOR THRESHOLD：N/A	VAPOR DENSITY：N/A
pH：N/A	EVAPORATION RATE：N/A
SPECIFIC GRAVITY：2.5-2.9 g/cm^3	COEFFICIENT OF WATER/OIL DIST：N/A
MELTING POINT：568℃-660℃	SOLUBILITY IN WATER：N/A
BOILING POINT：N/A	AUTOIGNITION TEMPERATURE：N/A

SECTION 10 – CHEMICAL STABILITY AND REACTIVITY INFORMATION

CHEMICAL STABILITY：Stable

REACTIVITY AND UNDER WHAT CONDITIONS：

If remelted, moisture present in cavities or on external surfaces may cause an explosion. Bulk aluminum dust when damp may heat spontaneously.

INCOMPATIBILITY TO OTHER SUBSTANCES：YES

For aluminum fines: water, Strong acids, strong bases, strong oxidizers, metal oxides, and halogenated compounds.

HAZARDOUS DECOMPOSITION PRODUCTS：

Finely divided aluminum reacts with water, some acids, and alkalis to produce hydrogen gas. Aluminum in contact with halogenated compounds can produce violent reactions and/or explosions.

SECTION 11 – TOXICOLOGICAL INFORMATION

ROUTE(S) OF ENTRY

INHALATION：YES

INGESTION：NO

SKIN ABSORPTION：NO

EYE CONTACT：YES

EFFECTS OF ACUTE EXPOSURE：

Aluminum is considered a nuisance particulate. Welding or machining aluminum may generate dusts and fumes which may cause eye, nose, and throat irritation. Generally, if exposures for aluminum oxide are kept below the exposure limit, the alloy components should not present a health risk. Ozone may be emitted as a by-product during welding or plasma arc cutting. Exposure to ozone may produce irritation to eyes, nose, and throat. Welding and/or plasma arc cutting of aluminum alloys generates ultraviolet radiation which can cause skin burns or welders flash to unprotected skin and eyes.

EFFECTS OF CHRONIC EXPOSURE：

Prolonged exposure to ozone may result in nausea, headache, and pulmonary damage. Chromium and certain of its compounds are classified as carcinogens in the latest Annual Report on Carcinogens as published by the National Toxicology Program (NTP) and by the International Agency for Research on Cancer (IARC).

LD50 OF PRODUCT：	LC50 OF PRODUCT：
Aluminum：>5000 mg/kg (Aluminum oxide / Orl-Rat)	Aluminum：Not known
Silicon：3160 mg/kg (Orl-Rat)	Silicon：Not known
Iron：984 mg/kg (Orl-Rat)	Iron：Not known
Copper：3.5 mg/kg (Orl-Rat)	Copper：Not known
Manganese：>9000 mg/kg (Orl-Rat)	Manganese：Not known
Magnesium：230 mg/kg (Orl-Rat)	Magnesium：Not known

IRRITANCY OF PRODUCT：Mild

EXPOSURE LIMITS OF PRODUCT：Use levels for aluminum shown in Section 2.

SENSITIZATION TO PRODUCT：None known

SYNERGISTIC MATERIALS：None known

CARCINOGENICITY：NTP, IARC, ACGIH

REPRODUCTIVE EFFECTS：None known

TERATOGENICITY：None known

MUTAGENICITY：None known

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE：

Pre-existing upper respiratory and lung diseases such as, but not limited to, Bronchitis, Emphysema, and Asthma.

SECTION 12 – ECOLOGICAL INFORMATION

TOXICITY：Aluminum can be recycled. Aluminum alloys under solid form, such as ingots, coil or sheets, do not present any hazard for the environment because metals are not biologically available.

BIOACCUMULATIVE POTENTIAL：None available.

MOBILITY IN SOIL：None available.

OTHER ADVERSE EFFECTS：*None availab*le.

SECTION 13 – DISPOSAL INFORMATION

WASTE DISPOSAL：

For disposal of this material as a waste, act in accordance with all applicable federal, state, and local waste management regulations.

SECTION 14 – TRANSPORTATION INFORMATION

SPECIAL SHIPPING INFORMATION：None known

SECTION 15 – REGULATORY INFORMATION

SARA

This product contains a chemical or chemicals subject to the reporting requirements of **Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.**

SECTION 16 – OTHER INFORMATION

All statements, technical information and recommendations contained herein are based on tests and data which this Company believes to be currently reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this Company or others covering any process, composition of matter or use. Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.

物質安全資料表

一、物品與廠商資料

物品名稱(英文)： BLACK		
物品名稱(中文)：酸性 BLACK		
物質或混合物的相關已知用途或避免使用狀況 物質建議用途：染色工業 請依現行法律所提供的化學品安全衛生及環境保護規範來運作本產品的儲存及處理。		
危害物質資訊(NFPA-HMIS):		
健康危害	1	輕度危害
易燃性	1	可燃物
化學反應性	1	若受熱會不穩定
個人防護設備	E	安全眼鏡、手套及防塵口罩
製造商或供應商名稱、地址及電話： 勝發研磨材料有限公司		

二、危害辨識資料

物質或混合物的分類：

歐盟危害分類(1999/45/EC)：

R36/37/38: 刺激眼部、呼吸系統及皮膚

GHS 分類：

腐蝕/刺激皮膚物質 第 2 級

嚴重損傷/刺激眼睛物質 第 2 級

特定標的器官毒性物質-單一暴露 第 3 級

標示要項：

歐盟危害分類 (1999/45/EC) ：



Xn:危害

歐盟物質危害警語：

R36/37/38 刺激眼部、呼吸系統及皮膚

GHS 符號內容：

警示詞：警告

符號 / 危害警告訊息



H315 導致皮膚刺激

H335 可能導致呼吸作用的刺激

無 H320 導致眼睛刺激

危害防範措施：

P103 使用前請先閱讀標示

P261 避免吸入灰塵\濃煙\氣體\水氣\水蒸氣\噴霧

P264 操作後徹底清洗雙手

P271 只能在戶外或通風良好處使用

續第 2 頁

物質安全資料表

承第 1 頁

P280 穿戴防護手套\防護衣\眼睛防護器具\臉部防護器具

防護建議事項：

P302+P352 如果沾染在皮膚上：以大量肥皂和水清洗

P305+P351+P338 如果進到眼睛裡：用水持續清洗數分鐘，如果戴隱形眼鏡且可方便取出則將其取出，並持續沖洗

P332+P313 如果發生皮膚刺激：求醫治療或諮詢

P337+P313 如果眼睛刺激持續：求醫治療或諮詢

P362 脫除遭污染的衣物，再次使用前須先清洗

儲存建議事項：

P403+P233 儲存在通風良好處，保持容器緊閉

P405 儲存在上鎖的地方

其他事項：

無

三、成分辨識資料

化學性質：酸性偶氮染料

組成物	CAS/ EC/ REACH No.	歐盟法規 (67/548/EEC)	GHS 法規	重量百分比
Acid Black 1	CAS No. 1064-48-8 EC No. 213-903-1 REACH No. 05-2114277476-37-0000	Xn R36/37/38	皮膚刺激 2; H315 眼睛刺激 2B; H320 特定器官單一暴露. 3; H335	55-60

四、急救措施

不同暴露途徑之急救方法：

吸　　入：1.移走污染源，將患者移至新鮮空氣處。2.若呼吸困難，最好在醫生指示下由受過訓練的人供給氧氣。3.若患者停止呼吸，立即由受訓過的人員施予人工呼吸。4.立刻就醫。

皮膚接觸：1.用緩和流動的溫水沖洗患部 15 分鐘以上。2.沖洗時脫掉污染的衣物、鞋子及飾品。3.若污染範圍很大或沖洗後仍覺不適，立刻就醫。

眼睛接觸：1.立即撐開眼皮，用清水沖洗 20 分鐘以上。2.若沖洗後仍有刺激感，再反覆沖洗。3.立即就醫。

食　　入：1.以水清洗患者口腔，若意識清醒，給患者喝大量水或牛奶。2.將患者送至緊急之醫療單位。

最重要症狀及危害效應：無相關資訊

對急救人員之防護：戴防滲手套，以免接觸污染物。

對醫師之提示：視患者主要症狀，給予適當醫療。

五、滅火措施

適用滅火劑：水、泡沫或乾粉滅火。

滅火時可能遭遇之特殊危害：無相關資訊

特殊滅火程序：1、滅火人員應穿著保護設備及正壓式全面型供氣式呼吸防護具。2、將暴露容器從火場移走，但須無危險顧慮。3、用水將暴露火源容器冷卻，但水不可進入容器內部。

消防人員之特殊防護設備：消防人員必須著耐化學的防護衣，並佩帶正壓空氣呼吸器(自攜式呼吸防護具)

六、洩漏處理方法

個人應注意事項：1、穿戴全身防護衣物。2、關閉所有發火源，區域內無火焰及吸煙。3、以水沖洗外洩區。4、

續第 3 頁

物質安全資料表

承第 2 頁

請勿吸入粉塵。
環境注意事項：1.對該區域進行通風換氣。2.撲滅或去除所有發火源。3.通知政府安全衛生與環保單位。4.避免外洩物進入下水道或密閉的空間。
清理方法：1、回收。2、廢水處理。3、交由合格廢棄物清理商依現行法規處理。

七、安全處置與儲存方法

處置： 1.在通風良好處使用。 2.分裝時小心不要從容器中噴灑出來。 3.操作時著個人防護具。
儲存： 1.儲存在陰涼、乾燥、通風良好以及陽光無法直接照射處。 2.定期檢查儲存容器是否有破損或溢漏。

八、暴露預防措施

工程控制：無相關資訊
控制參數： ˙八小時日時量平均容許濃度/短時間時量平均容許濃度/最高容許濃度：無相關資訊 ˙生物指標：無相關資訊
個人防護設備：
˙呼吸防護：通風良好及個人防護裝備活性碳口罩是必需的。 ˙手部防護：手套需可耐酸鹼、腐蝕。 ˙眼睛防護：穿戴化學安全護目鏡。 ˙皮膚及身體防護：穿著防護衣。 
衛生措施：1、上工前，換工作服，著個人防護裝備。2、作業完畢，清洗防護裝備，並保持在堪用狀態，濾毒罐隨時更新，手套注意是否破損。3、受污衣物，須立刻除去，並以清潔劑清洗，洗淨後才可再穿戴，且須告知洗衣人員污染物之危害性。4、必要時，隨時以清潔劑洗手。5、工作場所嚴禁抽煙或飲食。6、離開工作場所下工前，須依規定全身淋浴後，更換乾淨衣服，換下衣物，須清洗乾淨後才能再穿。7、維持作業場所清潔。

九、物理及化學性質

物質狀態： 粉末	顏色：藍黑色
pH 值：8.8	氣味：無
分解溫度：無相關資訊	沸點/熔點範圍：無相關資訊
自燃溫度：無相關資訊	閃火點：無相關資訊
蒸氣壓：無相關資訊	爆炸界限：無相關資訊
比重：無相關資訊	蒸氣密度：無相關資訊
假比重：830 kg/m3	溶解度： 40 g/l

十、安定性及反應性

安定性：正常的溫度及壓力下安定。
特殊狀況下可能之危害反應：無相關資訊.
應避免之狀況：受熱、火焰、其它發火源。
應避免之物質：強氧化劑、強酸及強鹼。

續第 4 頁

物質安全資料表

承第 3 頁

危害分解物：無相關資訊

十一、毒性資料

急毒性：
LD50(大鼠、口食)： 無相關資訊
LC50：(96hr) >180 mg/L

皮膚刺激：刺激

眼睛刺激：刺激

慢毒性或長期毒性：尚無資料顯示其具有危害性。

特殊效應：無相關資訊

十二、生態資料

其他影響生態資料：

COD 值：	568 mg/l
AOX：	廢水排放量：低於 0.2ppm
	污泥：最大值 0.5ppm
TOC：	42.7 %
VOC：	無 VOC
重金屬：	皆低於 ETAD 規範檢測極限以下。
生物降解性	無相關資訊

十三、廢棄處置方法

廢棄處置方法：
1、回收。
2、廢水處理。
3、交由合格廢棄物清理商依現行法規處理。

十四、運送資料

路運運輸規範：	無相關規定
河川運輸規範：	無相關規定
海運運輸規範：	無相關規定
空運運輸規範：	無相關規定
備　　註：	本產品屬一般化學物品，並無特殊運送規定。
其他資訊：	詳細資料可參考 1.道路交通安全規則第 84 條 2.船舶危險品裝載細則 3.台灣鐵路局危險品裝卸運輸實施細則

十五、法規資料

本國適用法規：
勞工安全衛生設施規則、事業廢棄物貯存清除處理方法及設施標準、危險物及有害物通識規則、道路交通安全規則。

美國法規：
TSCA INVENTORY STATUS: 有登記
TSCA 12(b) EXPORT NOTIFICATION: 無
CERCLA SECTION 103 (40CFR302.4): 無
SARA SECTION 302 (40CFR355.30): 無

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物質安全資料表

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SARA SECTION 304 (40CFR355.40): 無
SARA SECTION 313 (40CFR372.65): 無
OSHA PROCESS SAFETY (29CFR1910.119): 無
STATE REGULATIONS:
California Proposition 65: 無
歐盟法規：
REACH 預註冊:有登記
化學安全評估：
是否已遞交化學安全評估(歐盟): 無

十六、其他資料

參考文獻	1. Material Safety Data，Sigma Chemical Co.光碟。 2. MSDS-OHS，STN 資料庫。 3. 危害化學物質中文資料庫，環保署。	
MSDS 最後修改資訊	1.更新第 欄與第十五欄呈現的方式。 2.第十五欄增加化學安全評估資訊。	
製表單位	名稱： 勝發研磨材料有限公司	
	地址/電話：	
製 表 人	職稱：工程師	姓名(簽章)：徐彩華
備註	上述資料由公開的資料庫及已知的經驗整理而得，但錯誤恐仍難免，故各項數據與資料僅供參考，且不代表何保證。	

標簽上辨別危害之成份：
Acid Black 1
危害警語：
R36/37/38 刺激眼部、呼吸系統及皮膚
安全警語：
S22 不要吸入微塵
S26 接觸眼睛後立即用大量清水沖洗並求醫
S36 穿著適合的防護服
危害警告訊息：
H315 導致皮膚刺激
H320 導致眼睛刺激
H335 可能導致呼吸作用的刺激

測試報告
Test Report

號碼(No.): ETR24100459　　日期(Date): 09-Jan-2024　　

三利金屬有限公司 (SAN LI METAL CO., LTD.)
新北市三重區光復路二段141號 (NO. 141, SEC. 2, KUANG FU ROAD, SAN CHUNG DISTRICT, NEW TAIPEI CITY, TAIWAN)

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

送樣廠商(Sample Submitted By)　：　三利金屬有限公司 (SAN LI METAL CO., LTD.)
樣品名稱(Sample Name)　：　1215MS/Y08MnS

==========

收件日(Sample Receiving Date)　：　02-Jan-2024
測試期間(Testing Period)　：　02-Jan-2024 to 09-Jan-2024

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

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

結　論(Conclusion)　：　根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚的測試結果符合RoHS 2011/65/EU Annex II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 comply with the limits as set by RoHS Directive 2011/65/EU Annex II.)

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

CHECK REPORT
PIN CODE: 9C436611

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測試報告
Test Report

三利金屬有限公司 (SAN LI METAL CO., LTD.)
新北市三重區光復路二段141號 (NO. 141, SEC. 2, KUANG FU ROAD, SAN CHUNG DISTRICT, NEW TAIPEI CITY, TAIWAN)

測試部位敘述 (Test Part Description)

No.1 : 銀色金屬 (SILVER COLORED METAL)

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	n.d.	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 (Hexavalent Chromium) Cr(VI) (#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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測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000

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. (#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.)
6. 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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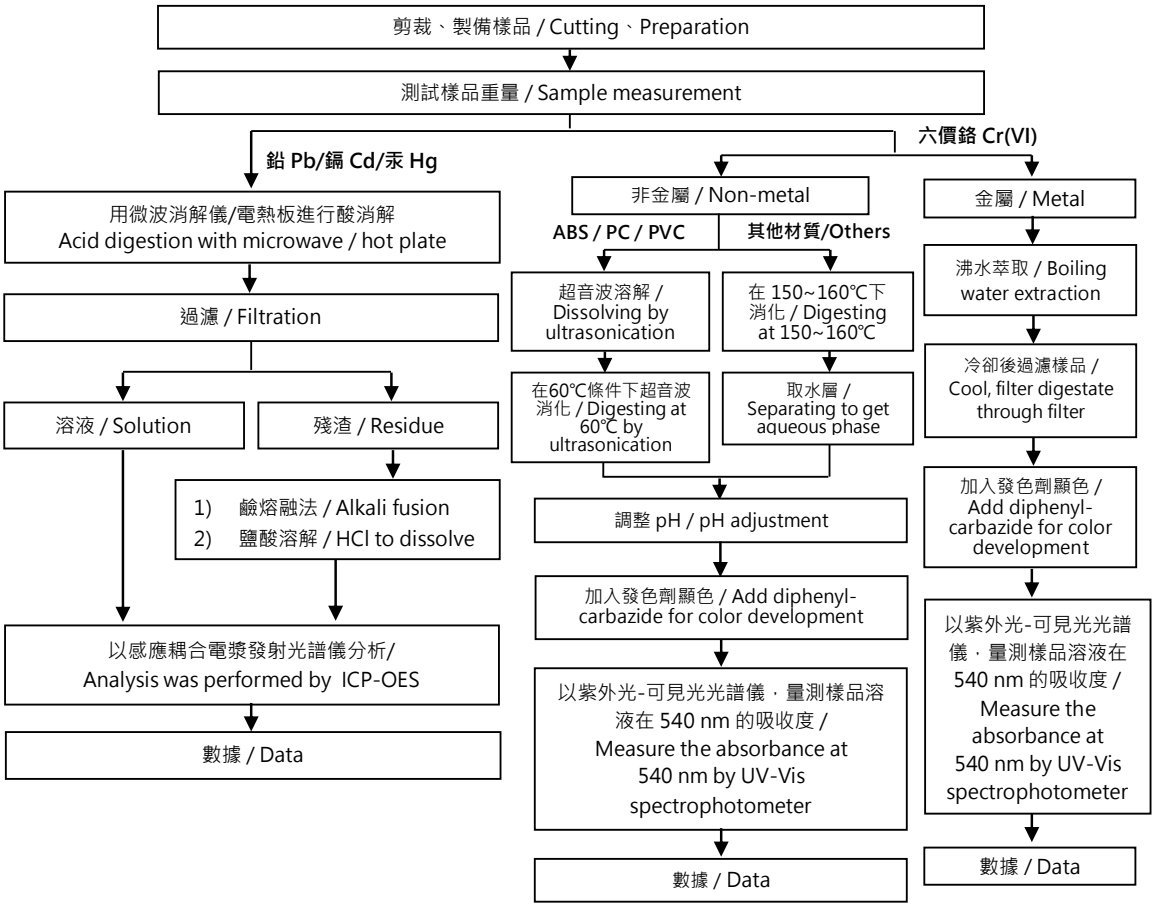
重金屬流程圖 / Analytical flow chart of heavy metal

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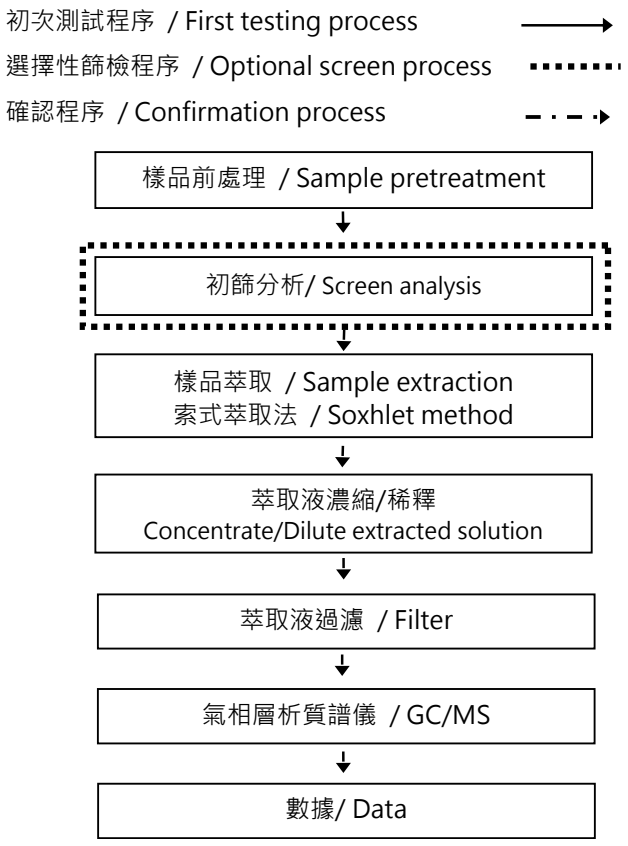
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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測試報告
Test Report

三利金屬有限公司 (SAN LI METAL CO., LTD.)
新北市三重區光復路二段141號 (NO. 141, SEC. 2, KUANG FU ROAD, SAN CHUNG DISTRICT, NEW TAIPEI CITY, TAIWAN)

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

ETR24100459



** 報告結尾 (End of Report) **

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物 質 安 全 資 料 表

一、物品與廠商資料

物品名稱：碳鋼（CARBON-STEEL）	
物品編號：1215MS	
供應商名稱：三利金屬有限公司	地址：新北市三重區光復路二段 141 號
緊急聯絡電話：（02）2995-9192	傳真電話：（02）2995-8864

二、成分辨識資料

純物質：鐵

中英文名稱：碳鋼（CARBON STEEL）	
物質成分（成分百分比）：	
Fe（鐵）：	98.147
C（碳）：	0.1
Si（矽）：	0.03
Mn（錳）：	1.26
P（磷）：	0.067
S（硫）：	0.37
N（氮）：	0.01
Pb（鉛）：	0.01
Al（鋁）：	0.006

混合物

化學性質		
危害物質成分之中英文名稱	濃度或濃度範圍（PPM）	危害物質分類及圖式
六價鉻 Hexavalent Chromium Cr（VI）	N/A	雜質
鎘 Cadmium（Cd）	N/A	雜質
汞 Mercury（Hg）	N/A	雜質
鉛 Lead（Pb）	N/A	雜質

三、危害辨識資料

最重要危害效應	健康危害效應： 1、常溫下不易分解，鐵在固體下對人體不會有危害，離子狀態下不會污染環境，因地表岩石幾乎都含鐵。 2、碳鋼內的雜質在固體狀態不會分解，污染環境。
	環境影響：不可隨便丟棄，無法在自然條件下分解，易生鏽氧化污染環境。
	物理性及化學性危害：固體，可溶於強酸、強鹼後污染環境。
	特殊危害：目前沒有發現有特殊危害。
主要症狀：無。	
物品危害分類：目前沒有分類。	

四、急救措施

不同暴露途徑之急救方法：

- 吸入：常溫固態不會吸入。
- 皮膚接觸：無影響，小心鐵屑劃傷皮膚。
- 眼睛接觸：燃燒狀態下才會刺激眼睛，請立即就醫。
- 食入：立即就醫。

最重要症狀及危害效應：隨便丟棄會對環境排水系統、河流及海洋造成環境污染，請務必做好回收。

對急救人員之防護：燃燒狀態下，急救人員要穿著高溫防護服裝。

對醫師之提示：受傷立即包紮手術。

五、滅火措施

適用滅火劑：泡沫、CO2、化學乾粉、沙土、噴水。

滅火時可能遭遇之特殊危害：燙傷。

特殊滅火程序：消防人員應穿著防高溫服，選用滅火劑滅火。

消防人員之特殊防護設備：防護服。

六、洩漏處理方法

個人應注意事項：常溫下不易分解，在強酸或高溫下會分解。

環境注意事項：不可隨意丟棄，應通知環保人員處理。

清理方法：回收再處理。

七、安全處置與儲存方法

處置：

1、於常溫乾燥、通風的地方保存，可重複回收使用。

2、不可隨便丟棄，無法在自然環境中被生物分解。

3、容易氧化生鏽。

儲存：於常溫乾燥、通風的地方保存，防止氧化或受強酸、強鹼腐蝕。

八、暴露預防措施

工程控制：

控制參數：八小時日時量平均容許濃度／短時間時量平均容許濃度／最高容許濃度：固體不揮發。

個人防護設備：

- 呼吸防護：常溫下不用防護。
- 手部防護：常溫下不用防護，但工作時需佩戴手套避免受金屬割傷。
- 眼睛防護：常溫下不用防護。
- 皮膚及身體防護：常溫下不用防護，但足部需穿著安全鞋避免不慎受重物壓傷。

九、物理及化學性質

物質狀態：固體	形狀：可隨意成型
顏色：銀灰色	氣味：無味
分解溫度：1,538℃	
密度：7.89g/cm^3	

十、安定性及反應性

安定性：安定
特殊狀況下可能之危害反應：燃燒時可能會產生灼熱的光。
應避免之狀況：避免高溫焚化。
應避免之物質：強酸、強鹼。
危害分解物：在強酸溶解的狀態下，有害物質才會分解。

十一、毒性資料

急毒性：沒有證據顯示有毒。
局部效應：沒有證據顯示有毒。
致敏感性：沒有證據顯示有毒，不會對人體有敏感性。
慢毒性或長期毒性：沒有證據顯示有毒。

十二、生態資料

可能之環境影響／環境流佈： ● 隨便丟棄會對環境排水系統、河流及海洋造成環境污染，請務必做好回收。 ● 愈強酸、強鹼可發生氧化或分解。 ● 鉛離子對水中生物有毒。 ● 鉛離子生物蓄積性，以貝類為顯著。

十三、廢棄處置方法

廢棄處置方法：集中回收再利用

十四、運送資料

國際運送規定： 1、包裝運輸，不可暴露在空氣中，以防氧化。 2、不可和強酸、強鹼混放在一起。
特殊運送方法及注意事項：防止包裝破損。

十五、法規資料

適用法規：勞工安全衛生設施規則

十六、其它資料

參考文獻	CHEMINFO 資料庫，CCINFO 光碟，2000-3 RETCS 資料庫，TOMES PLUS 光碟，VOL.45，2000 HSDB 資料庫，TOMES PLUS 光碟，VOL.45，2000 Material Safety Date Sheets，Genium Publishing Corporation，1997
製表單位	名稱：三利金屬有限公司
	地址：新北市三重區光復路二段 141 號
製 表 人	劉建華
製表日期	2020.01.15

測試報告
Test Report

號碼(No.): ETR23C04909V01　　日期(Date): 03-Jan-2024　　

柯一有限公司 (KO-ILAN' S CO., LTD.)
桃園市桃園區大連二街4號 (NO.4, DALIAN 2ND ST., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN(R.O.C))

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)　：　柯一有限公司 (KO-ILAN' S CO., LTD.)
樣品名稱(Sample Name)　：　HYPRO TRI BLUE Zinc (三價鉻藍鋅鈍化劑)

==========

收件日(Sample Receiving Date)　：　26-Dec-2023
測試期間(Testing Period)　：　26-Dec-2023 to 03-Jan-2024

測試需求(Test Requested)　：　依據客戶指定，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, to test Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).)

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

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

PIN CODE: B4A88B16

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測試報告
Test Report

柯一有限公司 (KO-ILAN' S CO., LTD.)
桃園市桃園區大連二街4號 (NO.4, DALIAN 2ND ST., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN(R.O.C))

測試部位敘述 (Test Part Description)

No.1 : 深綠色液體 (DK. GREEN LIQUID)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
鎘 (Cd) (Cadmium (Cd))	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
鉛 (Pb) (Lead (Pb))	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.
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.
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI)) (CAS No.: 18540-29-9)	參考US EPA 7196A: 1992，以紫外光-可見光分光光度計分析。(With reference to US EPA 7196A: 1992, analysis was performed by UV-VIS.)	mg/kg	2	n.d.
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.

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Test Report

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桃園市桃園區大連二街4號 (NO.4, DALIAN 2ND ST., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN(R.O.C))

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP))	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP))		mg/kg	50	n.d.
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP))		mg/kg	50	n.d.
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP))		mg/kg	50	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. 本測試報告取代ETR23C04909，原測試報告作廢。(This test report supersedes the previous document bearing the report number ETR23C04909, the report ETR23C04909 was voided.)

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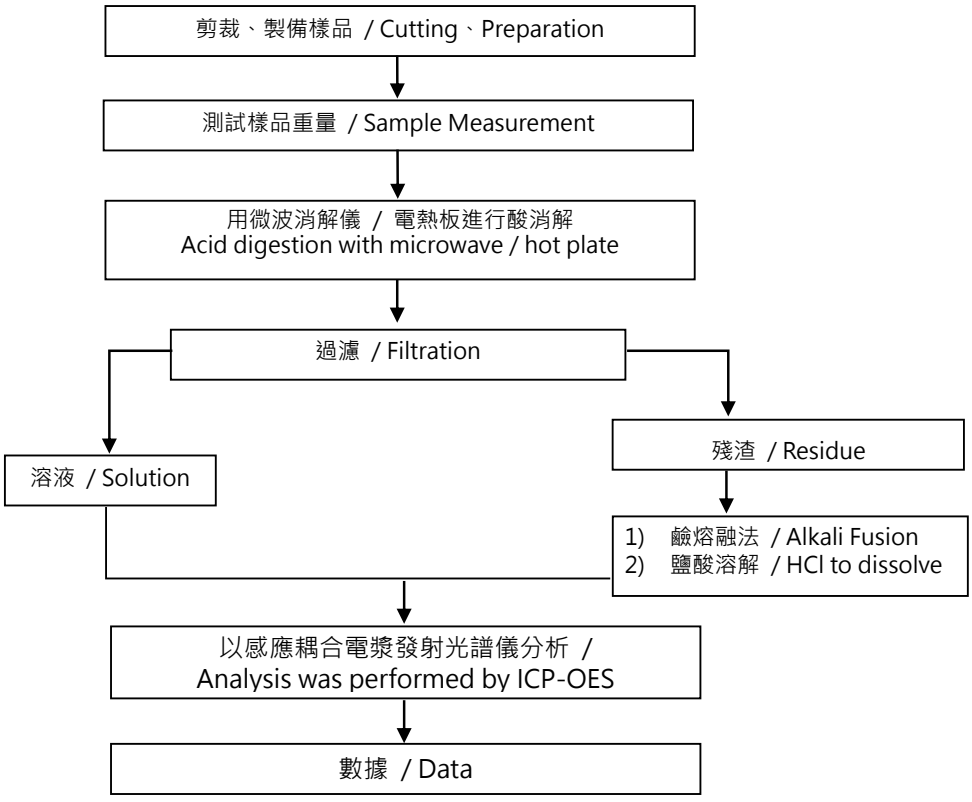
桃園市桃園區大連二街4號 (NO.4, DALIAN 2ND ST., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN(R.O.C))

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.



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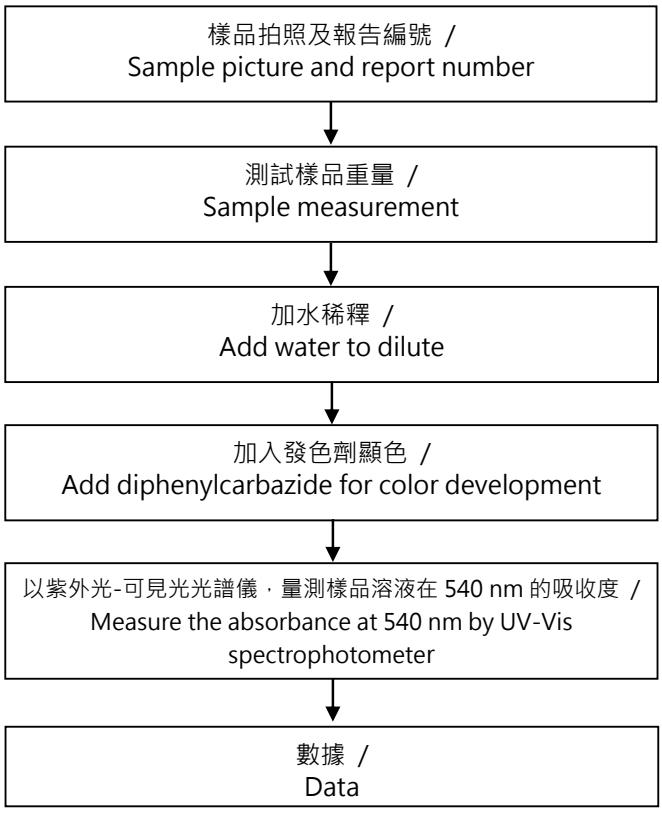
六價鉻分析流程圖 / Analytical flow chart - Hexavalent chromium Cr(VI)

Test method: US EPA 7196A



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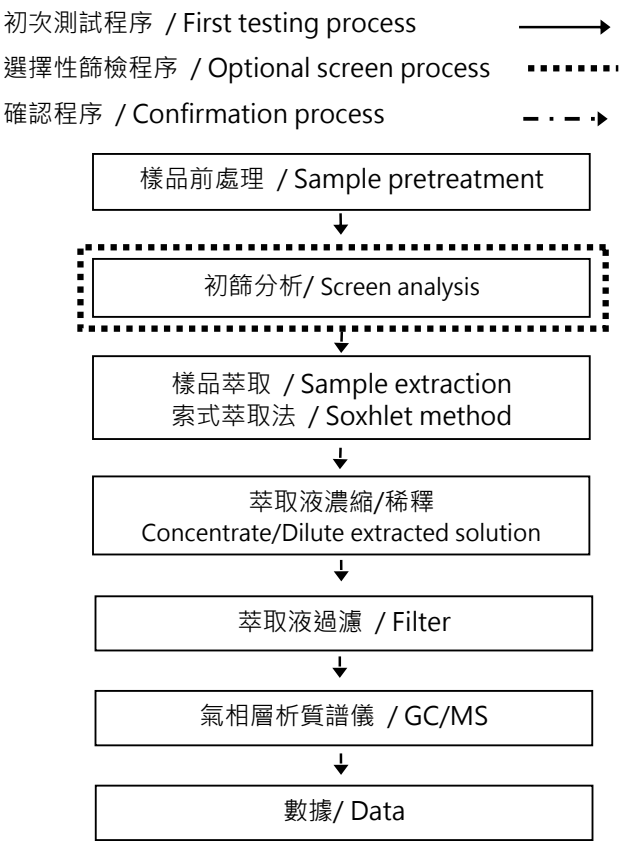
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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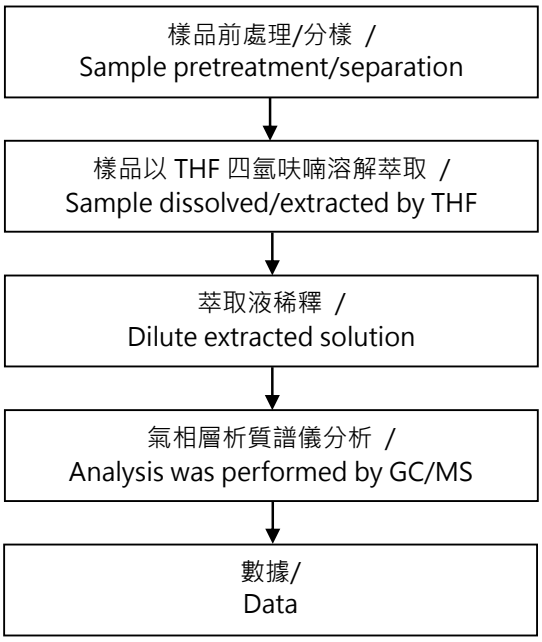
柯一有限公司 (KO-ILAN' S CO., LTD.)
桃園市桃園區大連二街4號 (NO.4, DALIAN 2ND ST., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN(R.O.C))

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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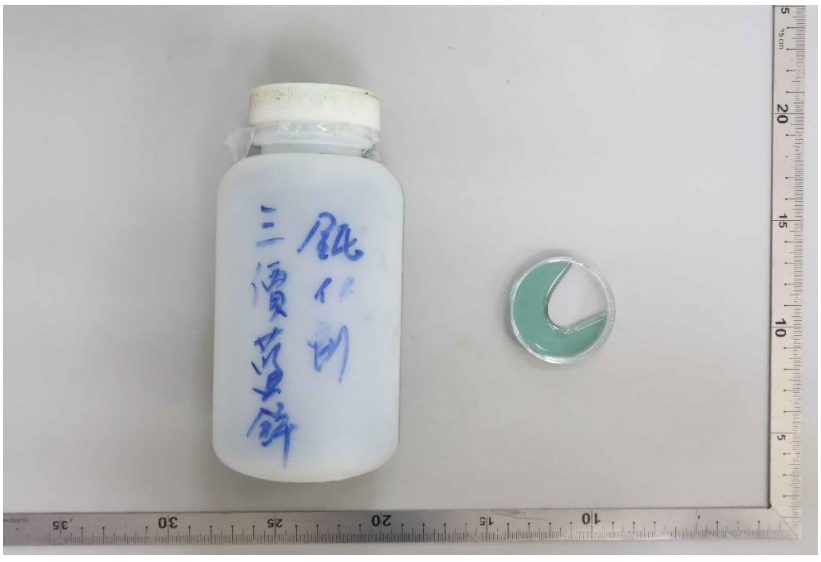
測試報告
Test Report

柯一有限公司 (KO-ILAN' S CO., LTD.)
桃園市桃園區大連二街4號 (NO.4, DALIAN 2ND ST., TAOYUAN DIST., TAOYUAN CITY 330, TAIWAN(R.O.C))

*** 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.)

ETR23C04909



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測試報告

報告編號: HTH24900110　　報告日期: 2024/10/09　　

勵龍企業有限公司
新北市三重區仁華街80巷8弄2號

以下測試樣品係由申請廠商所提供及確認：

樣品名稱	:	1215 MS環保素材電鍍環保鋅
樣品型號	:	鉚釘成品

==========

收件日	:	2024/09/30
測試期間	:	2024/09/30 to 2024/10/09

測試需求　：　依據客戶要求進行測試，測試項目請參閱測試結果表格。

測試結果　：　請見下一頁。

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

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測試報告

勵龍企業有限公司
新北市三重區仁華街80巷8弄2號

測試部位敘述

No.1　　:　銀色金屬

測試結果

測試項目	測試方法	單位	RL	結果
				No.1
氟 (F) (CAS No.14762-94-8)	參考BS EN 14582: 2016，以離子層析儀分析。	mg/kg	50	n.d.
氯 (Cl) (CAS No.22537-15-1)		mg/kg	50	n.d.
溴 (Br) (CAS No.10097-32-2)		mg/kg	50	n.d.
碘 (I) (CAS No.14362-44-8)		mg/kg	50	n.d.

備註：

1. mg/kg = ppm；0.1% = 1000 ppm
2. RL = 報告極限值
3. n.d. = Not Detected (未檢出) = 小於 RL
4. 本報告不得分離或擷錄使用。

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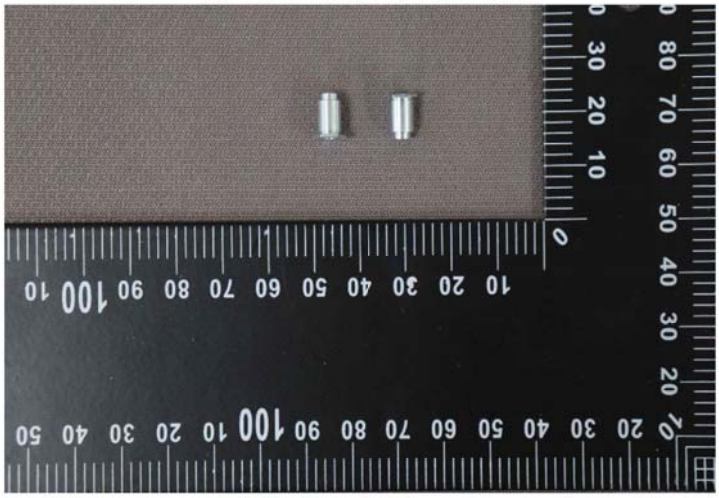
* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。 *

HTH24900110



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安全資料表

一、化學品與廠商資料

化學品名稱：鋅
建議用途及限制使用：使用於電鍍、熔鑄…等
製造商、輸入者或供應商名稱：柯一有限公司 製造商或供應商地址：330 桃園縣桃園市桃園區大連二街4號1樓 製造商或供應商電話：03-316-3256
緊急聯絡電話／傳真電話：03-316-3256

二、危害辨識資料

化學品危害分類：
標示內容：  象徵符號： 警示語：警告 危害警告訊息：－ 危害防範措施：置於通風良好處
其他危害：

三、成分辨識資料

純物質：

中英文名稱：鋅(ZINC)
同義名稱：無
化學文摘社登記號碼（CAS No）：7440-66-6
危害成分（成分百分比）：98.5%以上

混合物：

化學性質：		
危害物質成分之中英文名稱	化學文摘社登記號碼（CAS No.）	濃度或濃度範圍（成分百分比）
ZINC	7440-66-6	>99.995%

四、急救措施

不同暴露途徑之急救方法： 吸　入：遠離鋅塵。鋅粉塵可能有刺激性 皮膚接觸：鋅邊極為銳利，處置不當易割傷 眼睛接觸：鋅粉塵可能對眼睛有刺激性 食　入：不適用，不適合用藉由此途徑暴露

安全資料表

最重要症狀及危害效應：無嚴重之效應產生
對急救人員之防護：一
對醫師之提示：

五、滅火措施

適用滅火劑：一
滅火時可能遭遇之特殊危害： 可燃性不易燃。當加熱分解時可能演變氧化鋅。非易燃。無火災或爆炸危險。
特殊滅火程序： 火災和爆炸滅火不易燃。
消防人員之特殊防護裝備：

六、洩漏處理方法

個人應注意事項：應依建議穿著個人防護具
環境注意事項：鋅為固體狀，不需考慮洩漏溢出或釋出等因素
清理方法：可以用清掃或真空吸塵方式清理以避免粉塵

七、安全處置與儲存方法

處置：鋅之鋅邊極為銳利，處理時建議穿著防護手套。
儲存：儲存環境建議保持相對濕度60%以下，溫度30℃以下避免氧化，但若儲存場所不符建議條件並無影響安全之疑慮。

八、暴露預防措施

工程控制：一般排氣裝置
控制參數： 八小時日時量平均容許濃度（PEL－TWA）： 短時間時量平均容許濃度（PEL－STEL）： 最高容許濃度（PEL－Ceiling）： 生物指標（BEI）：
個人防護設備： 呼吸防護：如果有粉塵，請著符合國家標準之防護呼吸具。 手部防護：鋅邊緣相當銳利，作業時需戴綿紗或皮革手套，避免被割傷。 眼睛防護：安全護目鏡，護面罩，洗眼設備 皮膚及身體防護：乾淨衣服或著防護衣。
衛生措施： 工作場所嚴禁抽煙或飲食。維持良好之內務管理。

九、物理及化學性質

物質狀態：金屬	形狀：固體

安全資料表

顏色：	氣味：無味
pH 值：無	沸點/沸點範圍：
易燃性（固體、氣體）:	閃火點：不適用℉不適用℃
分解溫度：	測試方法：
自燃溫度：不適用	爆炸界限：
熔點：	蒸氣密度：－
密度：8.908@20℃(水=1)	溶解度：不可溶解的

十、安定性及反應性

安定性：正常狀況下具安定性。
特殊狀況下可能之危害反應：無資料
應避免之狀況：無資料
應避免之物質（或不相容物）：
危害分解物：無

十一、毒性資料

進入人體之途徑： 急毒性：一
症狀：咳嗽、呼吸急促、呼吸困難、胸緊、金屬燻煙熱、寒冷、發熱、感冒症狀。
慢毒性或長期毒性：一

十二、生態資料

生態毒性：LC50(魚類）：一 EC50(水生無脊椎動物）：－ 生物濃縮係數(BCF）：－ 持久性及降解性：－ 生物蓄積性：－ 土壤中之流動性：－ 其他不良效應：防止缺染下水道

十三、廢棄處置方法

廢棄處置方法：可完全回收

十四、運送資料

聯合國編號：無
聯合國運輸名稱：無
運輸危害分類：無

安全資料表

包裝類別：－
海洋污染物（是／否）：無
特殊運送方法及注意事項：－

十五、法規資料

適用法規：

十六、其他資料

參考文獻	
製表單位	名稱：柯一有限公司
	地址：330 桃園縣桃園市桃園區大連二街4號1樓 電話：03-316-3256
製表日期	112.06.05
備 註	上述資料中符號”－”代表目前查無相關資料，而符號”/”代表此欄位對該物質並不適用。

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