

**Test Report** 

號碼(No.): ETR23404343

日期(Date): 26-Apr-2023

頁數(Page): 1 of 16

華新科技股份有限公司 (WALSIN TECHNOLOGY CORPORATION)

桃園市楊梅區高獅路566-1號 (NO. 566-1, KAO-SHI ROAD, YANG-MEI, TAO YUAN 32642, 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) : 華新科技股份有限公司 (WALSIN TECHNOLOGY CORPORATION)

樣品名稱(Sample Name) : MLCC PRODUCTS

樣品型號(Style/Item No.) : Y5V

\_\_\_\_\_\_

收件日(Sample Receiving Date) : 19-Apr-2023

測試期間(Testing Period) : 19-Apr-2023 to 26-Apr-2023

測試需求(Test Requested) : 依據客戶要求進行測試,測試項目請參閱測試結果表格。(Testing item(s) is/are

specified by client. Please refer to result table for testing item(s).)

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





PIN CODE: 4EB2E105



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#### 測試部位敘述 (Test Part Description)

No.1 : 整體混測 (MIXED ALL PARTS)

No.2 : 0603F104Z500KXSL / 111213001513

#### 測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL 結果 (Resu		-
, , , , , , , , , , , , , , , , , , , ,	(memor)	(01110)		No.1	No.2
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))	参考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))	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.	
六價鉻 (Hexavalent Chromium) Cr(VI) (◆)	參考IEC 62321-5: 2013, IEC 62321-7-2: 2017 · 以感應耦合電漿發射光譜儀、 紫外光-可見光分光光度計分析。(With reference to IEC 62321-5: 2013, IEC 62321-7-2: 2017, analysis was performed by ICP-OES, UV-VIS.)	mg/kg	8	n.d.	



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測試項目	測試方法	單位	MDL	結果	
(Test Items)	(Method)	(Unit)		(Res	sult)
				No.1	No.2
一溴聯苯 (Monobromobiphenyl)		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)	參考IEC 62321-6: 2015,以氣相層析儀/	mg/kg	5	n.d.	
多溴聯苯總和 (Sum of PBBs)	質譜儀分析。(With reference to IEC	mg/kg	ı	n.d.	
一溴聯苯醚 (Monobromodiphenyl ether)	62321-6: 2015, analysis was	mg/kg	5	n.d.	
二溴聯苯醚 (Dibromodiphenyl ether)	performed by GC/MS.)	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.	



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測試項目	測試方法	單位	MDL	結	果	
(Test Items)	(Method)	(Unit)		(Res	(Result)	
				No.1	No.2	
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl		mg/kg	50	n.d.		
benzyl phthalate (BBP))						
鄰苯二甲酸二丁酯 (DBP) (Dibutyl		mg/kg	50	n.d.		
phthalate (DBP))						
鄰苯二甲酸二(2-乙基己基)酯 (DEHP)		mg/kg	50	n.d.		
(Di-(2-ethylhexyl) phthalate (DEHP))						
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl		mg/kg	50	n.d.		
phthalate (DIBP))						
鄰苯二甲酸二異癸酯 (DIDP)		mg/kg	50	n.d.		
(Diisodecyl phthalate (DIDP)) (CAS						
No.: 26761-40-0, 68515-49-1)	参考IEC 62321-8: 2017·以氣相層析儀/					
鄰苯二甲酸二異壬酯 (DINP)	参考IEC 02521-0. 2017・以栽相層がI展/ 質譜儀分析。(With reference to IEC	mg/kg	50	n.d.		
(Diisononyl phthalate (DINP)) (CAS	62321-8: 2017, analysis was					
No.: 28553-12-0, 68515-48-0)	performed by GC/MS.)					
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-	performed by GC/Wis.)	mg/kg	50	n.d.		
octyl phthalate (DNOP)) (CAS No.:						
117-84-0)						
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-		mg/kg	50	n.d.		
pentyl phthalate (DNPP)) (CAS No.:						
131-18-0)						
鄰苯二甲酸二正己酯 (DNHP) (Di-n-		mg/kg	50	n.d.		
hexyl phthalate (DNHP)) (CAS No.:						
84-75-3)						
鄰苯二甲酸二正庚酯 (Di-n-heptyl		mg/kg	50	n.d.		
phthalate) (CAS No.: 3648-21-3)						



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測試項目	測試方法	單位	MDL	結	果
(Test Items)	(Method)	(Unit)		(Result)	
				No.1	No.2
六溴環十二烷及所有主要被辨別出的異	參考IEC 62321-9: 2021,以氣相層析儀/	mg/kg	20	n.d.	
構物(HBCDD) (α- HBCDD, β- HBCDD,	質譜儀分析。(With reference to IEC				
γ- HBCDD)	62321-9: 2021, analysis was				
(Hexabromocyclododecane (HBCDD)	performed by GC/MS.)				
and all major diastereoisomers					
identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ -					
HBCDD)) (CAS No.: 25637-99-4,					
3194-55-6 (134237-51-7, 134237-					
50-6, 134237-52-8))					
氟 (F) (Fluorine (F)) (CAS No.: 14762-		mg/kg	50	n.d.	
94-8)		9,9			
氯 (Cl) (Chlorine (Cl)) (CAS No.:	参考BS EN 14582: 2016,以離子層析儀	mg/kg	50	n.d.	
22537-15-1)	分析。(With reference to BS EN	3. 3			
溴 (Br) (Bromine (Br)) (CAS No.:	14582: 2016, analysis was performed	mg/kg	50	n.d.	
10097-32-2)	by IC.)	3. 3			
碘 (I) (Iodine (I)) (CAS No.: 14362-44-		mg/kg	50	n.d.	
8)		3 3			
全氟辛烷磺酸及其鹽類 (PFOS and its	參考CEN/TS 15968: 2010,以液相層析	mg/kg	0.01	n.d.	
salts) (CAS No.: 1763-23-1 and its	串聯質譜儀分析。(With reference to				
salts)	CEN/TS 15968: 2010, analysis was				
	performed by LC/MS/MS.)				
全氟辛酸及其鹽類 (PFOA and its salts)	參考CEN/TS 15968: 2010 · 以液相層析	mg/kg	0.01	n.d.	
(CAS No.: 335-67-1 and its salts)	串聯質譜儀分析。(With reference to				
	CEN/TS 15968: 2010, analysis was				
	performed by LC/MS/MS.)				
鈹 (Be) (Beryllium (Be)) (CAS No.:	參考US EPA 3052: 1996,以感應耦合電	mg/kg	2	n.d.	
7440-41-7)	漿發射光譜儀分析。(With reference to				
	US EPA 3052: 1996, analysis was				
	performed by ICP-OES.)				
銻 (Sb) (Antimony (Sb)) (CAS No.:	參考US EPA 3052: 1996,以感應耦合電	mg/kg	2	n.d.	
7440-36-0)	漿發射光譜儀分析。(With reference to				
	US EPA 3052: 1996, analysis was				
	performed by ICP-OES.)				



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桃園市楊梅區高獅路566-1號 (NO. 566-1, KAO-SHI ROAD, YANG-MEI, TAO YUAN 32642, TAIWAN, R. O. C.)

測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	
			No.1	No.2
	**	-		Negative
	(Method) 以熱裂解-氣相層析儀/質譜儀分析。	(Method) (Unit) 以熱裂解-氣相層析儀/質譜儀分析。 ** (Analysis was performed by Pyrolyzer-	(Method) (Unit) 以熱裂解-氣相層析儀/質譜儀分析。 ** - (Analysis was performed by Pyrolyzer-	(Method) (Unit) (ReNo.1 以熱裂解-氣相層析儀/質譜儀分析。 ** (Analysis was performed by Pyrolyzer-

#### 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. "---" = Not Conducted (未測試項目)
- 6. \*\*= Qualitative analysis (No Unit) 定性分析(無單位)
- 7. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
- 8. 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.

9. 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.

10. (\*):

若鉻含量小於六價鉻之方法偵測極限值,則六價鉻為n.d.,不須再測試六價鉻。

The result of Cr(VI) is "n.d." as the result of Chromium (Cr) is less than the MDL of Cr(VI), and confirmation test of Cr(VI) is not required.

若鉻含量未小於六價鉻之方法偵測極限值,需進行六價鉻測試。

If the Chromium (Cr) content is not less than the MDL of Cr(VI), confirmation test of Cr(VI) is required.

11. For No.1: 樣品的測試是基於申請人要求混合測試‧報告中的混合測試結果不代表其中個別單一材質的含量。 The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value.



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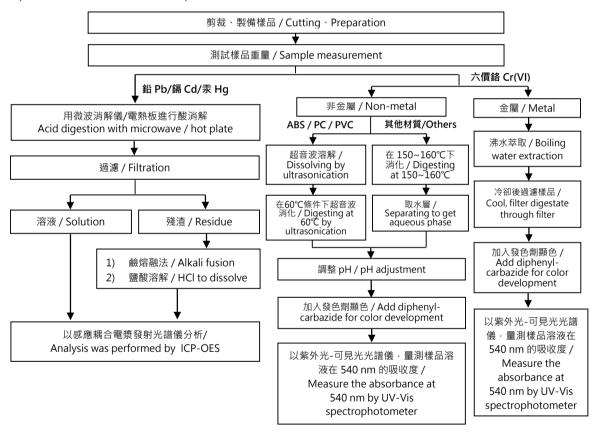
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#### 重金屬流程圖 / Analytical flow chart of heavy metal

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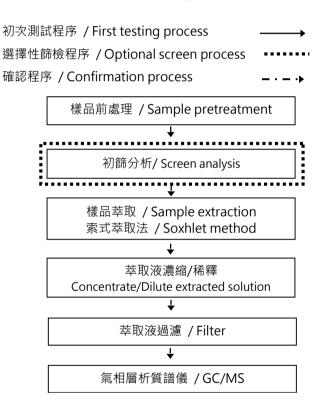
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#### 多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs





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

【測試方法/Test method: IEC 62321-8】

樣品前處理/分樣 / Sample pretreatment/separation

樣品以 THF 四氫呋喃溶解萃取 / Sample dissolved/extracted by THF

萃取液稀釋 / Dilute extracted solution

氣相層析質譜儀分析 / Analysis was performed by GC/MS



## **Test Report**

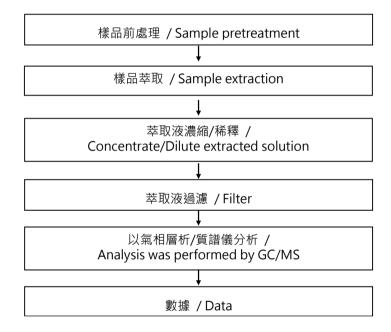
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#### 六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD





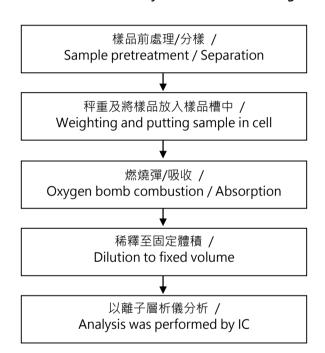
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#### 鹵素分析流程圖 / Analytical flow chart - Halogen



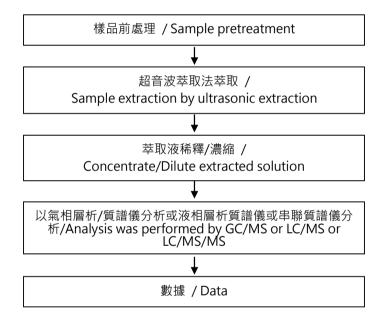


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全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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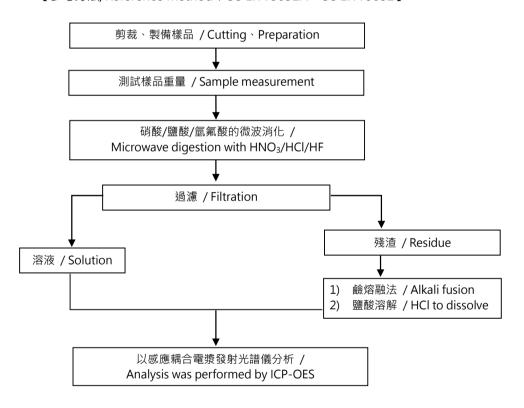
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#### 元素(含重金屬)分析流程圖 / Analytical flow chart of elements (Heavy metal included)

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.

【参考方法/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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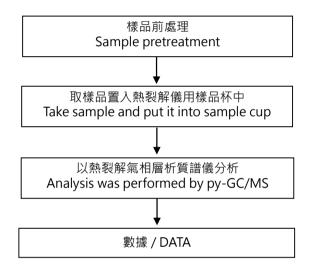
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#### 紅磷分析流程 / Analytical flow chart - Red phosphorus





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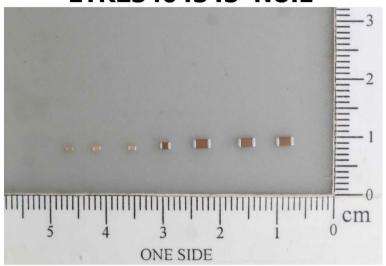
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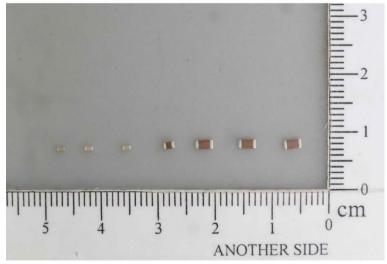
華新科技股份有限公司 (WALSIN TECHNOLOGY CORPORATION) 桃園市楊梅區高獅路566-1號 (NO. 566-1, KAO-SHI ROAD, YANG-MEI, TAO YUAN 32642, TAIWAN, R. O. C.)

\* 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.)

#### ETR23404343 NO.1



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## **Test Report**

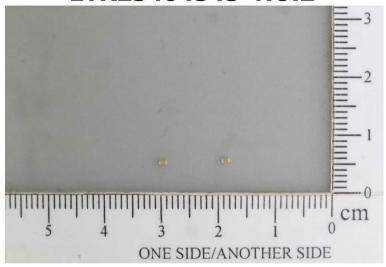
號碼(No.): ETR23404343

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#### ETR23404343 NO.2



\*\* 報告結尾 (End of Report) \*\*