



**BUREAU
VERITAS**

TEST REPORT

Report Number: (6225)308-0104
報告號碼:

November 28, 2025

Date Received: November 04, 2025
樣品收取日期: 2025年11月04日

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Applicant: First Hi-tec Enterprise Co., Ltd.
申請人: No.3, Ln. 43, Xingbang Rd., Taoyuan Dist. Taoyuan City, Taiwan (R.O.C.)
高技企業股份有限公司
桃園市桃園區興邦路 43 巷 3 號

Sample Description: PCB
樣品描述:

Item No(s): 純錫 LEAD-FREE HASL
型號:
Test Period: November 12, 2025 to November 20, 2025
測試日期: 2025年11月12日至2025年11月20日

SUMMARY OF TEST RESULTS 測試結果摘要

TEST REQUESTED 測試要求	CONCLUSION 結論	REMARK 備註
As specified by client, with reference to Annex II of RoHS Directive 2011/65/EU recasting 2002/95/EC and Directive (EU) 2015/863, Restricted substances referred to in Article 4(1) and maximum concentration values tolerated by weight in homogeneous materials 依客戶指定，參考 ROHS 2011/65/EU Annex II 及其修訂指令(EU) 2015/863 測試	DATA 數據	Test result in page 4~5 測試結果請見第 4~5 頁
Phthalates Test 鄰苯二甲酸酯測試	DATA 數據	Test result in page 6 測試結果請見第 6 頁
Perfluorooctanoic acid (PFOA) and Perfluorooctane sulphonate (PFOS) Content 全氟辛酸和全氟辛烷磺酸含量	DATA 數據	Test result in page 6 測試結果請見第 6 頁
Hexabromocyclododecane (HBCDD) 六溴環十二烷	DATA 數據	Test result in page 6 測試結果請見第 6 頁

C/N /TC/JK



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REMARK 備註

If there are questions or concerns on this report, please contact:

若有任何疑問或諮詢，請與我們聯絡：

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BRANCH

PREPARED BY : Tiffany Chin

VICO LIN
MANAGER
ANALYTICAL DEPARTMENT

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Photo of the Submitted Sample
所提交樣品的照片



Sample



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TEST RESULT 測試結果

Annex II of RoHS Directive 2011/65/EU recasting 2002/95/EC and Directive 2015/863/EU
RoHS 指令 2011/65/EU (重鑄 2002/95/EC) 附錄 II 和指令 2015/863/EU

See Analytes and their corresponding Maximum Allowable Limit in Appendix
分析物及其對應的最大允許限值 – 見附錄

Test Item(s) 測試項目	Item / Component Description(s) 項目 / 部件描述
1	Silvery/ green plastic (PCB board) / 銀色/ 綠色塑膠 (電路板)

Test Parameter 測試項目	Unit 單位	Test Method 測試方法	Result 結果	RL 報告限值
			1	
Heavy Meatal / 重金屬				
Lead [Pb] / 鉛	mg/kg	With reference to International Standard IEC 62321-5: 2013, Determined by ICP-OES.	N.D. 未檢出	2
Cadmium [Cd] / 鎘	mg/kg	參照 IEC 62321-5: 2013, 樣品經由酸消化後, 以感應耦合電漿發射光譜儀 ICP-OES 檢測。	N.D. 未檢出	2
Mercury [Hg] / 汞	mg/kg	With reference to International Standard IEC 62321-4: 2013+AMD1: 2017 CSV, Determined by ICP-OES. 參照 IEC 62321-4: 2013+ AMD1: 2017, 樣品經由酸消化後, 以感應耦合電漿發射光譜儀 ICP-OES 檢測。	N.D. 未檢出	2

Test Parameter 測試項目	Unit 單位	Test Method 測試方法	Result 結果	RL 報告限值
			1	
Chromium (VI) [Cr(VI)] / 六價鉻 (非金屬)	mg/kg	With reference to International Standard IEC 62321-7-2: 2017, Determined by UV-Vis. 參照 IEC 62321-7-2: 2017, 以紫外光-可見 光分光光度計分析。	N.D. 未檢出	8
Polybrominated Biphenyls(PBBs) / 多溴聯苯				
Bromobiphenyls / 單溴聯苯	mg/kg	With reference to International Standard IEC 62321-6: 2015, Determined by GC-MS. 參照 IEC 62321-6: 2015, 以有機溶劑萃 取, 氣相層析質譜儀分 析 (GC-MS)。	N.D. 未檢出	5
Dibromobiphenyls / 二溴聯苯	mg/kg		N.D. 未檢出	5
Tribromobiphenyls / 三溴聯苯	mg/kg		N.D. 未檢出	5
Tetrabromobiphenyls / 四溴聯苯	mg/kg		N.D. 未檢出	5
Pentabromobiphenyls / 五溴聯苯	mg/kg		N.D. 未檢出	5
Hexabromobiphenyls / 六溴聯苯	mg/kg		N.D. 未檢出	5
Heptabromobiphenyls / 七溴聯苯	mg/kg		N.D. 未檢出	5
Octabromobiphenyls / 八溴聯苯	mg/kg		N.D. 未檢出	5
Nonabromobiphenyls / 九溴聯苯	mg/kg		N.D. 未檢出	5
Decabromobiphenyl / 十溴聯苯	mg/kg		N.D. 未檢出	5
Sum of PBBs / 多溴聯苯總和	mg/kg		N.D. 未檢出	—
Polybrominated Diphenyl Ethers(PBDEs) / 多溴聯苯醚				
Bromodiphenyl ethers / 單溴聯苯醚	mg/kg	With reference to International Standard IEC 62321-6: 2015, Determined by GC-MS. 參照 IEC 62321-6: 2015, 以有機溶劑萃 取, 氣相層析質譜儀分 析 (GC-MS)。	N.D. 未檢出	5
Dibromodiphenyl ethers / 二溴聯苯醚	mg/kg		N.D. 未檢出	5
Tribromodiphenyl ethers / 三溴聯苯醚	mg/kg		N.D. 未檢出	5
Tetrabromodiphenyl ethers / 四溴聯苯醚	mg/kg		N.D. 未檢出	5
Pentabromodiphenyl ethers / 五溴聯苯醚	mg/kg		N.D. 未檢出	5
Hexabromodiphenyl ethers / 六溴聯苯醚	mg/kg		N.D. 未檢出	5
Heptabromodiphenyl ethers / 七溴聯苯醚	mg/kg		N.D. 未檢出	5
Octabromodiphenyl ethers / 八溴聯苯醚	mg/kg		N.D. 未檢出	5
Nonabromodiphenyl ethers / 九溴聯苯醚	mg/kg		N.D. 未檢出	5
Decabromodiphenyl ether / 十溴聯苯醚	mg/kg		N.D. 未檢出	5
Sum of PBDEs / 多溴聯苯醚總和	mg/kg		N.D. 未檢出	—
Phthalates / 鄰苯二甲酸酯				
Dibutyl phthalate (DBP) / 鄰苯二甲酸二丁酯 (DBP)	mg/kg	With reference to IEC 62321-8: 2017, Determined by GC-MS. 參照 IEC 62321-8: 2017, 以有機溶劑萃 取, 氣相層析質譜儀分 析 (GC-MS)。	N.D. 未檢出	50
Butyl benzyl phthalate (BBP) / 鄰苯二甲酸丁苄酯 (BBP)	mg/kg		N.D. 未檢出	50
Bis(2-ethylhexyl) phthalate (DEHP) / 鄰苯二甲酸二異辛酯 (DEHP)	mg/kg		N.D. 未檢出	50
Diisobutyl phthalate (DIBP) / 鄰苯二甲酸二異丁酯 (DIBP)	mg/kg		N.D. 未檢出	50



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Test Parameter 測試項目	Unit 單位	Test Method 測試方法	Result 結果	RL 報告限值
			1	
Other / 其它				
Perfluorooctanoic acid (PFOA) and Perfluorooctane sulphonate (PFOS) Content / 全氟辛酸和全氟辛烷磺酸含量	mg/kg	With reference to EN 17681-1: 2025 & EN 17681-2: 2022 extracted with organic solvent and analyzed by LC/MS/MS. 參照 EN 17681-1: 2025 & EN 17681-2: 2022，以有機溶劑萃取，液相層析串聯質譜儀分析。	N.D. 未檢出	0.01
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD) 六溴環十二烷及主要異構體 (α -六溴環十二烷, β -六溴環十二烷, γ -六溴環十二烷) (CAS No. 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	With reference to IEC 62321-9: 2021 extracted with organic solvent and analyzed by Gas Chromatograph Mass Spectrometer (GC-MS). 參照 IEC 62321-9: 2021 以有機溶劑萃取，氣相層析質譜儀分析 (GC-MS)。	N.D. 未檢出	5

Note / Key 注釋:

- N.D. = Not detected (<RL) 未檢出(低於報告限值)
- N.A. = Not Applicable 不適用
- mg/kg = milligram(s) per kilogram 毫克每千克= ppm = part(s) per million
- RL = Reporting Limit 報告限值
- The result only relates to the tested item. The report shall not be reproduced except full without the written approval of the testing laboratory. Parameters which are not covered by the lab's testing scope are subcontracted to laboratories with government approval. The accreditation relates to competences given in the accreditation certificate.
測試結果僅代表經測試部件。本報告未經測試實驗室認可不得複製。未在本實驗室測試範疇之測試均委外至經官方核可之實驗室。委外實驗室之能力經認證許可。
- Samples test were conducted as per applicant's request.
樣品測試進行為依照申請人的要求。
- Test results were for reference only and might not represent the real content in each component as the composite sampling procedure was according to the special request of client. Please be noted the fewer components are mixed up, the better representation of sampling will get.
依據客戶要求進行混合測試，故本測試結果僅供參考，且該混測結果不一定能代表各分測結果。請注意混測數量越少，各樣品取樣代表性會越佳。

APPENDIX(附錄)

No.	Restricted substances 限制物質	Maximum Allowable Limit 最大允許限值
1	Lead (Pb) 鉛	0.1% (1000ppm)
2	Cadmium (Cd) 鎘	0.01% (100ppm)
3	Mercury (Hg) 汞	0.1% (1000ppm)
4	Chromium VI (Cr VI) 六價鉻	0.1% (1000ppm)
5	Polybromobiphenyls (PBBs) 單溴聯苯 - Bromobiphenyl (MonoBB) 一溴聯苯 - Dibromobiphenyl (DiBB) 二溴聯苯 - Tribromobiphenyl (TriBB) 三溴聯苯 - Tetrabromobiphenyl (TetraBB) 四溴聯苯 - Pentabromobiphenyl (PentaBB) 五溴聯苯 - Hexabromobiphenyl (HexaBB) 六溴聯苯 - Heptabromobiphenyl (HeptaBB) 七溴聯苯 - Octabromobiphenyl (OctaBB) 八溴聯苯 - Nonabromobiphenyl (NonaBB) 九溴聯苯 - Decabromobiphenyl (DecaBB) 十溴聯苯	0.1% (1000ppm)
6	Polybromodiphenyl ethers (PBDEs) 單溴聯苯醚 - Bromodiphenyl ether (MonoBDE) 一溴聯苯醚 - Dibromodiphenyl ether (DiBDE) 二溴聯苯醚 - Tribromodiphenyl ether (TriBDE) 三溴聯苯醚 - Tetrabromodiphenyl ether (TetraBDE) 四溴聯苯醚 - Pentabromodiphenyl ether (PentaBDE) 五溴聯苯醚 - Hexabromodiphenyl ether (HexaBDE) 六溴聯苯醚 - Heptabromodiphenyl ether (HeptaBDE) 七溴聯苯醚 - Octabromodiphenyl ether (OctaBDE) 八溴聯苯醚 - Nonabromodiphenyl ether (NonaBDE) 九溴聯苯醚 - Decabromodiphenyl ether (DecaBDE) 十溴聯苯醚	0.1% (1000ppm)
7	Bis(2-ethylhexyl) phthalate (DEHP) 鄰苯二甲酸二異辛酯 (DEHP) (CAS No. 117-81-7)	0.1% (1000ppm)
8	Butyl benzyl phthalate (BBP) 鄰苯二甲酸丁苄酯 (BBP) (CAS No. 85-68-7)	0.1% (1000ppm)
9	Dibutyl phthalate (DBP) 鄰苯二甲酸二丁酯 (DBP) (CAS No. 84-74-2)	0.1% (1000ppm)
10	Diisobutyl phthalate (DIBP) 鄰苯二甲酸二異丁酯 (DIBP) (CAS No. 84-69-5)	0.1% (1000ppm)

APPENDIX(附錄)

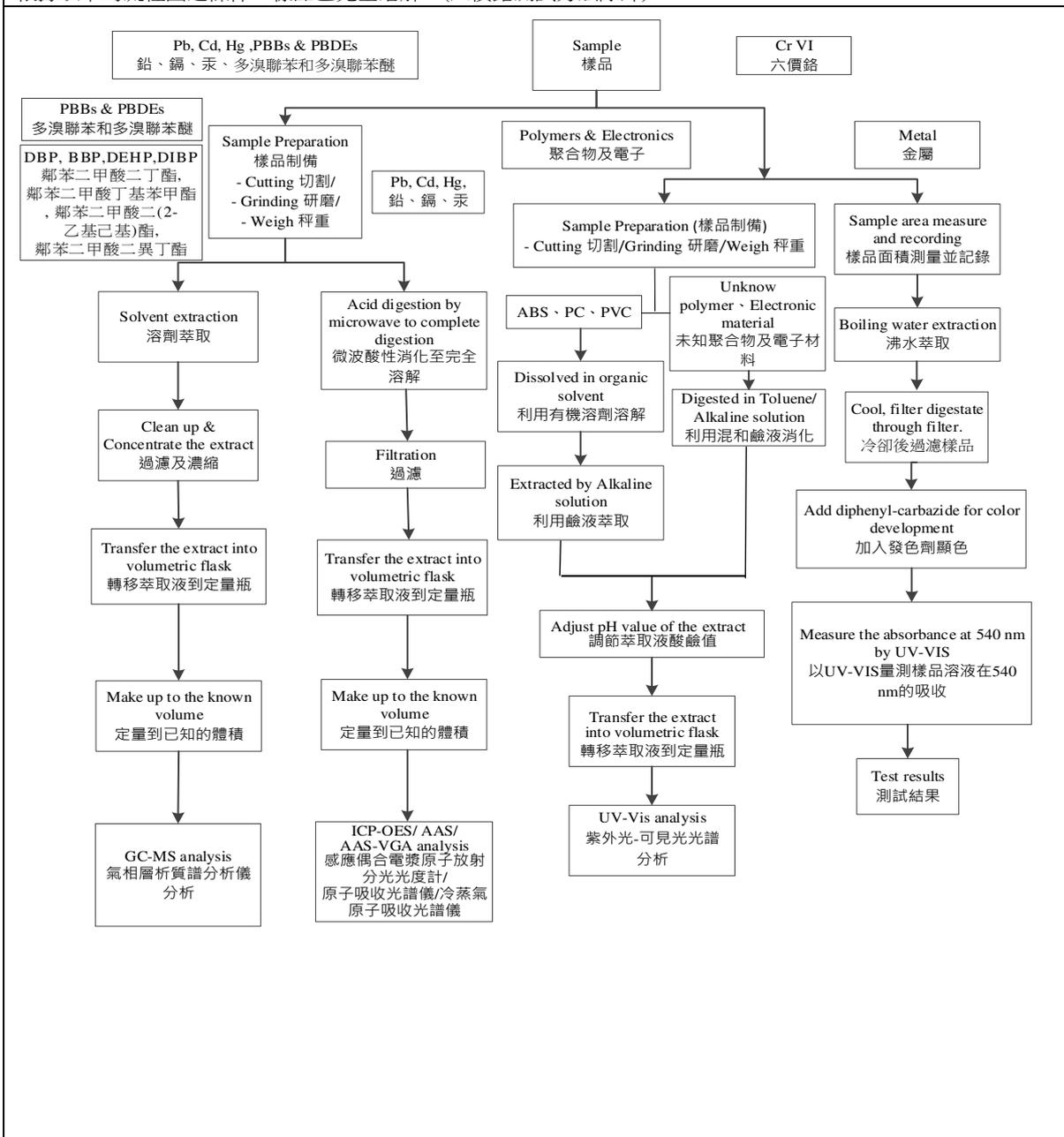
Test Flowchart of Heavy Metals, Flame Retardants and Phthalates Content [European Council Directive 2011/65/EU]:

重金屬, 阻燃劑及鄰苯二甲酸鹽含量的測試流程圖 [歐盟委員會指令 2011/65/EU]:

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

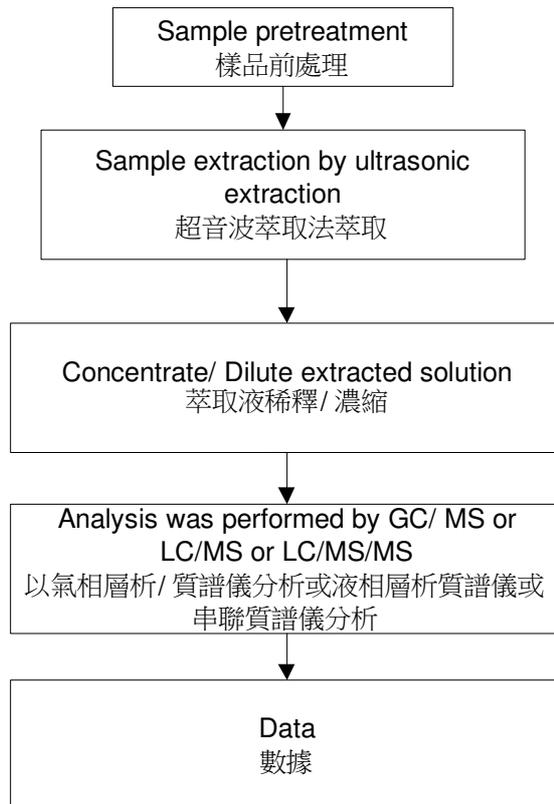
(Cr⁶⁺ test method excluded)

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)



APPENDIX(附錄)

Test Flowchart of PFAS (including PFOA/ PFOS/ its related compounds, etc.):
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)的測試流程圖:



APPENDIX(附錄)

Determinations of Hexabromocyclododecane (HBCDD):

六溴環十二烷的測試流程圖:

