

Test Report

號碼(No.): CE/2020/83823

日期(Date): 2020/08/28

頁數(Page): 1 of 18

昇貿科技股份有限公司 SHENMAO TECHNOLOGY INC. 桃園市觀音工業區工業二路12-1號 NO. 12-1, GONGYE 2ND RD., GUANYIN INDUSTRIAL AREA, TAOYUAN CITY 328, 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/on behalf of the applicant as):

樣品名稱(Sample Description)	:	PURE TIN
樣品型號(Style/Item No.)	:	H99. 99S
收件日期(Sample Receiving Date)	:	2020/08/24
測試期間(Testing Period)	:	2020/08/24 to 2020/08/28

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、六價絡、多溴聯苯、多溴聯苯

 ൽ, 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).)

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

Troy Chang / Manager - Teo Signed for and behalf of SĞS TAIWAN LTD. Chemical Laboratory - Taipei



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测試結果(Test Results)

測試部位(PART NAME)No.1 : 銀色金屬 (SILVER COLORED METAL)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) No.1
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321-5: 2013,以感應耦合 電漿發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-0ES.	2	n. d.
鉛 / Lead (Pb)	mg/kg	参考IEC 62321-5: 2013,以感應耦合 電漿發射光譜儀檢測. / With reference to IEC 62321-5: 2013 and performed by ICP-0ES.	2	8.10
汞 / Mercury (Hg)	mg/kg	参考IEC 62321-4:2013+ AMD1:2017, 以感應耦合電漿發射光譜儀檢測. / With reference to IEC 62321- 4:2013+ AMD1:2017 and performed by ICP-OES.	2	n. d.
六價鉻 / Hexavalent Chromium Cr(VI)(#2)	µg/cm²	参考IEC 62321-7-1: 2015,以UV-VIS 檢測. / With reference to IEC 62321-7-1: 2015 and performed by UV-VIS.	0.10	n. d.
全氟辛烷磺酸及其鹽類 / PFOS and its salts (CAS No.: 1763-23-1 and its salts)	mg/kg	參考CEN/TS 15968: 2010,以液相層析 /質譜儀檢測. / With reference to	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	CEN/TS 15968: 2010. Analysis was performed by LC/MS.	0.01	n. d.



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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) No.1
多溴聯苯總和 / Sum of PBBs	mg/kg		-	n. d.
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	參考IEC 62321-6: 2015,以氣相層析/	5	n. d.
十溴聯苯 / Decabromobiphenyl	mg/kg	質譜儀檢測. / With reference to	5	n. d.
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	IEC 62321-6: 2015 and performed by	-	n. d.
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg	GC/MS.	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	Γ	5	n. d.
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α – HBCDD, β – HBCDD, γ – HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	参考IEC 62321: 2008,以氣相層析/質 譜儀檢測. / With reference to IEC 62321: 2008. Analysis was performed by GC/MS.	5	n. d.



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測試項目 (Test Items)	單位 (Unit)	测試方法 (Method)	MDL	結果 (Result) No.1
鄰苯二甲酸二 (2-乙基己基)酯 / DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n. d.
鄰苯二甲酸丁苯甲酯 / BBP(Butyl Benzyl phthalate)(CAS No.: 85-68-7)	mg/kg		50	n. d.
鄰苯二甲酸二丁酯 / DBP(Dibutyl phthalate)(CAS No.: 84-74-2)	mg/kg		50	n. d.
鄰苯二甲酸二異丁酯 / DIBP(Di- isobutyl phthalate)(CAS No.: 84-69- 5)	mg/kg	參考IEC 62321-8: 2017,以氣相層析/ 質譜儀檢測. / With reference to IEC 62321-8: 2017. Analysis was	50	n. d.
鄰苯二甲酸二異癸酯 / DIDP (Di- isodecyl phthalate) (CAS No.: 26761- 40-0; 68515-49-1)	mg/kg	performed by GC/MS.	50	n. d.
鄰苯二甲酸二異壬酯 / DINP (Di- isononyl phthalate) (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)(CAS No.: 117-84-0)	mg/kg		50	n. d.
鹵素(氯)/ Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg	参考BS EN 14582: 2016,以離子層析 儀分析. / With reference to BS EN 14582: 2016. Analysis was performed by IC.	50	n. d.
鹵素(溴)/ Halogen-Bromine(Br) (CAS No.: 10097-32-2)	mg/kg	参考BS EN 14582: 2016,以離子層析 儀分析. / With reference to BS EN 14582: 2016. Analysis was performed by IC.	50	n. d.
多氯聯苯 / Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg	参考US EPA 3550C: 2007,以氣相層析 /質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	0.5	n. d.



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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) No.1
多	mg/kg	参考US EPA 3550C: 2007,以氣相層析 /質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	5	n. d.
多氯三聯苯 / Polychlorinated Terphenyls (PCTs)	mg/kg	参考US EPA 3550C: 2007,以魚相層析 /質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	0.5	n. d.
短鏈氯化石蠟 / Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	mg/kg	參考US EPA 3550C: 2007,以氣相層析 /質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by GC/MS.	100	n. d.
三丁基錫 / Tributyl Tin (TBT)	mg/kg	參考ISO 17353: 2004,以氣相層析儀/ 火焰光度偵測器檢測. / With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n. d.
氧化雙三丁基錫 / Bis(tributyltin)oxide (TBTO) (CAS No.: 56-35-9)	mg/kg	參考ISO 17353: 2004,以氣相層析儀/ 火焰光度偵測器檢測;由三丁基錫測試 結果計算得之. / With reference to ISO 17353: 2004. Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).	0.03 (▲)	n. d.
三苯基錫 / Triphenyl Tin (TphT)	mg/kg	參考ISO 17353: 2004,以氣相層析儀/ 火焰光度偵測器檢測. / With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n. d.
二丁基錫 / Dibutyl Tin (DBT)	mg/kg	參考ISO 17353: 2004,以氣相層析儀/ 火焰光度偵測器檢測. / With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n. d.



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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	MDL	結果 (Result) No.1
二辛基錫 / Dioctyl Tin (DOT)	mg/kg	參考ISO 17353: 2004,以氣相層析儀/ 火焰光度偵測器檢測. / With reference to ISO 17353: 2004. Analysis was performed by GC/FPD.	0.03	n. d.
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052: 1996,以感應耦合 電漿發射光譜儀檢測. / With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.	2	6. 52
鈹 / Beryllium (Be)	mg/kg	参考US EPA 3052: 1996,以感應耦合 電漿發射光譜儀檢測. / With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.	2	n. d.
砷 / Arsenic (As)	mg/kg	參考US EPA 3052: 1996,以感應耦合 電漿發射光譜儀檢測. / With reference to US EPA 3052: 1996. Analysis was performed by ICP-OES.	2	n. d.
聚氯乙烯 / Polyvinyl chloride (PVC)	**	以紅外光譜分析及焰色法檢測. / Analysis was performed by FTIR and FLAME Test.	_	Negative

備註(Note):

- 1. mg/kg = ppm; 0.1wt% = 1000ppm
- 2. MDL = Method Detection Limit (方法偵測極限值)
- 3. n.d. = Not Detected (未檢出)
- 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)



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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. 全氟辛烷磺酸及其鹽類包含 / PFOS and its salts including : CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
- 9. 全氟辛酸及其鹽類包含 / PFOA and its salts including : CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
- 10. (▲): MDL是針對元素/測試化合物之評估. / The MDL was evaluated for element / tested substance.

F

换算公式	(Conversion	Formula)	: AX	=	А	Х
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AX	А	F
氧化雙三丁基錫 / Bis(tributyltin)oxide (TBTO)	三丁基錫 / Tributyl Tin (TBT)	1.024

參數換算表 / Parameter Conversion Table: https://twap.sgs.com/sgsrsts/chn/download-REACH_tw.asp

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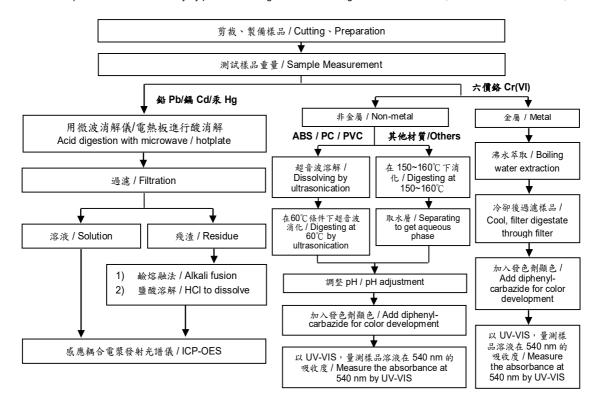
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重金屬流程圖 / Analytical flow chart of Heavy Metal

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.(Cr⁶⁺ test method excluded)





測試報告 Test Report

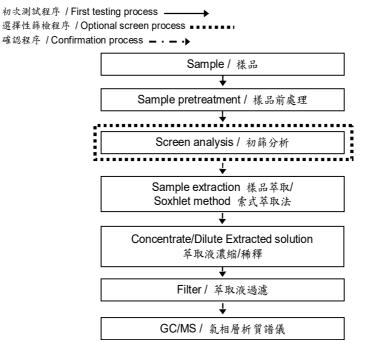
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多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBB/PBDE





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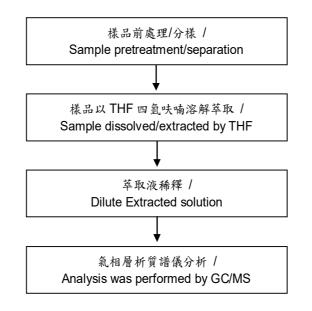
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

【测試方法/Test method: IEC 62321-8】





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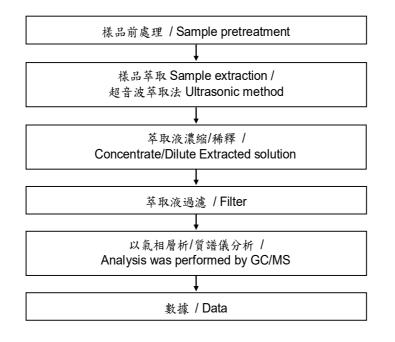
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD





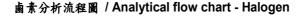
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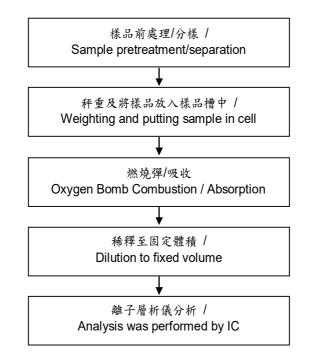
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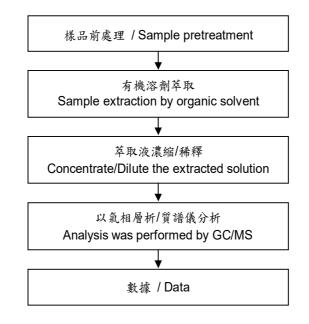
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分析流程圖 / Analytical flow chart

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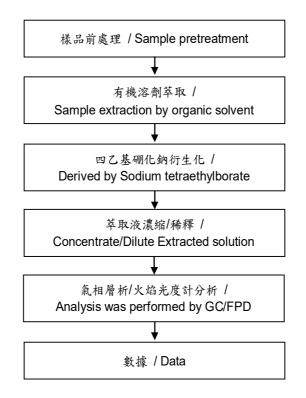
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有機錫分析流程圖 / Analytical flow chart - Organic-Tin





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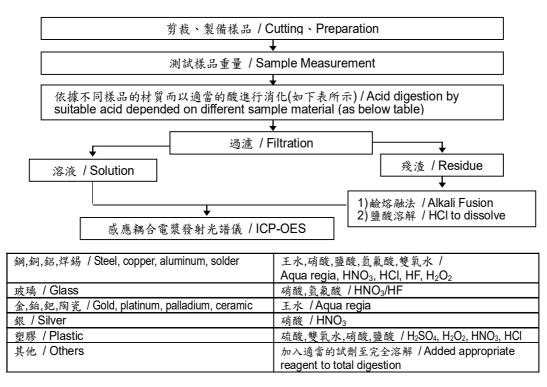
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元素以 ICP-OES 分析的消化流程圖 (Flow Chart of digestion for the elements analysis performed by ICP-OES)

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.





Test Report

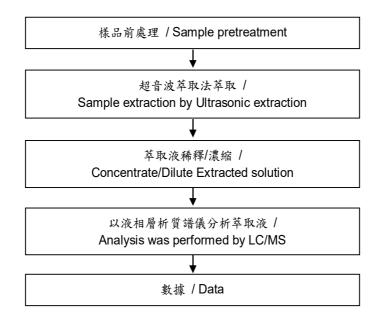
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS





Test Report

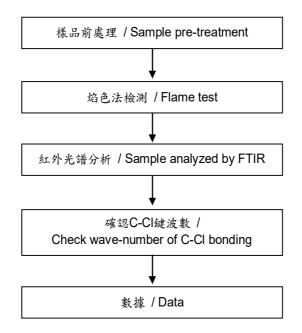
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聚氯乙烯物質判定分析流程圖 / Analysis flow chart - PVC





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> * 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.)



** 報告結尾 (End of Report) **