

測試報告

Test Report

號碼(No.): ETR23403914

日期(Date): 25-Apr-2023

頁數(Page): 1 of 34

長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI 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) : 長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

樣品名稱(Sample Name) : Copper Foil

樣品型號(Style/Item No.) : EPOXY GRADE(VFP)


收件日(Sample Receiving Date) : 18-Apr-2023

測試期間(Testing Period) : 18-Apr-2023 to 25-Apr-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) 依據客戶要求·參考美國毒管法(TSCA) 第 6(h) 章節·進行5項持久性生物累積毒性物質 (PBTs) 測試·測試項目請參閱測試結果表格。(As specified by client, the sample(s) was/were tested for 5 PBTs with reference to Regulation of Persistent, Bioaccumulative, Toxic (PBT) Chemicals under Toxic Substances Control Act (TSCA) Section 6(h). Please refer to result table for testing item(s).)
 - (3) 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) :
- (2) 根據客戶所提供的樣品·其測試結果符合美國毒管法(TSCA) 第 6(h) 章節·持久性生物累積毒性物質 (PBTs)之限值要求。(Based on the performed tests on submitted sample(s), the test result(s) comply with the limits as set by Persistent, Bioaccumulative, Toxic (PBT) Chemicals under Toxic Substances Control Act (TSCA) Section 6(h).)
 - (3) 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 3 類「其它產品」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 3)「Other consumer products」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



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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試部位敘述 (Test Part Description)

No.1 : 銅色金屬銅箔 (COPPER COLORED METAL FOIL)

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))	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))		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 (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/cm ²	0.1	n.d.	-
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI)) (CAS No.: 18540-29-9)	參考US EPA 3060A: 1996 & US EPA 7196A: 1992, 以紫外光-可見光分光光度計分析。(With reference to US EPA 3060A: 1996 & 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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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

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.	-
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.	-
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.	-

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
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 62321-9: 2021 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.)	mg/kg	20	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	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.	-
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.	-
多氯萘 (PCNs) (Polychlorinated naphthalene (PCNs))	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	5	n.d.	-
多氯三聯苯 (PCTs) (Polychlorinated terphenyls (PCTs))	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.	-

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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	
短鏈氯化石蠟(C10-C13) (SCCP) (Short Chain Chlorinated Paraffins(C10-C13) (SCCP)) (CAS No.: 85535-84-8)	參考ISO 18219-1: 2021 · 以氣相層析儀/質譜儀分析。(With reference to ISO 18219-1: 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.	-
富馬酸二甲酯 (DMFu) (Dimethyl fumarate (DMFu)) (CAS No.: 624-49-7)	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	0.1	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	-
雙酚A (Bisphenol A) (CAS No.: 80-05-7)	參考RSTS-CHEM-239-1 · 以液相層析串聯質譜儀分析。(With reference to RSTS-CHEM-239-1, analysis was performed by LC/MS/MS.)	mg/kg	1	n.d.	-
甲醛 (Formaldehyde) (CAS No.: 50-00-0)	參考ISO 17226-1: 2021 · 以液相層析儀/二極體陣列偵測器分析。(With reference to ISO 17226-1: 2021, analysis was performed by LC/DAD.)	mg/kg	3	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.	-
砷 (As) (Arsenic (As)) (CAS No.: 7440-38-2)		mg/kg	2	n.d.	-
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)		mg/kg	2	n.d.	-
鉍 (Bi) (Bismuth (Bi)) (CAS No.: 7440-69-9)		mg/kg	2	n.d.	-
硒 (Se) (Selenium (Se)) (CAS No.: 7782-49-2)		mg/kg	2	n.d.	-

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				No.1	
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
蒽 (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
苯駢芘 (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)	限值 (Limit)
				No.1	
十溴聯苯醚 (DecaBDE) (Decabromodiphenyl ether (DecaBDE)) (CAS No.: 1163-19-5)	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	5	n.d.	Prohibited / N/A(*3)
異丙基化磷酸三苯酯 (PIP 3:1) (Phenol, isopropylated, phosphate (3:1) (PIP 3:1)) (CAS No.: 68937-41-7)	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	5	n.d.	Prohibited / N/A(*1)
2,4,6-三叔丁基酚 (2,4,6-TTBP) (2,4,6- Tris(tert-butyl)phenol (2,4,6-TTBP)) (CAS No.: 732-26-3)	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	5	n.d.	3000 / N/A(*2)
五氯苯硫酚 (PCTP) (Pentachlorothiophenol (PCTP)) (CAS No.: 133-49-3)	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	5	n.d.	10000
六氯丁二烯 (HCBd) (Hexachlorobutadiene (HCBd)) (CAS No.: 87-68-3)	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	5	n.d.	Prohibited
三丁基錫 (TBT) (Tributyl tin (TBT))	參考ISO 17353: 2004 · 以氣相層析儀/火 焰光度偵測器分析。(With reference to ISO 17353: 2004, analysis was performed by GC/FPD.)	mg/kg	0.03	n.d.	-
三苯基錫 (TPT) (Triphenyl tin (TPT))		mg/kg	0.03	n.d.	-
二丁基錫 (DBT) (Dibutyl tin (DBT))		mg/kg	0.03	n.d.	-
二辛基錫 (DOT) (Diocetyl tin (DOT))		mg/kg	0.03	n.d.	-
氧化雙三丁基錫 (TBTO) (Bis(tributyltin) oxide (TBTO)) (CAS No.: 56-35-9)	由三丁基錫測試結果計算得之。 (Calculated from the result of Tributyl Tin (TBT).)	mg/kg	0.03▲	n.d.	-

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長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
偶氮染料 (AZO Dyes)					
4-氨基二苯 (4-aminodiphenyl) (CAS No.: 92-67-1)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
聯苯胺 (Benzidine) (CAS No.: 92-87-5)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
4-氯鄰甲苯胺 (4-chloro-o-toluidine) (CAS No.: 95-69-2)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
2-萘胺 (2-naphthylamine) (CAS No.: 91-59-8)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
鄰-胺基偶氮甲苯 (o-aminoazotoluene) (CAS No.: 97-56-3)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
2-胺基-4-硝基甲苯 (5-nitro-o-toluidine) (CAS No.: 99-55-8)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
4-氯苯胺 (4-chloroaniline) (CAS No.: 106-47-8)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
2,4-二氨基苯甲醚 (2,4-diaminoanisole) (CAS No.: 615-05-4)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
4,4'-二胺基二苯甲烷 (4,4'-diaminodiphenylmethane (MDA)) (CAS No.: 101-77-9)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
3,3'-二氯聯苯胺 (3,3'-dichlorobenzidine) (CAS No.: 91-94-1)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
3,3'-二甲氧基聯苯胺 (3,3'-dimethoxybenzidine) (CAS No.: 119-90-4)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
3,3'-二甲基聯苯胺 (3,3'-dimethylbenzidine) (CAS No.: 119-93-7)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
3,3'-二甲基-4,4'-二胺基二苯甲烷 (3,3'-dimethyl-4,4'-diaminodiphenylmethane) (CAS No.: 838-88-0)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
2-甲氧基-5-甲基苯胺 (2-methoxy-5-methylaniline) (CAS No.: 120-71-8)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
4,4'-亞甲雙(2-氯苯胺) (4,4'-methylene-bis-(2-chloroaniline)) (CAS No.: 101-14-4)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
4,4'-二胺基二苯醚 (4,4'-oxydianiline) (CAS No.: 101-80-4)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
4,4'-硫二苯胺 (4,4'-thiodianiline) (CAS No.: 139-65-1)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
鄰-甲苯胺 (o-toluidine) (CAS No.: 95-53-4)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
2,4-甲苯二胺 (2,4-diaminotoluene) (CAS No.: 95-80-7)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
2,4,5-三甲苯胺 (2,4,5-trimethylaniline) (CAS No.: 137-17-7)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
鄰-甲氧基苯胺 (o-anisidine) (CAS No.: 90-04-0)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
4-苯基偶氮基苯胺 (4-aminoazobenzene) (CAS No.: 60-09-3)	參考EN ISO 14362-1: 2017 or/and EN ISO 14362-3: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017 or/and EN ISO 14362-3: 2017, analysis was performed by GC/MS & HPLC/DAD.)	mg/kg	3	n.d.	-
2,4-二甲基苯胺 (2,4-xylidine) (CAS No.: 95-68-1)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-
2,6-二甲基苯胺 (2,6-xylidine) (CAS No.: 87-62-7)	參考EN ISO 14362-1: 2017 · 以氣相層析質譜儀及高效液相層析儀/二極體陣列偵測器分析。(With reference to EN ISO 14362-1: 2017, analysis was performed by GC/MS and HPLC/DAD.)	mg/kg	3	n.d.	-

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)	限值 (Limit)
				No.1	
石綿 (Asbestos)					
陽起石綿 (Actinolite) (CAS No.: 77536-66-4)	參考EPA 600/R-93/116: 1993 · 以立體顯微鏡(SM)與分散染色式偏光顯微鏡(DS-PLM)及X光繞射光譜分析法(XRD)分析。 (With reference to EPA 600/R-93/116: 1993, analysis was performed by Stereo Microscope (SM), Dispersion Staining Polarized Light Microscope (DS-PLM) and X-ray Diffraction Spectrometer (XRD).)	-	-	Negative	-
褐石綿/鐵石綿 (Amosite) (CAS No.: 12172-73-5)		-	-	Negative	-
斜方角閃石綿 (Anthophyllite) (CAS No.: 77536-67-5)		-	-	Negative	-
白石綿/溫石綿 (Chrysotile) (CAS No.: 12001-29-5)		-	-	Negative	-
青石綿 (Crocidolite) (CAS No.: 12001-28-4)		-	-	Negative	-
透閃石綿 (Tremolite) (CAS No.: 77536-68-6)		-	-	Negative	-
鄰苯二甲酸二乙酯 (DEP) (Di-ethyl phthalate (DEP)) (CAS No.: 84-66-2)	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.	-
鄰苯二甲酸二甲酯 (DMP) (Dimethyl phthalate (DMP)) (CAS No.: 131-11-3)		mg/kg	50	n.d.	-
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0)		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.	-

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

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. 石綿定性分析試驗範圍 : <0.1%~100% · 石綿鑑定的判定基準是以檢出含有石綿纖維為『Positive』 · 未檢出石綿纖維為『Negative』。(Testing range of asbestos qualitative analysis is from less than 0.1% to 100%. The judgment criterion: asbestos fibers being found is shown as "Positive"; asbestos fibers not being found is shown as
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. (#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.)
11. ▲ : 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) : $AX = A \times F$

AX	A	F
氧化雙三丁基錫 (Bis(tributyltin)oxide) (TBTO)	三丁基錫 (Tributyl Tin) (TBT)	1.0276

參數換算表 (Parameter Conversion Table) :

https://eecloud.sgs.com/Region_TW/DocDownload.aspx?name=Others

12. 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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長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

13. 詳細法規說明請點以下網址連結。(Detail explanation of the regulation is available at the following link.)
<https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals-under>
14. N/A(*1): 若產品/成品為以下，則不適用 (The submitted sample is exempted from the regulated scope if it is anyone of the following):
- 航空或軍事用液壓油 (Hydraulic fluids for aviation or military)
 - 潤滑劑和油脂 (Lubricants and grease)
 - 汽車和航空航天器的新零件和替換零件 (New and replacement parts for motor and aerospace vehicles)
 - 在封閉系統中製造氰基丙烯酸酯粘合劑 (Manufacture of cyanoacrylate adhesives in closed systems)
 - 火車和船舶應用的專用發動機空氣濾清器 (Specialized engine air filters for locomotive and marine applications)
 - 從含PIP(3:1)的產品或成品中回收的塑料 (Plastic for recycling from PIP (3:1)-containing products or articles)
 - 從包含PIP(3:1)的產品或成品中回收的塑料製成的成品或成品 (Finished products or articles made of plastic recycled from PIP (3:1)-containing products or articles)
 - 於2024/10/31前加工和分銷含PIP(3:1)的成品 (Processing and distribution in commerce of PIP (3:1)-containing articles, before October 31, 2024)
15. N/A(*2): 若產品為非作為潤滑油中添加劑，則不適用。(The submitted sample is exempted from the regulated scope if it is not oil and lubricant additives.)
16. N/A(*3): 若產品/成品為以下，則不適用 (The submitted sample is exempted from the regulated scope if it is anyone of the following):
從產品或成品進行加工和分銷含十溴二苯醚回收的塑料或者由這種再生塑料製成的含十溴二苯醚的產品或成品。
(Exempts processing and distribution for recycling of DecaBDE-containing plastic from products or articles and DecaBDE-containing products or articles made from such recycled plastic.)

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長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

Remark :

△ 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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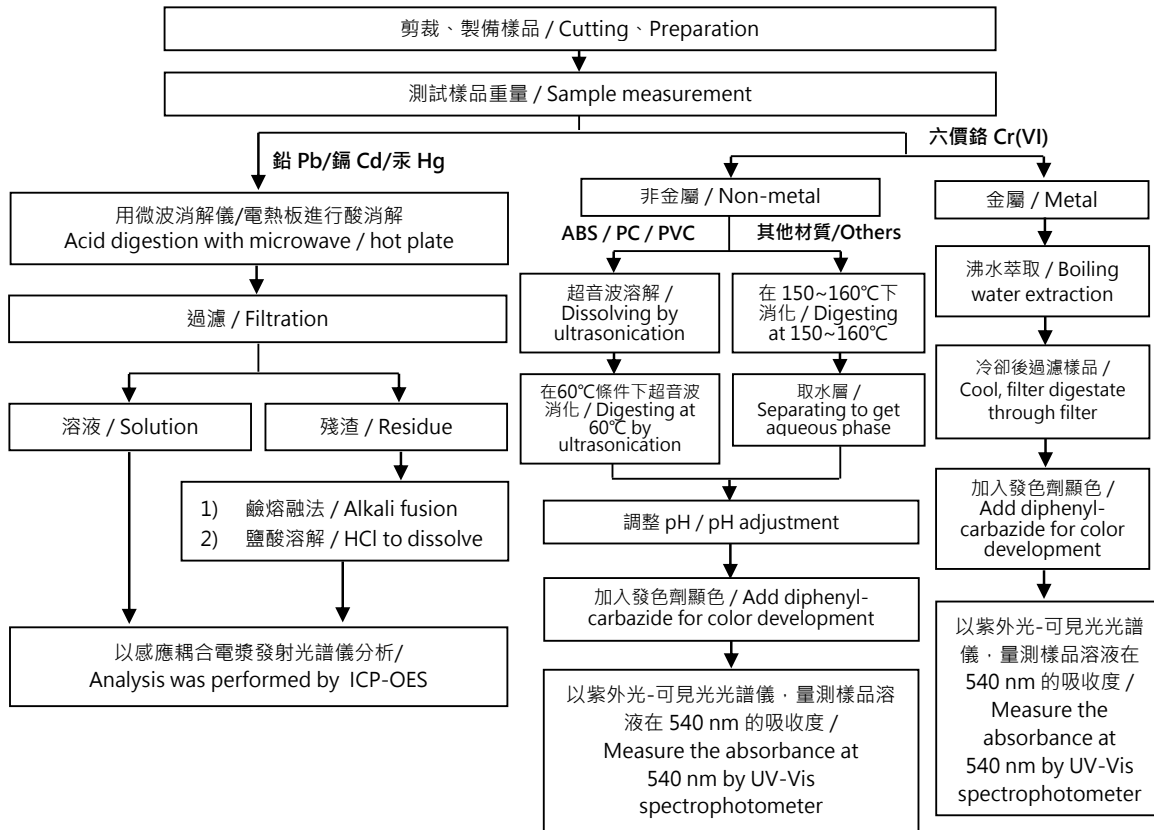
長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

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)


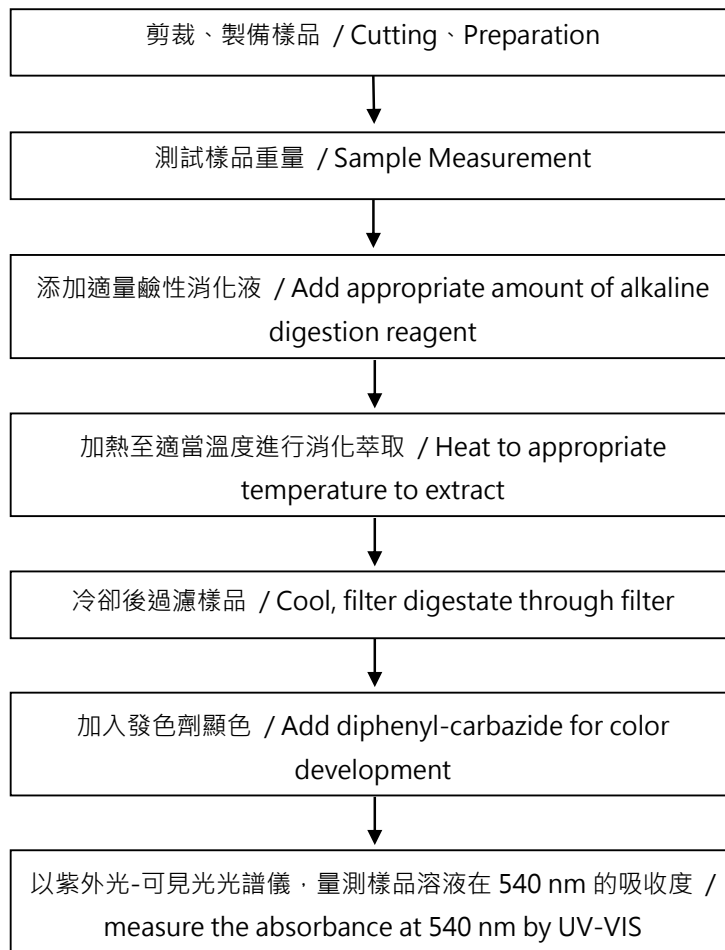
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六價鉻分析流程圖 / Analytical flow chart - Hexavalent Chromium Cr(VI)

Test method: EPA 3060A



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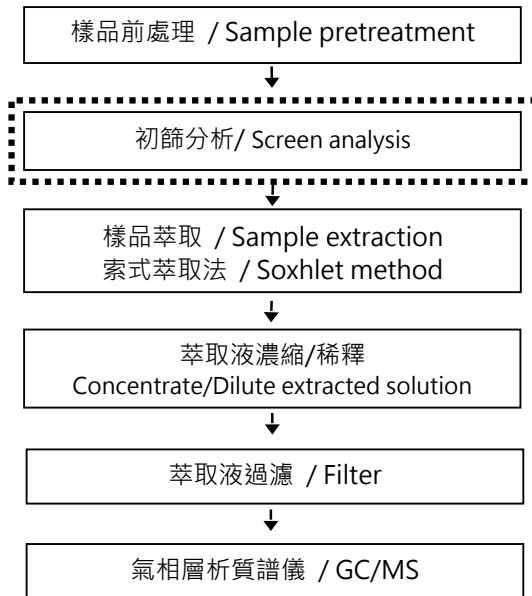
台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

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

初次測試程序 / First testing process ————→

選擇性篩檢程序 / Optional screen process - - - - -

確認程序 / Confirmation process - · - · -



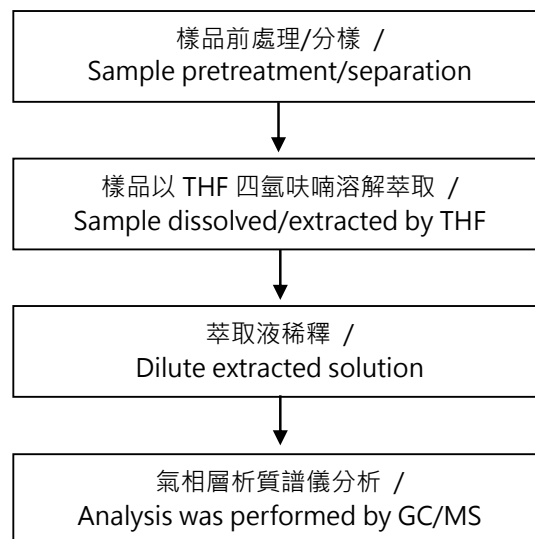
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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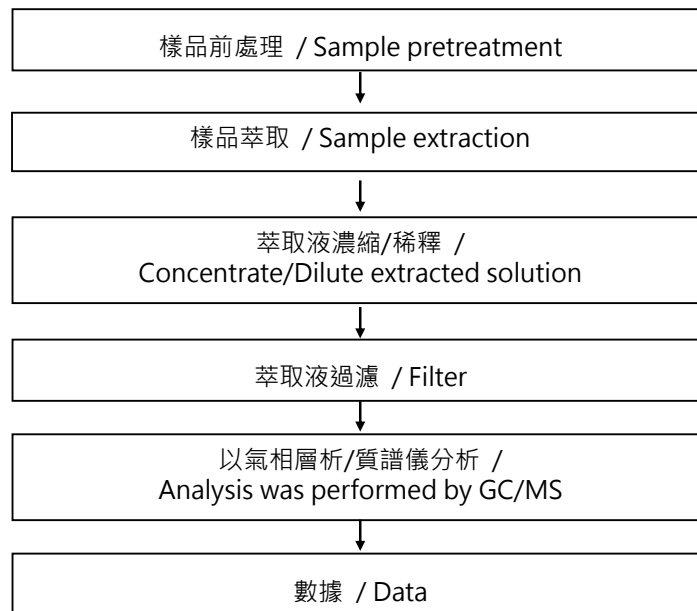
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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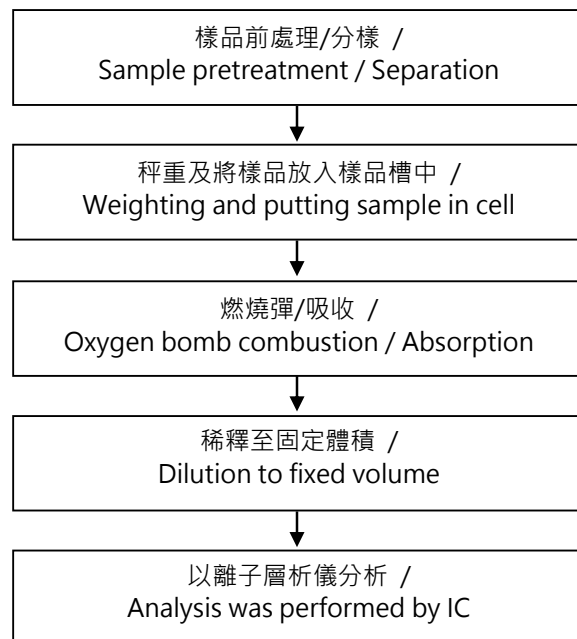
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鹵素分析流程圖 / Analytical flow chart - Halogen



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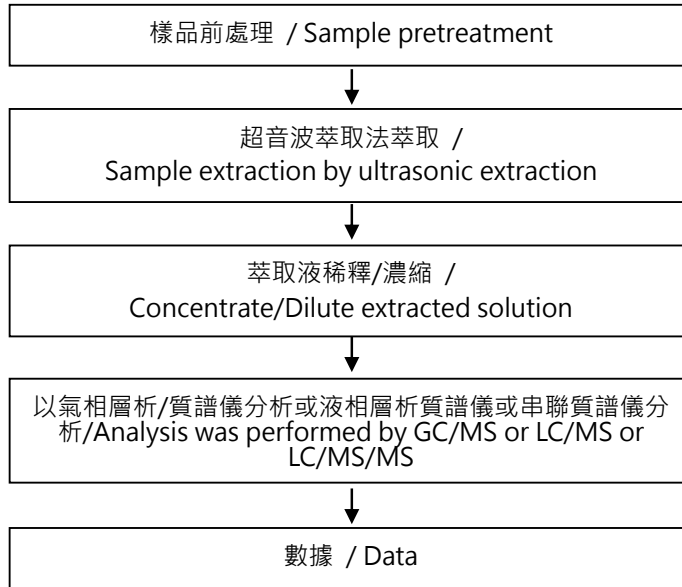
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全氟化合物(包含全氟辛酸/全氟辛烷磺酸/其相關化合物等等)分析流程圖 / Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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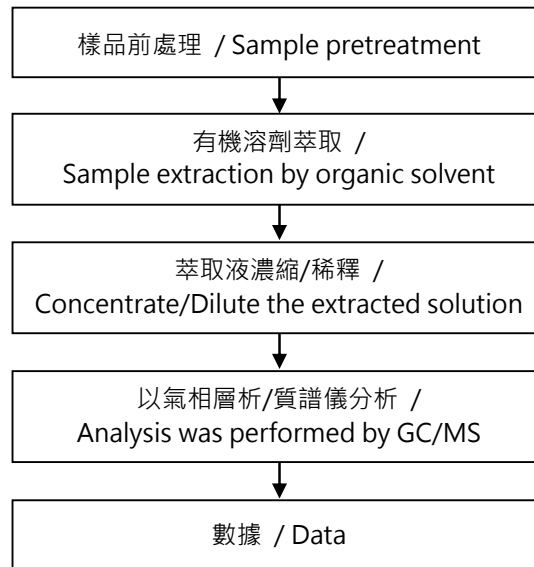
長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

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分析流程圖 / Analytical flow chart

【適用於：多氯聯苯、多氯萘、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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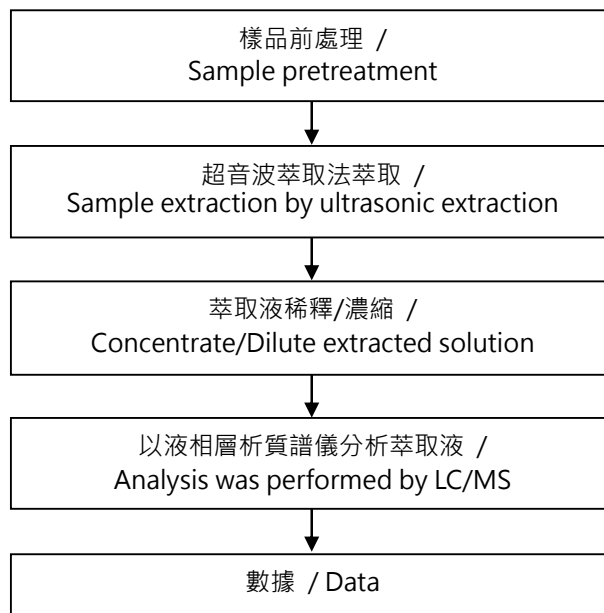
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四溴雙酚-A 分析流程圖 / Analytical flow chart - TBBP-A

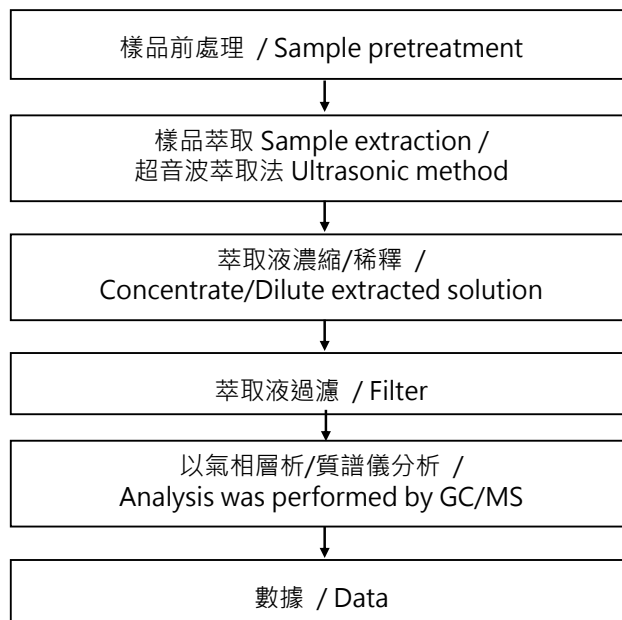


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富馬酸二甲酯分析流程圖 / Analytical flow chart - Dimethyl Fumarate



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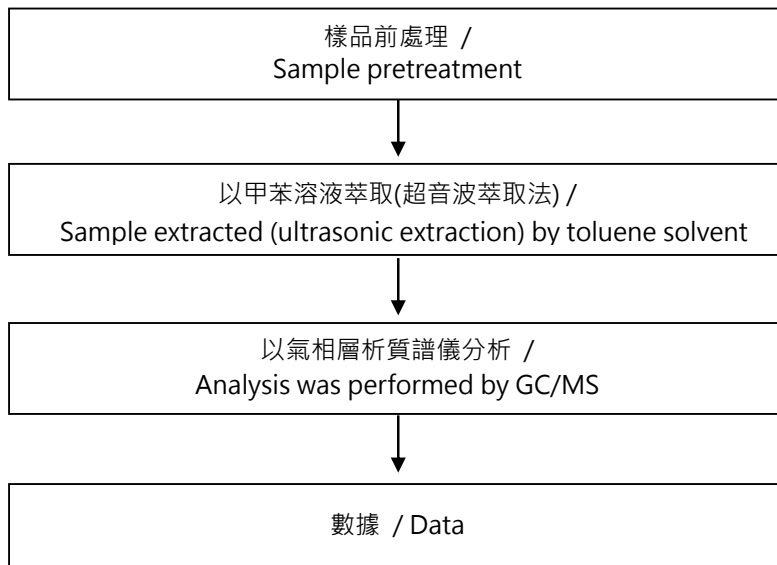
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長春石油化學股份有限公司 (CHANG CHUN PETROCHEMICAL CO., LTD.)

台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

多環芳香烴分析流程圖 /

Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

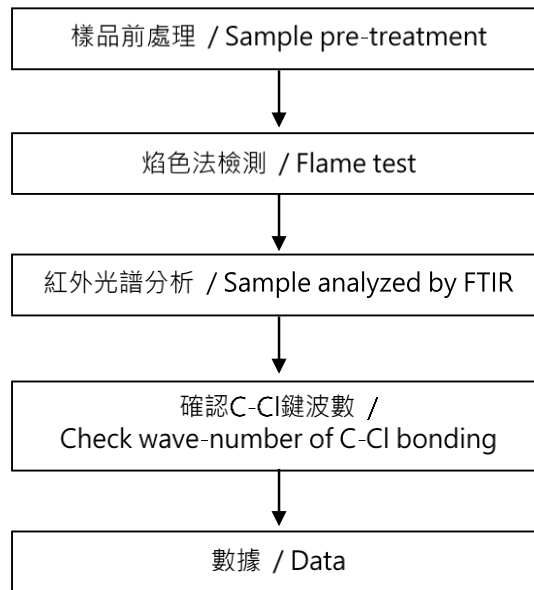


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聚氯乙烯物質判定分析流程圖 / Analysis flow chart - PVC

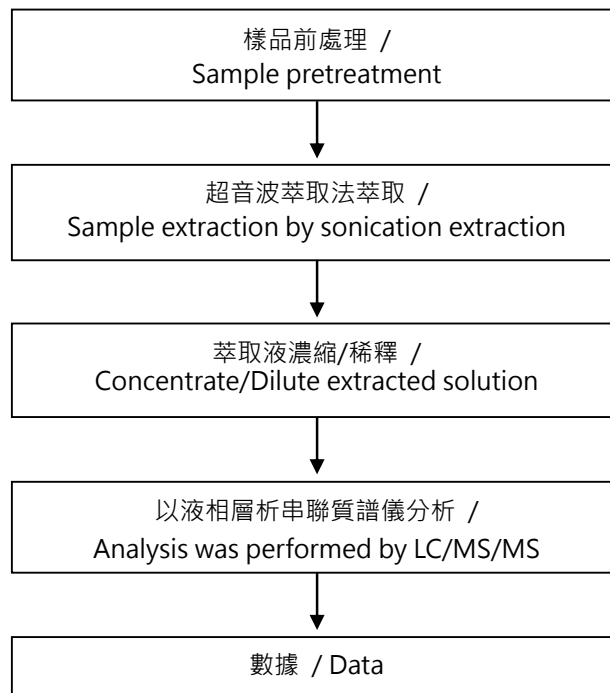


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雙酚A分析流程圖 / Analytical flow chart - Bisphenol A



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測試報告

Test Report

號碼(No.): ETR23403914

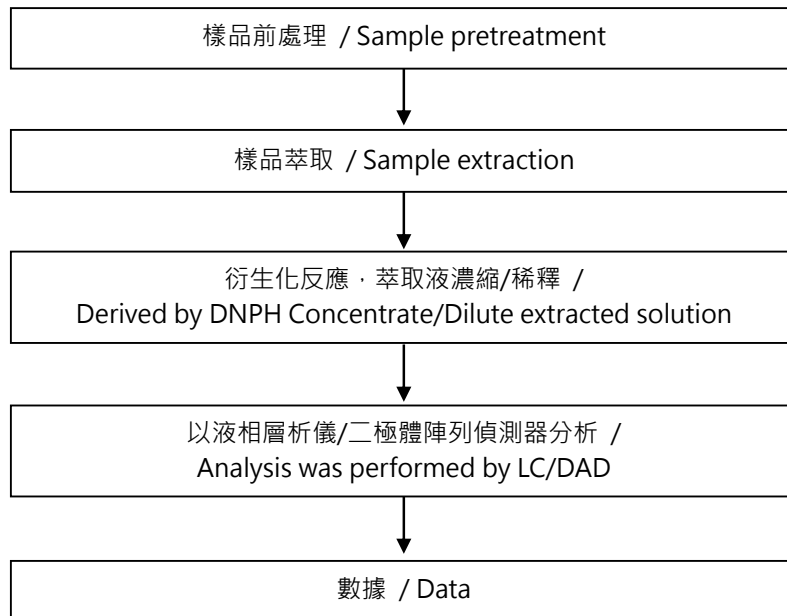
日期(Date): 25-Apr-2023

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台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

甲醛分析流程圖 / Analytical flow chart - Formaldehyde



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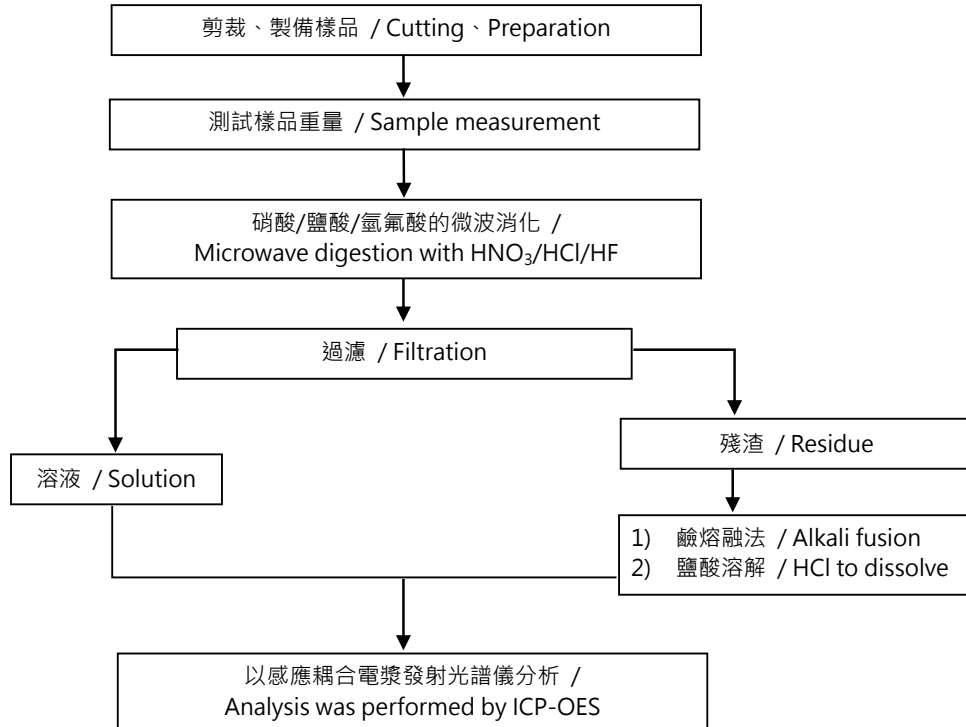
台北市松江路301號七樓 (NO. 301 SONG KIANG ROAD 7TH FL., TAIPEI TAIWAN R.O.C.)

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.

【參考方法/Reference method : US EPA 3051A、US EPA 3052】

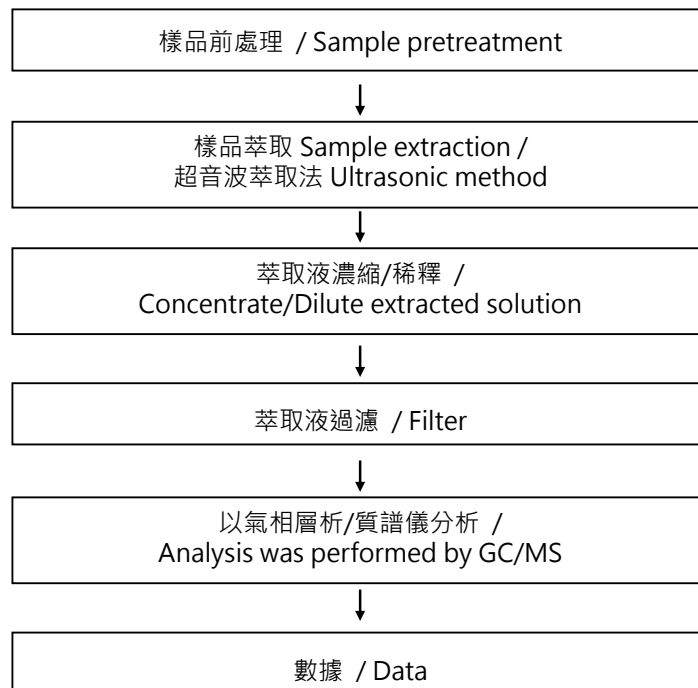


* US EPA 3051A 方法未添加氫氟酸 / US EPA 3051A method does not add HF.

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持久性生物累積毒性物質 (PBTs) 分析流程圖 /
Analytical flow chart - Persistent, Bioaccumulative, Toxic (PBTs)



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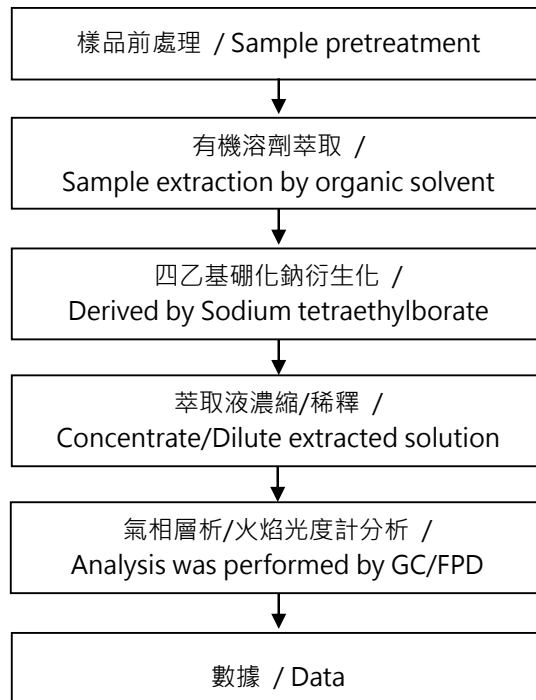
日期(Date): 25-Apr-2023

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



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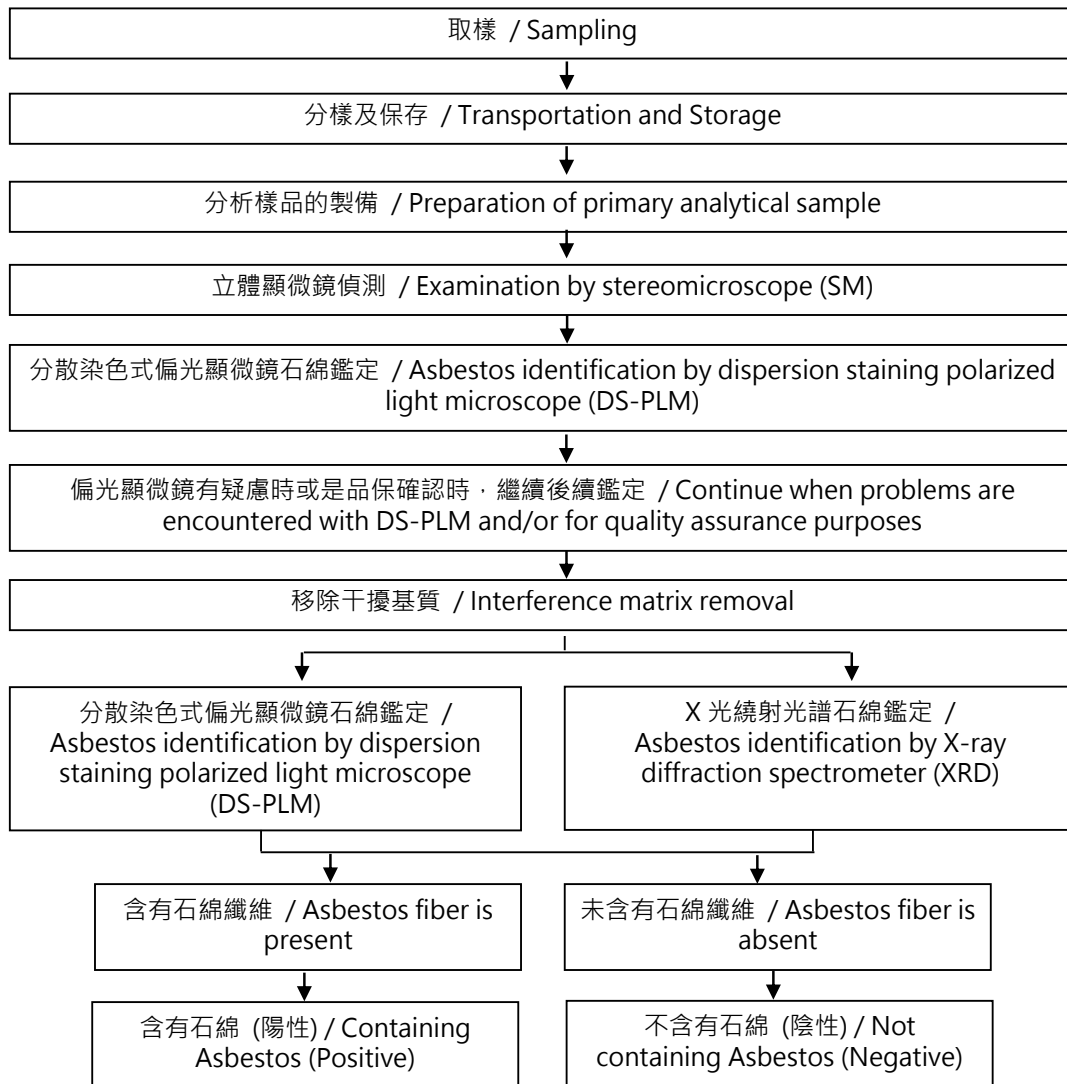
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石綿鑑定分析流程圖 / Analysis flow chart for determination of Asbestos

【參考方法(Reference method): EPA 600/R-93/116】



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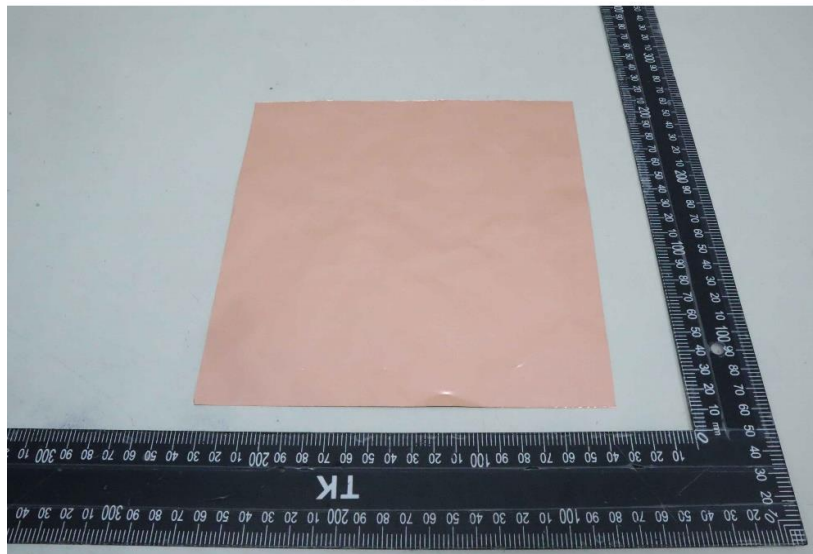
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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR23403914



** 報告結尾 (End of Report) **

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