

Test Report No.: 238114068d2 001		Page 1 of 11 第 1 頁 共 11 頁	
Client: 委託客戶:		TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH/ 台達化學工業股份有限公司 高雄分公司 No. 5, Industrial 1st Road, Lin Yuan District, Kaohsiung, Taiwan, R.O.C./ 台灣 高雄市林園區工業一路 5 號	
Test Item: 測試樣品:		通用級聚苯乙烯 GENERAL PURPOSE POLYSTYRENE	
Identification: 品名型號:		861B/D/F/N/O/W, 866B/D/N/NK/NH/BM/NM, 808, 818/D/K/W/L, 751S	
Delivery condition: 送達狀況:		apparent good/外觀良好	Date of Receipt: 到件日期(年.月.日): 2019-12-30
Testing location: 測試地點:		TÜV Rheinland (Shanghai) Co. Ltd.	
Test specification: 測試項目:		According to RoHS (recast): Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, 2011/65/EU Annex II and its amendment Directive (EU) 2015/863: Total Content of Lead, Cadmium, Mercury, Chromium VI, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers; and Benzylbutyl phthalate (BBP), Dibutyl phthalate (DBP), Bis(2-ethylhexyl) phthalate (DEHP), Diisobutyl phthalate (DIBP) and Halogen, Phthalates, Polycyclic Aromatic Hydrocarbons (PAHs), Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA)/ 依據電機電子設備限用有害物質指令(RoHS 2011/65/EU) 附錄 II 及其修正指令(EU) 2015/863: 鉛、鎘、汞、六價鉻、多溴聯苯、多溴二苯醚、鄰苯二甲酸苯基丁酯、鄰苯二甲酸二丁酯、鄰苯二甲酸二(2-乙基己基)酯、鄰苯二甲酸二異丁酯 之總含量 以及 鹵素, 鄰苯二甲酸酯類, 多環芳香烴化合物, 全氟辛烷磺酸, 全氟辛酸	
Test result: 測試結果:		The test results are the measurements, stated in the test report / 請參照測試報告	
tested by / 測試人員:		checked by / 查核人員:	
Yueh-Li Lin		Arthur Cheng	
2020-01-14 Yueh-Li Lin /Senior Project Coordinator		2020-01-14 Arthur Cheng /Project Manager	
Date 日期	Name/Position 姓名/職稱	Signature 簽名	Date 日期
			Name/Position 姓名/職稱
			Signature 簽名
Other Aspects: / 其他:			
Test period/ 測試時間: 2019-12-30 – 2020-01-14			
Other company name provided by client: TAITA CHEMICAL COMPANY LIMITED/ 台達化學工業股份有限公司; 12F., No. 39, Jihu Road, Neihu Dist., Taipei, Taiwan, R.O.C./ 台灣 台北市內湖區西湖里基湖路 39 號 12 樓			
Test sample is model "861B".			
All the above models are the same material as client's declaration dated on 2019-12-31.			
Test location for Phthalates/PAHs/PFOS/PFOA: TÜV Rheinland Hong Kong Ltd.			
Abbreviations:		說明:	
ok / P = passed (合格)		ok / P = 合格	
fail / F = failed (不合格)		fail / F = 不合格	
n.a. / N = not applicable (不適用)		n.a. / N = 不適用	
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products. 此份測試報告只涉及上述測試樣品。未經測試單位許可不可摘要複製報告。此份報告並無授權任何安全標章的使用於此測試產品或相似產品。			

Test Report No./報告號碼 : 238114068d2 001 2020-01-14
 Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH
 Test Method/測試方法 : Total Cadmium/鎘, Lead/鉛, Mercury/汞, Chromium/鉻
 - Ref. to/參考 IEC 62321-4:2013 and IEC 62321-5:2013
 Chromium (VI)/六價鉻
 - For Metal material/金屬 - Ref. to/參考 IEC 62321-7-1:2015
 - For Plastic or Electronic material/塑膠或電子材料 - Ref. to/參考 IEC 62321-7-2:2017
 - For Leather material/皮料 - Ref. to/參考 EN ISO 17075-1:2017
 PBBs/多溴聯苯, PBDEs/多溴二苯醚 - Ref. to/參考 IEC 62321-6:2015

Sample/樣品明細	LoD	通用級聚苯乙烯 GENERAL PURPOSE POLYSTYRENE plastic/transparent / 塑膠/透明 TCL191230-05
Material/材質		
Lab.-No./實驗室編號		
Cadmium (Cd) / 鎘	mg/kg	2
Lead (Pb) / 鉛	mg/kg	2
Mercury (Hg) / 汞	mg/kg	2
Chromium VI (Cr VI) / 六價鉻*	mg/kg	8
Sum of Polybrominated biphenyls (PBBs) / 多溴聯苯	mg/kg	-
Monobromobiphenyl	mg/kg	5
Dibromobiphenyl	mg/kg	5
Tribromobiphenyl	mg/kg	5
Tetrabromobiphenyl	mg/kg	5
Pentabromobiphenyl	mg/kg	5
Hexabromobiphenyl	mg/kg	5
Heptabromobiphenyl	mg/kg	5
Octabromobiphenyl	mg/kg	5
Nonabromobiphenyl	mg/kg	5
Decabromobiphenyl	mg/kg	5
Sum of Polybrominated diphenyl ethers (PBDEs) / 多溴二苯醚	mg/kg	-
Monobromodiphenyl ether	mg/kg	5
Dibromodiphenyl ether	mg/kg	5
Tribromodiphenyl ether	mg/kg	5
Tetrabromodiphenyl ether	mg/kg	5
Pentabromodiphenyl ether	mg/kg	5
Hexabromodiphenyl ether	mg/kg	5
Heptabromodiphenyl ether	mg/kg	5
Octabromodiphenyl ether	mg/kg	5
Nonabromodiphenyl ether	mg/kg	5
Decabromodiphenyl ether	mg/kg	5

Notes/ 註釋:

- n.d. - not detected/未檢出 ; - LoD - Limit of Detection/偵測極限
- mg/kg is equal to ppm (parts per million) 毫克/公斤等同於百萬分之一, 以樣品重量計
- * Once the total Cr content in metal/ plastic or electronic sample is found to be exceeded the limit, the Cr (VI) content will be confirmed with reference to IEC 62321-7-1:2015/ IEC 62321-7-2:2017/ 一旦金屬/塑膠/電子樣品內總鉻含量超過最大允許限值, 六價鉻含量將依照 IEC 62321-7-1:2015/ IEC 62321-7-2:2017 進行確認。

	Cd/鎘	Cr(VI)/六價鉻	Pb/鉛	Hg/汞	PBBs/多溴聯苯	PBDEs/多溴二苯醚
Maximum permissible Limit acc. to 2011/65/EU (mg/kg) / 極限值	100	1000	1000	1000	1000	1000

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 Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH
 Test Method/測試方法 : BBP/DBP/DEHP/DIBP/DNOP/DIDP/DINP –
 Ref. to IEC 62321-8:2017 / 參考 IEC 62321-8:2017

Sample/樣品明細	LoD	通用級聚苯乙烯 GENERAL PURPOSE POLYSTYRENE plastic/transparent / 塑膠/透明 TCL191230-05
Material/材質 Lab.-No./實驗室編號		
Benzylbutylphthalate (BBP) /鄰苯二甲酸苯基丁酯	mg/kg 50	n.d.
Dibutylphthalate (DBP) /鄰苯二甲酸二丁酯	mg/kg 50	n.d.
Diethylhexylphthalate (DEHP) /鄰苯二甲酸二(2-乙基己基)酯	mg/kg 50	n.d.
Diisobutylphthalate (DIBP) /鄰苯二甲酸二異丁酯	mg/kg 50	n.d.
Di-n-octylphthalate (DNOP) /鄰苯二甲酸二辛酯	mg/kg 50	n.d.
Diisononylphthalate (DINP) /鄰苯二甲酸二異壬酯	mg/kg 50	n.d.
Diisodecylphthalate (DIDP) /鄰苯二甲酸二異癸酯	mg/kg 50	n.d.

Notes/ 註釋:

- n.d. - not detected/未檢出 ;
- LoD - Limit of Detection/偵測極限
- mg/kg is equal to ppm (parts per million) 毫克/公斤等同於百萬分之一, 以樣品重量計

	BBP 鄰苯二甲酸苯基丁酯	DBP 鄰苯二甲酸二丁酯	DEHP 鄰苯二甲酸二(2-乙基己基)酯	DIBP 鄰苯二甲酸二異丁酯
Maximum permissible Limit acc. to (EU) 2015/863 (mg/kg) / 極限值	1000	1000	1000	1000

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 Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH
 Test Method / 測試方法 : PAH/多環芳香烴化合物 - AfPS GS 2014:01 PAK

Sample/樣品明細

Material/材質

Lab.-No./實驗室編號

 通用級聚苯乙烯 GENERAL
 PURPOSE POLYSTYRENE
 plastic/transparent / 塑膠/透
 明
 TCL191230-05

Parameter / 測試項目	CAS no.	Unit / 單位	LoD	Result / 結果
Acenaphthene/芴	83-32-9	mg/kg	0.2	n.d.
Acenaphthylene/芴烯	208-96-8	mg/kg	0.2	n.d.
Anthracene/蒽	120-12-7	mg/kg	0.2	n.d.
Benz[a]anthracene/苯並[a]蒽	56-55-3	mg/kg	0.2	n.d.
Benzo[a]pyrene (BaP)/苯並[a]芘	50-32-8	mg/kg	0.2	n.d.
Benzo[b]fluoranthene/苯並[b]芴	205-99-2	mg/kg	0.2	n.d.
Benzo[e]pyrene/苯並[e]芘	192-97-2	mg/kg	0.2	n.d.
Benzo[ghi]perylene/苯並[ghi]芘	191-24-2	mg/kg	0.2	n.d.
Benzo[j]fluoranthene/苯並[j]芴	205-82-3	mg/kg	0.2	n.d.
Benzo[k]fluoranthene/苯並[k]芴	207-08-9	mg/kg	0.2	n.d.
Chrysene/蒽	218-01-9	mg/kg	0.2	n.d.
Dibenz[ah]anthracene/二苯並[ah]蒽	53-70-3	mg/kg	0.2	n.d.
Fluoranthene/芴	206-44-0	mg/kg	0.2	n.d.
Fluorene/芴	86-73-7	mg/kg	0.2	n.d.
Indeno[1,2,3-cd]pyrene/茛並[1,2,3-cd]芘	193-39-5	mg/kg	0.2	n.d.
Naphthalene/萘	91-20-3	mg/kg	0.2	n.d.
Phenanthrene/菲	85-01-8	mg/kg	0.2	n.d.
Pyrene/芘	129-00-0	mg/kg	0.2	n.d.
Sum/總量 of 芴烯(Acenaphthylene), 芴(Acenaphthene), 芴(Fluorene), 菲(Phenanthrene), 芘(Pyrene), 蒽 (Anthracene), 芴(Fluorathene)	-	mg/kg	-	n.d.
Sum/總量 of 18 PAHs	-	mg/kg	-	n.d.

Notes/ 註釋:

- n.d. - not detected/未檢出 ;
- LoD - Limit of Detection/偵測極限
- mg/kg is equal to ppm (parts per million) 毫克/公斤等同於百萬分之一, 以樣品重量計

Remark:

*PAH maximum permissible limits requirement from the GS-Mark Approval published by the German Federal Institute for Occupational Safety and Health (BAuA)/

*PAH 最大允許限值來自德國聯邦職業安全與健康研究所 (BAuA)發布的 GS-Mark 認證。

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Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH

Parameter 項目	Unit 單位	Category 1/第 1 類	Category 2/第 2 類		Category 3/第 3 類	
		Materials intended to be put into the mouth or materials of toy for children with long term intended skin contact (longer than 30 s)/放入口中的物料，或長時間（超過 30 秒）接觸皮膚的玩具物料	Materials not covered by category 1, with foreseeable long term skin contact (longer than 30 s) or repeated short-term skin contact/非涵蓋於第 1 類之內及可預見長期與皮膚接觸(超過 30 秒)或反覆短暫地與皮膚接觸的物料		Materials not covered by category 1 or 2, with foreseeable short term contact (shorter than 30 s)/非涵蓋於第 1 或第 2 類之內及可預見短暫與皮膚接觸(不超過 30 秒)的物料	
			Toys according to 2009/48/EC/按照 2009/48/EC 之玩具	Other products according to ProdSG/按照 ProdSG 之其他產品	Toys according to 2009/48/EC/按照 2009/48/EC 之玩具	Other products according to ProdSG/按照 ProdSG 之其他產品
苯並[a]芘 (Benzo[a]pyrene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
苯並[e]芘 (Benzo[e]pyrene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
苯並[a]蔥 (Benzo[a]anthracene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
苯並[b]熾蔥 (Benzo[b]fluoranthene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
苯並[j]熾蔥 (Benzo[j]fluoranthene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
苯並[k]熾蔥 (Benzo[k]fluoranthene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
蒽 (Chrysene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
二苯並[a,h]蔥 (Dibenzo[a,h]anthracene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
苯並[g,h,i]芘 (Benzo[g,h,i]perylene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
茚並[1,2,3-c,d]芘 (Indeno[1,2,3-c,d]pyrene)	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
萘 (Naphthalene)	mg/kg	<1	<2	<2	<10	<10
芴烯(Acenaphthylene), 芴(Acenaphthene), 芴(Fluorene), 菲(Phenanthrene), 芘(Pyrene), 蔥 (Anthracene), 熾蔥(Fluorathene)	mg/kg	<1 (總量)	<5 (總量)	<10 (總量)	<20 (總量)	<50 (總量)
Sum/總量 of 18 PAHs	mg/kg	<1	<5	<10	<20	<50

Limit/限值: Specific evaluation required according to type of foreseeable use./依據可能的使用方式

** Single components with an amount of <0.2 mg/kg were not considered by the calculation of the sum.

/ 單一樣品測試濃度低於 0.2 mg/kg, 將不予以計入總量加總計算

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 Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH
 Test Method/測試方法 : Halogen(F/Cl/Br/I)/鹵素 - Following EN 14582; determination by I.C.
 PFOS/全氟辛烷磺酸/PFOA/全氟辛酸 - In house method, determination by LC-MS-MS

Sample/樣品明細	LoD	通用級聚苯乙烯 GENERAL PURPOSE POLYSTYRENE plastic/transparent / 塑膠/透明 TCL191230-05
Material/材質		
Lab.-No./實驗室編號		
Flourine (F) / 氟	mg/kg	50
Chlorine (Cl) / 氯	mg/kg	50
Bromine (Br) / 溴	mg/kg	50
Iodine (I) / 碘	mg/kg	50

Sample/樣品明細	LoD	通用級聚苯乙烯 GENERAL PURPOSE POLYSTYRENE plastic/transparent / 塑膠/透明 TCL191230-05
Material/材質		
Lab.-No./實驗室編號		
Perfluorooctane Sulfonate (PFOS) / 全氟辛烷磺酸	mg/kg	1
Perfluorooctanoic Acid (PFOA) / 全氟辛酸	mg/kg	1

Notes/ 註釋:

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- LoD - Limit of Detection/偵測極限
- mg/kg is equal to ppm (parts per million) 毫克/公斤等同於百萬分之一, 以樣品重量計

Test Sample/測試樣品

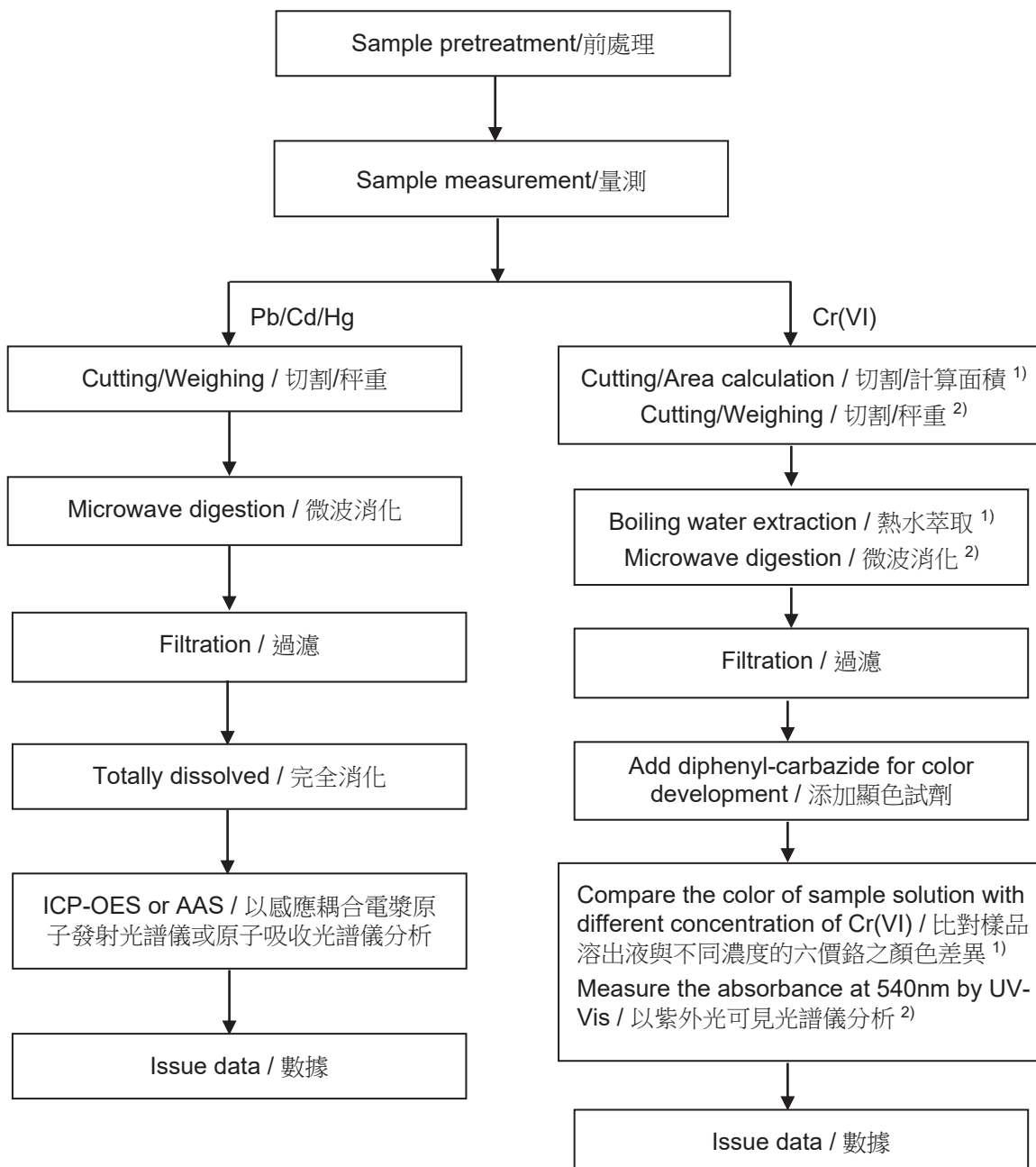

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Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH

Testing procedure / 測試流程圖 :

RoHS (Pb/鉛, Cd/鎘, Hg/汞, Cr(VI)/六價鉻)



Notes/ 註釋: ¹⁾ For metallic material / 用於金屬物質

²⁾ For non-metallic material / 用於非金屬物質

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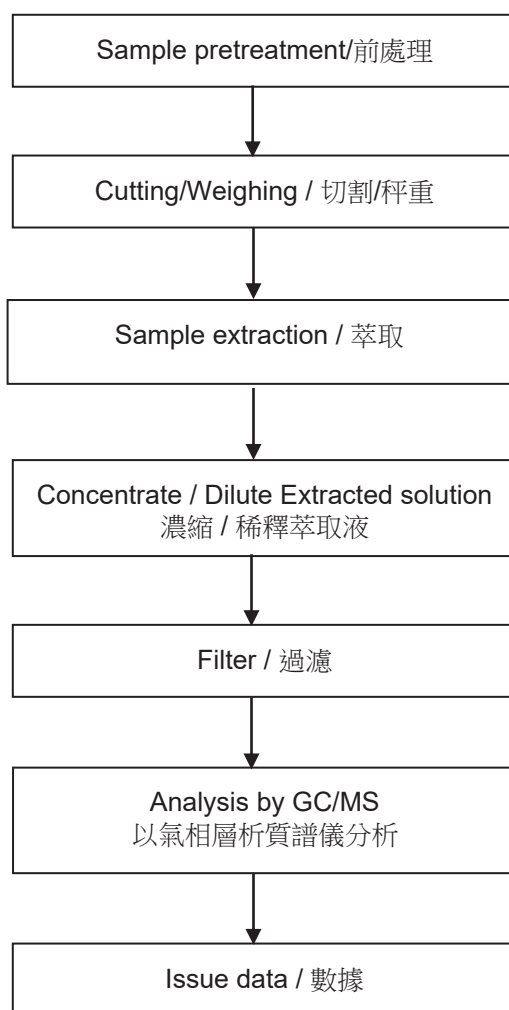
2020-01-14

Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH

Testing procedure / 測試流程圖 :

RoHS (PBBs/多溴聯苯, PBDEs/多溴二苯醚, BBP/鄰苯二甲酸苯基丁酯、DBP/鄰苯二甲酸二丁酯、DEHP/鄰苯二甲酸二(2-乙基己基)酯、DIBP/鄰苯二甲酸二異丁酯)

Di-n-octylphthalate (DNOP)/鄰苯二甲酸二辛酯、Diisononylphthalate (DINP)/鄰苯二甲酸二異壬酯、Diisodecylphthalate (DIDP)/鄰苯二甲酸二異癸酯



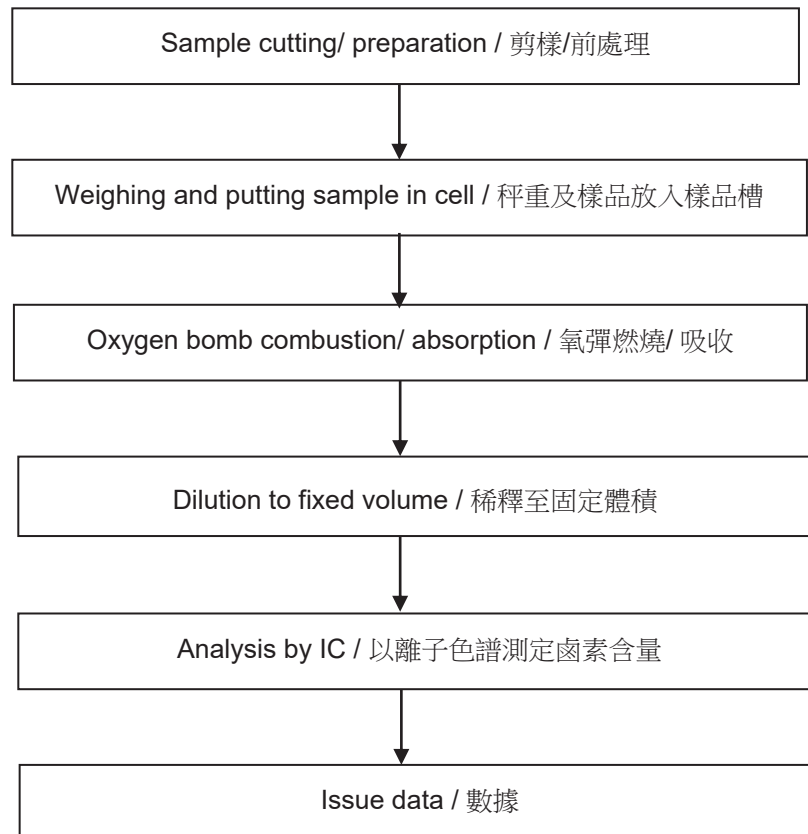
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Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH

Testing procedure / 測試流程圖 :

Halogen/鹵素



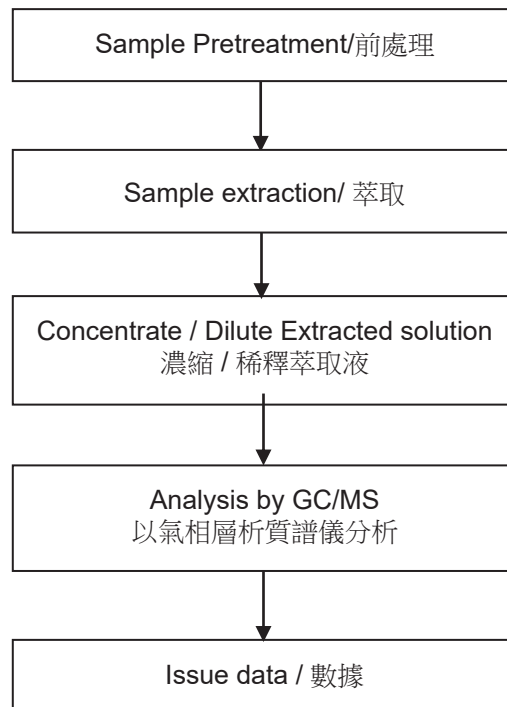
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Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH

Testing procedure / 測試流程圖 :

PAHs/多環芳香烴化合物



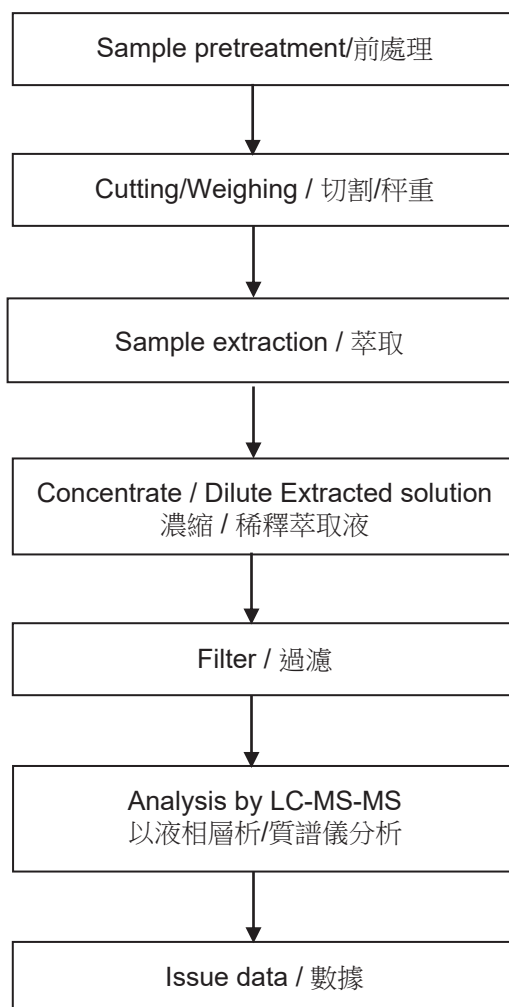
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Customer/公司名稱 : TAITA CHEMICAL COMPANY LIMITED KAOHSIUNG BRANCH

Testing procedure / 測試流程圖 :

PFOS/全氟辛烷磺酸, PFOA/全氟辛酸



--- End of Test-Report / 此報告結束---