

## **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD.

台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, 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/on behalf of the applicant as):

號碼(No.): CE/2019/11983 日期(Date): 2019/01/16

送樣廠商(Sample Submitted By) 崑仲股份有限公司 (KIN JOIN CO., LTD.)

樣品名稱(Sample Description) THERMOPLASTIC POLYURETHANE (TPU) (熱可塑性聚氨酯)

收件日期(Sample Receiving Date) 2019/01/09

測試期間(Testing Period) 2019/01/09 to 2019/01/16

#### 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測試編、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, DBP, DEHP, DIBP contents in the submitted sample(s).)

\_\_\_\_\_

(2) 依據客戶指定,檢測 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) :

- (1) 根據客戶所提供的樣品,其鎬、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP 的測試結果符合RoHS 2011/65/EU Annex II暨其修訂指令(EU) 2015/863之限值要求. (Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)
- (2) 根據客戶所提供的樣品,18項多環芳香烴測試結果符合德國產品安全委員會(AfPS) GS PAHs第 1 類 之限值要求. (Based upon the performed tests on the submitted sample(s), the test results of PAHs (18 items) comply with the limits of PAHs requirement (Category 1) as set by German Committee on Product Safety (AfPS) GS PAHs.)





頁數(Page): 1 of 13



號碼(No.): CE/2019/11983 日期(Date): 2019/01/16 頁數(Page): 2 of 13

# **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

#### 測試結果(Test Results)

測試部位(PART NAME)No.1 : 透明塑膠粒 (TRANSPARENT PLASTIC PELLETS)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result) No.1	限值 (Limit)
鎬 / Cadmium (Cd)	mg/kg	參考IEC 62321-5 (2013),以感應耦合 電漿原子發射光譜儀檢測. / With	2	n. d.	100
鉛 / Lead (Pb)	mg/kg	reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n. d.	1000
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4 (2013),以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4 (2013) and performed by ICP-AES.	2	n. d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	参考IEC 62321-7-2 (2017),以UV-VIS 檢測. / With reference to IEC 62321-7-2 (2017) and performed by UV-VIS.	8	n. d.	1000
多溴聯苯總和 / Sum of PBBs	mg/kg		-	n. d.	1000
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n. d.	ı
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n. d.	ı
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n. d.	-
四溴聯苯 / Tetrabromobiphenyl	mg/kg	參考IEC 62321-6 (2015),以氣相層析	5	n. d.	-
五溴聯苯 / Pentabromobiphenyl	mg/kg	儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS.	5	n. d.	-
六溴聯苯 / Hexabromobiphenyl	mg/kg		5	n. d.	-
七溴聯苯 / Heptabromobiphenyl	mg/kg	0, 00, mo.	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.	-



號碼(No.): CE/2019/11983 日期(Date): 2019/01/16 頁數(Page): 3 of 13

# **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) No.1	限值 (Limit)
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		-	n. d.	1000
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg		5	n. d.	_
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg	タ 老 IFC 69391-6 (9015), 以 気 扣 扇 折	5	n. d.	-
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n. d.	-
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg	參考IEC 62321-6 (2015),以氣相層析	5	n. d.	-
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg	儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed	5	n. d.	-
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg	by GC/MS.	5	n. d.	-
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg	by GC/ ing.	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.	-
鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg	参考IEC 62321-8 (2017),以氣相層析 儀/質譜儀檢測. / With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n. d.	1000
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n. d.	1000
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.	1000
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg		50	n. d.	1000
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	mg/kg		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.	_



號碼(No.): CE/2019/11983 日期(Date): 2019/01/16 頁數(Page): 4 of 13

# **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) No.1	限值 (Limit)
多環芳香烴 / Polycyclic Aromatic Hydrocarbons (PAHs)					
苊 / Acenaphthene (CAS No.: 83-32-9)	mg/kg		0.2	n. d.	-
苊烯 / Acenaphthylene (CAS No.: 208-96-8)	mg/kg		0. 2	n. d.	-
蔥 / Anthracene (CAS No.: 120-12-7)	mg/kg	1	0.2	n. d.	-
苯駢蒽 / Benzo[a]anthracene (CAS No.: 56-55-3)	mg/kg		0. 2	n. d.	_
苯駢(a)芘 / Benzo[a]pyrene (CAS No.: 50-32-8)	mg/kg		0. 2	n. d.	_
苯(b)苯駢芴 / Benzo[b]fluoranthene (CAS No.: 205-99-2)	mg/kg		0. 2	n. d.	-
苯駢菲 / Benzo[g,h,i]perylene (CAS No.: 191-24-2)	mg/kg	參考AfPS GS 2014:01 PAK,以氣相層	0. 2	n. d.	-
苯駢(k)螢蔥 / Benzo[k]fluoranthene (CAS No.: 207-08-9)	mg/kg		0. 2	n. d.	-
Chrysene (CAS No.: 218-01-9)	mg/kg	析儀/質譜儀檢測. / With reference	0.2	n. d.	-
二苯駢蒽 / Dibenzo[a,h]anthracene (CAS No.: 53-70-3)	mg/kg	to AfPS GS 2014:01 PAK. Analysis was performed by GC/MS.	0. 2	n. d.	-
苯駢苊 / Fluoranthene (CAS No.: 206-44-0)	mg/kg		0. 2	n. d.	-
芴 / Fluorene (CAS No.: 86-73-7)	mg/kg	]	0.2	n. d.	_
茚酮芘 / Indeno[1, 2, 3-c, d] pyrene (CAS No.: 193-39-5)	mg/kg		0. 2	n. d.	-
萘 / Naphthalene (CAS No.: 91-20-3)	mg/kg	1	0.2	n. d.	_
菲 / Phenanthrene (CAS No.: 85-01-8)	mg/kg		0.2	n. d.	_
芘 / Pyrene (CAS No.: 129-00-0)	mg/kg		0.2	n. d.	-
苯(j)苯駢芴 / Benzo[j]fluoranthene (CAS No.: 205-82-3)	mg/kg		0. 2	n. d.	-
苯駢(e)芘 / Benzo[e]pyrene (CAS No.: 192-97-2)	mg/kg		0. 2	n. d.	-
多環芳香烴18項總和 / Sum of 18 PAHs	mg/kg	1	-	n. d.	Δ



號碼(No.): CE/2019/11983 日期(Date): 2019/01/16 頁數(Page): 5 of 13

## **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD.

台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) No.1	限值 (Limit)
鹵素 / Halogen					
鹵素(氟)/ Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg		50	n. d.	-
鹵素 (氣) / Halogen-Chlorine (C1) (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	50	n. d.	-
鹵素(溴)/ Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	14582 (2016). Analysis was performed by IC.	50	n. d.	-
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n. d.	-
三丁基錫 / Tributyl Tin (TBT)	mg/kg	參考ISO 17353 (2004),以氣相層析儀	0.03	n. d.	-
三苯基錫 / Triphenyl Tin (TphT)	mg/kg	/火焰光度偵測器檢測. / With reference to ISO 17353 (2004).	0.03	n. d.	-
二丁基錫 / Dibutyl Tin (DBT)	mg/kg		0.03	n. d.	-
二辛基錫 / Dioctyl Tin (DOT)	mg/kg	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	参考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	0.03 (▲)	n. d.	-
		to ISO 17353 (2004). Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).			

#### 備註(Note):

- 1. mg/kg = ppm ; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected (未檢出)
- 3. MDL = Method Detection Limit (方法偵測極限值)
- 4. "-" = Not Regulated (無規格值)
- 5. (▲): 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 x F

AX	A	F
氧化雙三丁基錫 / Bis(tributyltin)oxide (TBTO)	三丁基錫 / Tributyl Tin (TBT)	1.024



號碼(No.): CE/2019/11983 日期(Date): 2019/01/16 頁數(Page): 6 of 13

# **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

#### $\Delta$ 德國產品安全委員會(AfPS) GS PAHs 要求 /

AfPS (German commission for Product Safety): GS PAHs requirements

	第1類(Category 1)	第2類(Category 2)		第3類(Category 3)		
項目 (Parameter)	意圖放入嘴內的材料 或玩具會與皮膚有所 接觸(超過30秒). (Material indented to be put in the mouth or toys with intended skin	不屬於第1類的材料並可預見與皮膚接觸逾30秒(長期或經常與皮膚接觸). (Materials not falling under category 1 with foreseeable contact to skin for longer than 30 seconds (longterm skin or frequent contact).)		可預見與皮膚接觸短於30秒(短期與皮膚接觸),以及不屬於第1類或第2類的材料. (Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 seconds (shortterm skin contact).)		
	contact (longer than 30 s).)	列於2009/48/EC 之玩具 (Toy under 2009/48/EC)	列於德國產品安全 法之其他產品 (Other products under ProdSG)	列於2009/48/EC 之玩具 (Toy under 2009/48/EC)	列於德國產品安全 法之其他產品 (Other products under ProdSG)	
Naphthalene	< 1	<	< 2	<	10	
Acenaphthylene						
Acenaphthene						
Fluorene						
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	
18項PAH總濃度 (Sum of 18 PAH)	< 1	< 5	< 10	< 20	< 50	

單位(Unit):mg/kg



**Test Report** 

日期(Date): 2019/01/16 號碼(No.): CE/2019/11983 頁數(Page): 7 of 13

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

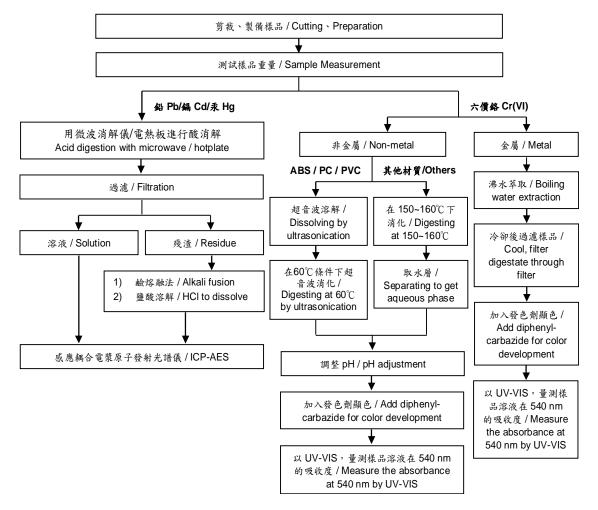
NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

#### 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)

 $These \ samples \ were \ dissolved \ totally \ by \ pre-conditioning \ method \ according \ to \ below \ flow \ chart. \ (\ Cr^{6+} \ test \ method \ excluded\ )$ 

- 測試人員: 陳恩臻 / Technician: Rita Chen
- 測試負責人:張啟興 / Supervisor: Troy Chang





**Test Report** 

日期(Date): 2019/01/16 號碼(No.): CE/2019/11983 頁數(Page): 8 of 13

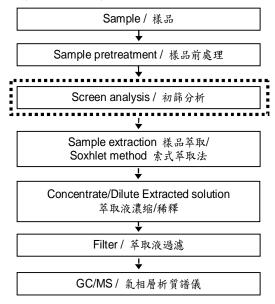
崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號 NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

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

測試人員:涂雅苓 / Technician: Yaling Tu

測試負責人:張啟興 / Supervisor: Troy Chang

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 \_ . \_ . →





## **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

號碼(No.): CE/2019/11983

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

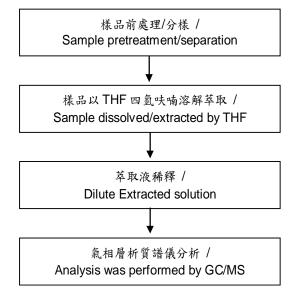
日期(Date): 2019/01/16

頁數(Page): 9 of 13

測試人員:涂雅苓 / Technician: Yaling Tu

測試負責人:張啟興 / Supervisor: Troy Chang

【測試方法/Test method: IEC 62321-8】





## **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

號碼(No.): CE/2019/11983

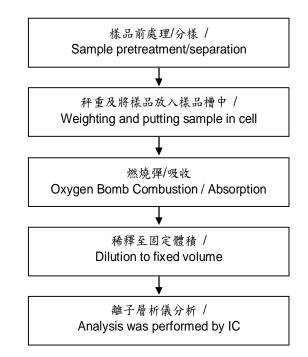
#### 鹵素分析流程圖 / Analytical flow chart - Halogen

日期(Date): 2019/01/16

頁數(Page): 10 of 13

測試人員: 陳恩臻 / Technician: Rita Chen

測試負責人:張啟興 / Supervisor: Troy Chang





# **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

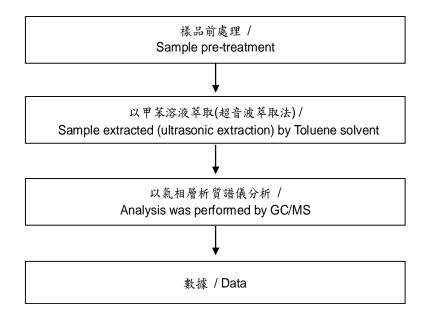
號碼(No.): CE/2019/11983

#### <u>多環芳香烴分析流程圖 /</u> Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)

日期(Date): 2019/01/16

頁數(Page): 11 of 13

- 測試人員:涂雅苓 / Technician: Yaling Tu
- 測試負責人:張啟興 / Supervisor: Troy Chang





# **Test Report**

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, TAIWAN, (R. O. C.)

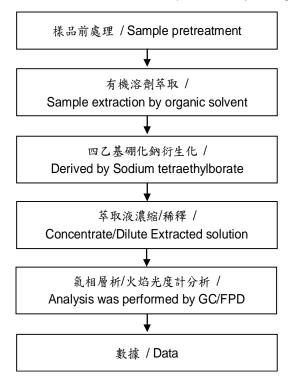
號碼(No.): CE/2019/11983

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

日期(Date): 2019/01/16

頁數(Page): 12 of 13

- 測試人員:涂雅苓 / Technician: Yaling Tu
- 測試負責人:張啟興 / Supervisor: Troy Chang





**Test Report** 

號碼(No.): CE/2019/11983 日期(Date): 2019/01/16 頁數(Page): 13 of 13

崑仲股份有限公司 KIN JOIN CO., LTD. 台中市大里區仁化路166號

NO. 166, RENHUA RD., DALI DIST., TAICHUNG CITY 41278, 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.)

CE/2019/11983



\*\* 報告結尾 (End of Report) \*\*