

# 國塑公司 永續材料介紹

Less is More



國塑塑膠工業股份有限公司  
Guo Su Plastic Industry CO., LTD.



# 公司簡介



國塑公司地址:台南市官田區成功街85號



工廠  
面積2,250坪(6600m<sup>2</sup>)



回收再生PC產能  
5500噸/年



品質系統認證  
ISO9001、ISO14001





# 國塑循環經濟-資源再利用

消費後回收PCR(Post-Consumer Recycled)塑膠循環再利用



# 再生PC生產製程



分類粉碎 → PC碎片清洗分選 → 廢水處理 → 擠出造粒 → QC

40噸/天

自動汙水處理200噸/天

25噸/天

符合RoHS、  
REACH規範

## 公司特色：

1. PC再生粒月產能460噸
2. 具備二條清洗線可同時作業
3. 自有汙水處理廠領先同業





# 煮洗產線與廢水處理設施

## 2條清洗產線-40噸/天

致力於清洗技術開發，提高 PCR PC 純度與品質



蒸煮



脫水



飄洗



清洗乾燥

## 汙水處理廠-200噸/天

汙水處理廠媲美電子廠等級

汙水合格排放，不再二次污染環境



# 四層管控造就更完美的PCR PC



原料前置攪拌



品質檢測



生產配方拌料



品質檢測



造粒



成品包裝



品質檢測



成品攪拌



品質檢測

# 完善的品管設備

能量光譜儀



熱變形溫度測試儀



抗衝擊試驗機



熔融指數測試儀



阻燃試驗機



水分測試儀



色差測試儀



萬能試驗機





# 綠色認證-循環再生-TUV認證



## PCR TUV回收材料認證

現在的回收材質生產技術已經相當成熟，然而添加回收材質的製品仍無法透過普通的產品測試方式確認添加比例。德國萊因TÜV的專家在回收材質添加比例的驗證服務以及回收材質管理系統方面經驗豐富。通過技術審查後，您可取得驗證證書。取得回收材質驗證證書，可以幫助您提升品牌聲譽，以差異性優勢贏得客戶的信賴。

Certificate		
Certificate no.	TA 50524232 01	
License Holder:	Guo Su Plastic Industry Co., Ltd. No.85, Chenggong Street, Guantian District, Tainan City, 72046 Taiwan, R.O.C.	
Manufacturing Plant:	Guo Su Plastic Industry Co., Ltd. No.85, Chenggong Street, Guantian District, Tainan City, 72046 Taiwan, R.O.C.	
Test report no.:	ZTW1-LWH 38518918 001	Client Reference: 0002057261/J.L.
Tested to:	ISO 14021:2016	
Certified Product:	Postconsumer Recycled Polycarbonate (PC)	License Fee - Units
Type Designation: Recycled PC (KS-10, KS-15, WB-01, WB-04, CD-175, NC-15B, NC-15C), Compliance and has been verified in accordance with ISO 14021 Article 5.1 General, 7.7 Recyclable, 7.8 Recycled content.		
Remark: This certificate is valid for maximum 3 years.		
1. The post consumer recycled material rate of KS-10, KS-15, WB-01, WB-04, CD-175, NC-15B, NC-15C for year 2020/7-2021/6 are 100%.		
2. For details of hazardous substance refer to test report No. 238518918a 001.		
Continued on Page 02		
Licensed Test mark:	TÜV Rheinland Taiwan Ltd Signature	Date of Issue (day/mo/yr) 09/11/2021
 www.tuv.com © 1111347001	 Dipl.-Ing. F. Stoezel	
TÜV Rheinland Taiwan Ltd., 11F, No 755, Sec. 4, Bade Rd., Songshan Dist., Taipei 105, Taiwan Tel: (82) 2172 7000, Fax: (82) 2172 1322		



# 綠色認證-循環再生-GRS認證

國塑PCR PC全產品都符合GRS認證



GRS標準基於對受驗證成品的追蹤與追溯的原則，同時包含了各行業均適用的環境和社會責任相關要求。隨著標準的發展或將選擇引入交易證書系統，能為產業供應鏈提供較好的監視和控制機制，進而確保受驗證產品的完整性。全球回收標準是為加入GRS 驗證體系的申請者而設計的，申請者可以是交易和/或生產回收品（成品或者半成品），並準備加入GRS 驗證體系的公司。驗證產品範圍不僅僅局限於紡織品，如果該公司將成品的生產全部或者部分外包，則相關生產單位也必須遵守GRS 標準。

		
TAIWAN IDFL LABORATORY AND INSTITUTE LIMITED 8F., No. 312, Sec. 2, New Taipei Blvd., Xinzhuang Dist., New Taipei City 242032 Taiwan		
<b>SCOPE CERTIFICATE</b>		
Scope Certificate Number: IDF-23-464890		
IDFL certifies that		
<b>GUO SU PLASTIC INDUSTRY CO., LTD.</b>		
國塑塑膠工業股份有限公司		
LICENSE NUMBER 006498		
No. 85, Chenggong St., Guantian Dist., Tainan City, 720006 Tainan, Taiwan		
has been audited and found to be in conformity with the		
<b>Global Recycled Standard (GRS) (Version 4.0)</b>		
Products categories mentioned below (and further specified in the product appendix) conform with the standard(s): <b>Processed Post-Consumer Materials (PC0035)</b>		
Process categories carried out under responsibility of the above mentioned organization for the certified products cover: <b>Chemical Recycling (PR0004)</b>		
This certificate is valid until: 2024-06-25		
Audit criteria: Global Recycled Standard V4.0; Content Claim Standard V3.1; Textile Exchange Standards Claim Policy V1.1		
Place and Date of Issue (YYYY-MM-DD) TAIWAN IDFL LABORATORY AND INSTITUTE LIMITED, 2023-06-26 Last Updated: 2023-06-26	Certification Body IDFL License No: CB-IDF	Standard
 Wilford Lieber, CEO		
This scope certificate provides no proof that any goods delivered by its holder are Global Recycled Standard (GRS) certified. Proof of Global Recycled Standard (GRS) certification of goods delivered is provided by a valid transaction certificate (TC) or equivalent covering them. The issuing body may withdraw this certificate before it expires if the declared conformity is no longer guaranteed. To authenticate this certificate, please visit <a href="http://www.TextileExchange.org/Certificates">www.TextileExchange.org/Certificates</a>		
This electronically issued document is the valid original version. Scan QR Code to verify certificate.		
		

# 綠色認證-環境友好



SGS

## 測試報告 Test Report

國塑塑膠工業股份有限公司 (GUO SU PLASTIC INDUSTRY CO., LTD)  
台南市官田區成功街85號 (NO. 85, CHENGONG ST., GUANTIAN DIST., TAINAN CITY 720006, 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 the applicant as):

送樣廠商(Sample Submitted By) : 國塑塑膠工業股份有限公司 (GUO SU PLASTIC INDUSTRY CO., LTD)  
樣品名稱(Sample Name) : PC聚碳酸酯  
樣品型號(Style/Item No.) : PC NC-15B

收件日(Sample Receiving Date) : 23-Feb-2024  
測試期間(Testing Period) : 23-Feb-2024 to 04-Mar-2024

測試需求(Test Requested) : 依據客戶指定，參考REACH之Regulation (EC) No 1907/2006的公告進行以下測試 (As specified by client, the sample(s) was/were tested with reference to Regulation (EC) No 1907/2006 concerning the REACH)  
240高關注物質篩選清單，於2024年01月23日公告 (240 Substances of Very High Concern (SVHC). Candidate list is published on January 23, 2024)

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages).  
總結(Summary) : 根據歐洲法院對於REACH規範下成品定義的裁決以及指定範圍分析技術，送測樣品中所選擇的零組件成品的高關注物質(SVHC) 測試結果濃度均  $\leq 0.1\%$  (w/w) (According to the ruling of the Court of Justice of the European Union on the definition of an article under REACH, and the specified scope as well as analytical technique, the test results of the selected component article are  $\leq 0.1\%$  (w/w) in the submitted sample(s).)

報告簽署人/部門主管 博士/副經理  
Ray Chang, Ph.D. / Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
化學實驗室-高雄/Chemical Laboratory-Kaohsiung

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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司  
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Member of the SGS Group



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## 測試報告 Test Report

國塑塑膠工業股份有限公司 (GUO SU PLASTIC INDUSTRY CO., LTD)  
台南市官田區成功街85號 (NO. 85, CHENGONG ST., GUANTIAN DIST., TAINAN CITY 720, 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) : 國塑塑膠工業股份有限公司 (GUO SU PLASTIC INDUSTRY CO., LTD)  
樣品名稱(Sample Name) : PC聚碳酸酯  
樣品型號(Style/Item No.) : PC NC-15B

收件日(Sample Receiving Date) : 23-Sep-2023  
測試期間(Testing Period) : 23-Sep-2023 to 02-Oct-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) 依據客戶指定，測試元素-氟、氯、溴、碘 (As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample.)  
請參閱下一頁 (Please refer to following pages).

測試結果(Test Results) : (1) 根據客戶所提供的樣品，其鎘、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及其修訂指令(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.)

結論(Conclusion) : (1) 根據客戶所提供的樣品，其鎘、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及其修訂指令(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.)

報告簽署人/部門主管 博士/副經理  
Ray Chang, Ph.D. / Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
化學實驗室-高雄/Chemical Laboratory-Kaohsiung



PIN CODE: 38544588

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# 與台化公司合作



2021年12月22日，台塑集團的台化公司，與國塑公司簽訂合資協議，自2022年1月開始，成為國塑49%的股東，正式展開與國塑的合作。

本案為台灣首間塑料生產企業和PCR生產企業結合雙方資源共創循環圈的實績。



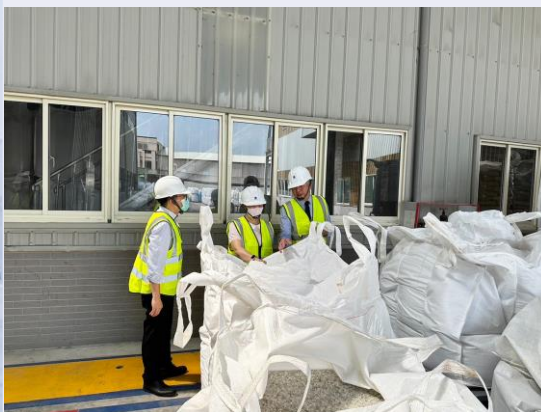


# 客戶訪廠稽核

參觀實驗室介紹品管流程



說明經過初步處理的回收PC碎片



參觀押出製粒車間



# Green office

大型事務機  
NC-15B

電視外殼  
CD-175

路由器外殼  
NC-15B

筆電外殼  
KS-10



# 國塑產品介紹

## KS-10

Modified Polycarbonate for Suitcase  
GRS Post-Consumer-Recycled PC certification

性質 PROPERTIES		測試條件 CONDITION	測試方法 Method	單位 UNIT	數據 RESULT
熱性質	THERMAL				
熔融指數	Melt Flow Index	300°C*1.2kg	ASTM D1238	g/10min	10±2
熱變形溫度	Heat Distortion	1.82 Mpa	ASTM D648	°C	≥120
機械特性	MECHANICAL				
抗張強度	Tensile Strength	5.00 cm/min	ASTM D638	Mpa(kg/cm²)	≥55(560)
延伸率	Tensile Elingation	5.00 cm/min	ASTM D638	%	≥50
彎曲強度	Flexural Strength	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥80(800)
彎曲彈性系數	Flexural Modulus	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥2200(22000)
衝擊強度	IZOD Impact Strength	3.2 mm, 23°C	ASTM D256	J/M(Kg/cm-cm)	≥490(50)
硬度	Hardness		ASTM D2240	Shore D	≥D-80
其他	OTHER				
灰份	Ash Content	800°C	ASTM D2584	%	≤0.1
比重	Specific Gravity	23°C	ASTM D792	g/cm³	1.195±0.02
含水率	Moisture Asborption	23°C	ASTM D570	%	≤0.3
UL燃燒等級	UL Rating	—	UL 94	1.5mm	—

These are typical properties only and are not to be construed as specification. Users should confirm results by their own tests.





# 國塑產品介紹

## WB-04

Modified Polycarbonate for Suitcase  
GRS Post-Consumer-Recycled PC certification

性質 PROPERTIES		測試條件 CONDITION	測試方法 Method	單位 UNIT	數據 RESULT
熱性質	THERMAL				
熔融指數	Melt Flow Index	300°C*1.2kg	ASTM D1238	g/10min	<8
熱變形溫度	Heat Distortion	1.82 Mpa	ASTM D648	°C	≥120
機械特性	MECHANICAL				
抗張強度	Tensile Strength	5.00 cm/min	ASTM D638	Mpa(kg/cm²)	≥55(560)
延伸率	Tensile Elongation	5.00 cm/min	ASTM D638	%	≥50
彎曲強度	Flexural Strength	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥80(800)
彎曲彈性系數	Flexural Modulus	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥2100(21000)
衝擊強度	IZOD Impact Strength	3.2 mm, 23°C	ASTM D256	J/M(Kg/cm-cm)	≥580(60)
硬度	Hardness		ASTM D2240	Shore D	≥D-80
其他	OTHER				
灰份	Ash Content	800°C	ASTM D2584	%	≤0.1
比重	Specific Gravity	23°C	ASTM D792	g/cm³	1.195±0.02
含水率	Moisture Absorption	23°C	ASTM D570	%	≤0.3
UL燃燒等級	UL Rating	--	UL 94	1.5mm	--

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# 國塑產品介紹

## CD-175

Modified Polycarbonate for Suitcase  
GRS Post-Consumer-Recycled PC certification

性質 PROPERTIES		測試條件 CONDITION	測試方法 Method	單位 UNIT	數據 RESULT
熱性質	THERMAL				
熔融指數	Melt Flow Index	300°C*1.2kg	ASTM D1238	g/10min	≥60
熱變形溫度	Heat Distortion	1.82 Mpa	ASTM D648	°C	≥118
機械特性	MECHANICAL				
抗張強度	Tensile Strength	5.00 cm/min	ASTM D638	Mpa(kg/cm²)	≥30(300)
延伸率	Tensile Elingation	5.00 cm/min	ASTM D638	%	--
彎曲強度	Flexural Strength	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥80(800)
彎曲彈性系數	Flexural Modulus	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥2100(2100)
衝擊強度	IZOD Impact Strength	3.2 mm, 23°C	ASTM D256	J/M(Kg/cm-cm)	≥50(5)
硬度	Hardness		ASTM D2240	Shore D	≥D-78
其他	OTHER				
灰份	Ash Content	800°C	ASTM D2584	%	≤0.1
比重	Specific Gravity	23°C	ASTM D792	g/cm³	1.195±0.02
含水率	Moisture Asorption	23°C	ASTM D570	%	≤0.3
UL燃燒等級	UL Rating	--	UL 94	1.5mm	--

These are typical properties only and are not to be construed as specification. Users should confirm results by their own tests.



# 國塑產品介紹

## NC-15B

Modified Polycarbonate for Suitcase  
GRS Post-Consumer-Recycled PC certification

性質 PROPERTIES		測試條件 CONDITION	測試方法 Method	單位 UNIT	數據 RESULT
熱性質	THERMAL				
熔融指數	Melt Flow Index	300°C*1.2kg	ASTM D1238	g/10min	5±2
熱變形溫度	Heat Distortion	1.82 Mpa	ASTM D648	°C	≥120
機械特性	MECHANICAL				
抗張強度	Tensile Strength	5.00 cm/min	ASTM D638	Mpa(kg/cm²)	≥55(560)
延伸率	Tensile Elingation	5.00 cm/min	ASTM D638	%	≥50
彎曲強度	Flexural Strength	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥80(800)
彎曲彈性系數	Flexural Modulus	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥2200(22000)
衝擊強度	IZOD Impact Strength	3.2 mm, 23°C	ASTM D256	J/M(Kg/cm-cm)	≥490(50)
硬度	Hardness		ASTM D2240	Shore D	≥D-80
其他	OTHER				
灰份	Ash Content	800°C	ASTM D2584	%	≤0.1
比重	Specific Gravity	23°C	ASTM D792	g/cm³	1.195±0.02
含水率	Moisture Asorption	23°C	ASTM D570	%	≤0.3
UL燃燒等級	UL Rating	--	UL 94	1.5mm	--

These are typical properties only and are not to be construed as specification. Users should confirm results by their own tests.





# 行李箱專用料

## WS-05

Modified Polycarbonate for Suitcase  
GRS Post-Consumer-Recycled PC certification

性質 PROPERTIES		測試條件 CONDITION	測試方法 Method	單位 UNIT	數據 RESULT
熱性質	THERMAL				
熔融指數	Melt Flow Index	300°C*1.2kg	ASTM D1238	g/10min	5~8
熱變形溫度	Heat Distortion	1.82 Mpa	ASTM D648	°C	≥120
機械特性	MECHANICAL				
抗張強度	Tensile Strength	5.00 cm/min	ASTM D638	Mpa(kg/cm²)	≥55(560)
延伸率	Tensile Elongation	5.00 cm/min	ASTM D638	%	≥50
彎曲強度	Flexural Strength	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥80(820)
彎曲彈性系數	Flexural Modulus	2.80 cm/min	ASTM D790	Mpa(kg/cm²)	≥2000(20500)
衝擊強度	IZOD Impact Strength	3.2 mm, 23°C	ASTM D256	J/M(Kg·cm·cm)	≥590(60)
硬度	Hardness		ASTM D2240	Shore D	≥80
其他	OTHER				
灰份	Ash Content	800°C	ASTM D2584	%	≤0.1
比重	Specific Gravity	23°C	ASTM D792	g/cm³	1.195±0.02
含水率	Moisture Absorption	23°C	ASTM D570	%	≤0.3

These are typical properties only and are not to be construed as specification. Users should confirm results by their own tests.





國塑塑膠工業股份有限公司  
Guo Su Plastic Industry CO., LTD.

**THANK YOU**

