

**Report No. 報告號碼:** 48284109e16 001

**Client 客戶:** FORMOSA PLASTICS CORPORATION/台灣塑膠工業股份有限公司  
No. 1, Formosa Industrial Complex, Mailiao, Yunlin 638, Taiwan, R.O.C./  
台灣 雲林縣麥寮鄉638台塑工業園區1號

**Test item(s) 測試樣品:** 台塑烯管級高密度聚乙烯/Taisox HDPE Pipe Grade Resin (Natural)

**Identification/Model No(s): 8001, 8001A, 8001U, 8100RT, 8100U**  
**樣品描述/規格:**

**Sample obtaining method: Sending by customer**  
**樣品獲取方式:**

**Condition at delivery: Test item complete and undamaged.**  
**樣品接收狀態:**

**Sample receiving date: 2025-11-11**  
**收樣日期:**

**Testing period: 2025-11-11 – 2025-12-19**  
**測試週期:**

**Place of testing: TÜV Rheinland Hong Kong Ltd.**  
**測試地點:**

**Test specification 測試要求:**

Selected parameter(s) requested by the customer with reference to following regulation:

Commission Regulation (EU) No.10/2011 and its amendments

- Sensorial examination/感官測試
- Global Migration/總遷移量
- Specific Migration of Metals/重金屬的特定遷移
- Specific Migration of Primary Aromatic Amines/初級芳香胺的特定遷移
- Specific Migration of Bisphenol A/ 雙酚 A 的特定遷移

**Test result 測試結果:**

Pass/合格  
Pass/合格  
Pass/合格  
Pass/合格  
Pass/合格

**Other information: Single-use product.**

其他信息:

For and on behalf of  
TÜV Rheinland Taiwan Ltd.





2026-01-02  
Date 日期

Arthur Cheng/Project Manager  
Name/Position 姓名/職位

**Report Authenticity Verification, please email: [softlines@tw.tuv.com](mailto:softlines@tw.tuv.com)**  
**報告真實性確認，如需驗證，請電郵至 [softlines@tw.tuv.com](mailto:softlines@tw.tuv.com)**

Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed. This test report relates to the above mentioned 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.  
"Decision Rule" document announced in our website (<https://www.tuv.com/landingpage/en/qm-gcn/>) describes the statement of conformity and its rule of enforcement for test results are applicable throughout this test report.  
樣品信息由客戶提供。測試結果根據所做測試的種類和範圍而得出。本測試報告僅對來樣負責。未經本測試中心許可，測試報告不得部分複製。不能根據此報告在上述產品或類似產品上使用任何安全標誌。本測試報告中，描述符合性聲明所應用的判定規則發佈在我司官網 <https://www.tuv.com/landingpage/en/qm-gcn/>。

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第2頁共7頁**Material list/材料清單**

Mat. No./ 材料號碼	Material/材質	Color/顏色	Location/位置
1	Plastic/塑膠	White/白色	TCL251111-21

**1. Sensorial examination / 感官測試**

Test method / 測試方法: It is examined to the extent of food simulant being used, which comes into contact with the product, undergoes detectable changes in taste and smell.

For this purpose, the food simulant was stored in the product under the below mentioned time and temperature. Afterwards, the food simulant was examined by an appropriate number of tasters with regard to any divergence in smell and taste. Another test sample, which was used as a reference, was treated by the same way except that it had no contact with the product to be tested.

*Before testing, the product had been cleaned according to the product's instruction manual or in the absence of such manual, by normal household cleaning.*

The test is carried out on the basis of ISO 13302 by paired comparison test:/  
此測試參考 ISO 13302 進行成對比較。

Evaluation scheme / 評估方案:

- 0 = No discernible deviation / 無可識別差異
- 1 = Barely discernible deviation / 近乎無可識別差異
- 2 = Weak deviation / 輕微差異
- 3 = Clear deviation / 明顯差異
- 4 = Strong deviation / 強烈差異

Limit/限值: 3 (failed) / 3 (不合格)

The following food simulants and conditions were applied per client's request.

<b>Food simulant / 食物模擬劑</b>	<b>Test duration / Temperature 測試時間 / 溫度</b>
Water / 水	10 day(s)/天 / 40 °C

Material no./材料號碼	Mat. 1
<b>Parameter/測試項目:</b>	<b>Result/結果</b>
Transfer of Smell/氣味的轉移:	0
Transfer of Taste/味道的轉移:	0

The examined item does meet the requirement/此測試項目符合要求

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**2. Global Migration/總遷移量**

Test method / 測試方法: The migratory behaviour was examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments

Limit / 測試要求: With reference to Commission Regulation (EU) No 10/2011 and its amendments

The following food simulant and condition were applied per client's request:

<b>Food simulant / 食物模擬劑</b>	<b>Test duration / Temperature 測試時間 / 溫度</b>
Acetic acid 3 % / 3% 醋酸	10 day(s)/天 / 40 °C
Ethanol 95 % / 95 %乙醇	10 day(s)/天 / 40 °C
Isooctane / 異辛烷	2 day(s)/天 / 20 °C

Material no./材料號碼	Mat. 1			
Parameter/測試項目	Unit/單位	RL	Result/結果	Limit/限值
Acetic acid 3 % / 3% 醋酸	mg/dm <sup>2</sup>	2	3	10
Ethanol 95 % / 95 %乙醇	mg/dm <sup>2</sup>	2	5	10
Isooctane / 異辛烷	mg/dm <sup>2</sup>	2	3	10

Abbreviations: < = Less than  
 RL = Reporting Limit  
 mg/dm<sup>2</sup> = Milligram per square decimetre

The examined item does meet the requirement/此測試項目符合要求

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第4頁共7頁**3. Specific Migration of Metals/重金屬的特定遷移**

Test method / 測試方法: The migratory behaviour was examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments. Determination by ICP-MS and colorimetric method

Limit / 測試要求: With reference to Commission Regulation (EU) No 10/2011 and its amendments

The following food simulant and condition was applied per client's request:

<b>Food simulant / 食物模擬劑</b>	<b>Test duration / Temperature 測試時間 / 溫度</b>
Acetic acid 3 % / 3% 醋酸	10 day(s)/天 / 40 °C

Material no./材料號碼	Mat. 1			
	Unit/單位	RL	Result/結果	Limit/限值
Aluminium	mg/kg	0.1	n.d.	1
Antimony	mg/kg	0.01	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	0.05
Copper	mg/kg	0.5	n.d.	5
Iron	mg/kg	5	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	0.02
Zinc	mg/kg	1	n.d.	5
Europium	mg/kg	0.01	n.d.	-
Gadolinium	mg/kg	0.01	n.d.	-
Lanthanum	mg/kg	0.01	n.d.	-
Terbium	mg/kg	0.01	n.d.	-
Sum of Lanthanide substances	mg/kg	0.01	n.d.	0.05
Ammonium	mg/kg	10	n.d.	-
Calcium	mg/kg	10	n.d.	-
Magnesium	mg/kg	10	n.d.	-
Potassium	mg/kg	10	n.d.	-
Sodium	mg/kg	10	n.d.	-

Abbreviations: RL = Reporting limit  
mg/kg = Milligram per kilogram  
n.d. = Not detected (< Reporting limit)

## Remark:

- Single component with an amount below reporting limit was not considered by the calculation of the sum. In the case of all lanthanide substances europium, gadolinium, lanthanum and terbium were not detected, the result is stated n.d.
- The migration is subject to Article 11(3) and Article 12
- The examined item does meet the requirement/此測試項目符合要求

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第5頁共7頁**4. Specific Migration of Primary Aromatic Amines/初級芳香胺的特定遷移**

Test method / 測試方法: The migratory behaviour is examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments. Determination by LC-MS/MS.

Limit / 測試要求: Commission Regulation (EU) No 10/2011 and its amendments

The following food simulant and condition was applied per client's request:

Food simulant / 食物模擬劑	Test duration / Temperature 測試時間 / 溫度
Acetic acid 3 % / 3% 醋酸	10 day(s)/天 / 40 °C

Material no./材料號碼	Mat. 1				
Parameter/測試項目	CAS No.	Unit/單位	RL	Result/結果	Limit/限值
2,4-Diaminoanisole	615-05-4	mg/kg	0.002	n.d.	n.d.
2,4-toluenediamine	95-80-7	mg/kg	0.002	n.d.	n.d.
4,4'-oxydianiline	101-80-4	mg/kg	0.002	n.d.	n.d.
Benzidine	92-87-5	mg/kg	0.002	n.d.	n.d.
4,4'-methylenedianiline	101-77-9	mg/kg	0.002	n.d.	n.d.
o-anisidine	90-04-0	mg/kg	0.002	n.d.	n.d.
o-Toluidine	95-53-4	mg/kg	0.002	n.d.	n.d.
4,4'-bi-o-toluidine	119-93-7	mg/kg	0.002	n.d.	n.d.
3,3'-Dimethoxybenzidine	119-90-4	mg/kg	0.002	n.d.	n.d.
4-chloroaniline	106-47-8	mg/kg	0.002	n.d.	n.d.
p-cresidine	120-71-8	mg/kg	0.002	n.d.	n.d.
4-chloro-o-toluidine	95-69-2	mg/kg	0.002	n.d.	n.d.
4-aminobiphenyl	92-67-1	mg/kg	0.002	n.d.	n.d.
4,4'-Methylene-di-o-toluidine	838-88-0	mg/kg	0.002	n.d.	n.d.
4,4'-thiodianiline	139-65-1	mg/kg	0.002	n.d.	n.d.
2-Naphthylamine	91-59-8	mg/kg	0.002	n.d.	n.d.
3,3'-Dichlorobenzidine	91-94-1	mg/kg	0.002	n.d.	n.d.
4,4'-methylene-bis-(2-chloro-aniline)	101-14-4	mg/kg	0.002	n.d.	n.d.
4-aminoazobenzene	60-09-3	mg/kg	0.002	n.d.	n.d.
o-aminoazotoluene	97-56-3	mg/kg	0.002	n.d.	n.d.
2,4,5-Trimethylaniline	137-17-7	mg/kg	0.002	n.d.	n.d.
2-Methyl-5-nitroaniline	99-55-8	mg/kg	0.002	n.d.	n.d.
m-phenylenediamine	108-45-2	mg/kg	0.002	n.d.	n.d.
Benzoguanamine	91-76-9	mg/kg	0.01	n.d.	5
4,4'-Methylenebis-(3-chloro-2,6-diethylaniline)	106246-33-7	mg/kg	0.01	n.d.	0.05
PAAs not listed in entry 43 to Appendix 8 of Annex XVII to Regulation (EC) No 1907/2006 and its amendments					
p-toluidine	106-49-0	mg/kg	0.01	n.d.	-
p-phenylenediamine	106-50-3	mg/kg	0.01	n.d.	-
2-Methyl-4-nitroaniline	99-52-5	mg/kg	0.01	n.d.	-
o-phenylenediamine	95-54-5	mg/kg	0.01	n.d.	-
1,5-naphthylenediamine	2243-62-1	mg/kg	0.01	n.d.	-
Aniline	62-53-3	mg/kg	0.01	n.d.	-
2,4-Dimethylaniline	95-68-1	mg/kg	0.01	n.d.	-
2,6-Dimethylaniline	87-62-7	mg/kg	0.01	n.d.	-
5-Chloro-2-methylaniline	95-79-4	mg/kg	0.01	n.d.	-
2,6-toluenediamine	823-40-5	mg/kg	0.01	n.d.	-
5-Amino-6-methyl-1,3-dihydro-2H-benzimidazol-2-one	67014-36-2	mg/kg	0.01	n.d.	-

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4-aminobenzamide	2835-68-9	mg/kg	0.01	n.d.	-
3-Amino-4-methylbenzamide	19406-86-1	mg/kg	0.01	n.d.	-
m-Anisidine	536-90-3	mg/kg	0.01	n.d.	-
m-toluidine	108-44-1	mg/kg	0.01	n.d.	-
4-Ethoxyaniline	156-43-4	mg/kg	0.01	n.d.	-
2-ethoxyaniline	94-70-2	mg/kg	0.01	n.d.	-
4-Chloro-3-methoxyaniline	13726-14-2	mg/kg	0.01	n.d.	-
1,3-Diiminoisoindoline	3468-11-9	mg/kg	0.01	n.d.	-
3-Amino-4-methoxybenzamide	120-35-4	mg/kg	0.01	n.d.	-
2,4,5-Trichloroaniline	636-30-6	mg/kg	0.01	n.d.	-
4-chloro-2,5-dimethoxyaniline	6358-64-1	mg/kg	0.01	n.d.	-
2-Methoxy-4-nitroaniline	97-52-9	mg/kg	0.01	n.d.	-
5-Chloro-2-methoxyaniline	95-03-4	mg/kg	0.01	n.d.	-
3-Chloroaniline	108-42-9	mg/kg	0.01	n.d.	-
2-Chloroaniline	95-51-2	mg/kg	0.01	n.d.	-
Dimethyl-2-aminoterephthalate	5372-81-6	mg/kg	0.01	n.d.	-
Biphenyl-2-ylamine	90-41-5	mg/kg	0.01	n.d.	-
2,5-Dichloroaniline	95-82-9	mg/kg	0.01	n.d.	-
2-Nitroaniline	88-74-4	mg/kg	0.01	n.d.	-
4-Aminotoluene-3-sulfonic acid	88-44-8	mg/kg	0.01	n.d.	-
2-Aminonaphthalene-1-sulfonic acid	81-16-3	mg/kg	0.01	n.d.	-
2,4-Dinitroaniline	97-02-9	mg/kg	0.01	n.d.	-
2-Chloro-4-nitroaniline	121-87-9	mg/kg	0.01	n.d.	-
Sum of Primary Aromatic Amines*1	-	mg/kg	0.01	n.d.	n.d.

Abbreviations: RL = Reporting Limit  
mg/kg = Milligram per kilogram  
n.d. = Not detected

- Remark: 1 Sum of Primary Aromatic Amines does not include the value of Benzoguanamine and 4,4'-Methylenebis-(3-chloro-2,6-diethylaniline) as the SML of both substances should refer to EU 10/2011 Union list.  
Single components with an amount of less than reporting limit were not considered by the calculation of the sum. In the case of all of Primary Aromatic Amines were not detected, the result is stated n.d.
- 2 The examined item does meet the requirement/此測試項目符合要求

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**5. Specific Migration of Bisphenol A/ 雙酚 A 的特定遷移**

Test method / 測試方法: The migratory behavior was examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments. Determination by LC-MS/MS.

Limit / 測試要求: With reference to Commission Regulation (EU) 2024/3190 on the use of bisphenol A (BPA) and other bisphenols and bisphenol derivatives with harmonised classification for specific hazardous properties in certain materials and articles intended to come into contact with food

The following food simulants and conditions were applied per client's request:

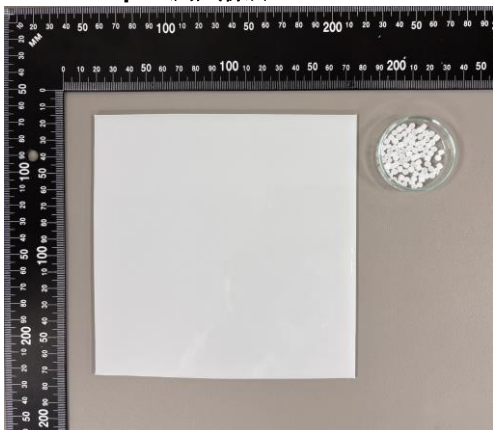
<b>Food simulant / 食物模擬劑</b>	<b>Test duration / Temperature 測試時間 / 溫度</b>
Ethanol 95 % / 95 %乙醇	10 day(s)/天 / 40 °C

Material no./材料號碼	Mat. 1				
Parameter/測試項目	CAS No.	Unit/ 單位	RL	Result/結果	Limit/限值
Bisphenol A/雙酚 A	80-05-7	µg/kg	1	n.d.	n.d.

Abbreviations: RL = Reporting Limit  
µg/kg = Microgram per kilogram  
n.d. = Not detected

The examined item does meet the requirement/此測試項目符合要求

**Test Sample/測試樣品**



--- End of Test-Report / 此報告結束---