Produkte
Products

TÜVRheinland®

Prüfbericht - Nr.: 0114084999g2 001

Test Report No.:

Auftraggeber: *Client:*	FORMOSA PLASTICS CORPORATION No. 1, Formosa Industrial Complex, Mailiao, Yunlin 638, Taiwan, R.O.C.
Gegenstand der Prüfung: *Test Item:*	1 plastic, black
Bezeichnung: *Identification:*	台塑烯 HDPE 管級聚合物 / Taisox HDPE Pipe Grade Polymer / 8001BL, 8001XL, 8001CR
Anlieferungszustand: *Delivery condition:*	apparent good
Eingangsdatum: *Date of Receipt:*	2018-12-17
Prüfort: *Testing location:*	TÜV Rheinland Hong Kong Ltd.
Prüfgrundlage: *Test specification:*	Testing according to customers specification for the following parameters: Global migration, Specific migration of metals, Specific migration of primary aromatic amines
Prüfergebnis: *Test result:*	The test results are the measurements, stated in the test report.

geprüft: *tested by:*

Anya Wang

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
2019-01-11	Anya Wang /Project Coordinator	

kontrolliert: *checked by:*

Yueh-Li Lin

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
2019-01-11	Yueh-Li Lin /Senior Project Coordinator	

Sonstiges/ *Other Aspects:*

Test period: 2018-12-17 – 2019-01-11
The test sample is model no. 8001BL.
Model no. 8001BL and others are same material as client's declaration dated on 2018-12-17.

Abkürzungen:				*Abbreviations:*			
	ok / P	=	*entspricht Prüfgrundlage*		*ok / P*	=	*passed*
	fail / F	=	*entspricht nicht Prüfgrundlage*		*fail / F*	=	*failed*
	n.a. / N	=	*nicht anwendbar*		*n.a. / N*	=	*not applicable*

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TÜV Rheinland Taiwan Ltd. Chemical Laboratory

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Customer : FORMOSA PLASTICS CORPORATION

1. Specific Migration of metals, Metal-release from Plastic

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. The determination of amounts of metals that were released is done via ICP-OES with reference to ISO 11885:2007.

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

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

Food simulant	Test duration / Temperature
Acetic acid 3 %	10 day(s) / 40 °C

Sample	台塑烯 HDPE 管級聚合物 / Taisox HDPE Pipe Grade Polymer		
Material	plastic/ black		
Lab.-No.	TCL181217-09		
Parameter	**Unit**	**Result**	**Limit**
Barium, Ba	mg/kg	<0.1	1
Cobalt, Co	mg/kg	<0.01	0.05
Copper, Cu	mg/kg	<0.1	5
Iron, Fe	mg/kg	<1	48
Lithium, Li	mg/kg	<0.1	0.6
Manganese, Mn	mg/kg	<0.1	0.6
Zinc, Zn	mg/kg	<1	5
Aluminium, Al	mg/kg	0.1	1
Nickel, Ni	mg/kg	<0.01	0.02*1

Abbreviations: mg/kg = Milligram per kilogram
< = Less than

Remark
*1 The migration limit for Nickel of 0.02 mg/kg shall be applied from 19 May 2019 according to Commission Regulation (EU) 2017/752. During the transitional period, Nickel release is not considered for compliance evaluation.
*2 The examined item does meet the requirement

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2. Global Migration

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. Deviating to the regulations the following tests were performed as orientating single tests.

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

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

Food simulant	Test duration / Temperature
Acetic acid 3 %	10 day(s) / 40 °C
Ethanol 95 %	10 day(s) / 40 °C
Isooctane	2 day(s) / 20 °C

Sample	台塑烯HDPE管級聚合物 / Taisox HDPE Pipe Grade Polymer		
Material	plastic/ black		
Lab.-No.	TCL181217-09		
Parameter	**Unit**	**Result**	**Limit**
Acetic acid 3 %	mg/dm^2	2.8	10
Ethanol 95 %	mg/dm^2	<2	10
Isooctane	mg/dm^2	<2	10

Abbreviations: mg/dm^2 = Milligram per square decimetre
< = Less than

The examined item does meet the requirement

3. Specific Migration of Primary Aromatic Amines from Plastic

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. Presence of Primary Aromatic Amines is detected by means of LC-MS/MS.

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

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

Food simulant	Test duration / Temperature
Acetic acid 3 %	10 days / 40°C

Sample	台塑烯 HDPE 管級聚合物 / Taisox HDPE Pipe Grade Polymer		
Material	plastic/ black		
Lab.-No.	TCL181217-09		
Parameter	**Unit**	**Result**	**Limit**
Primary Aromatic Amines	mg/kg	n.d.	n.d. (<0.01)

Abbreviations: mg/kg = milligram per kilogramm
< = Less than
n.d. = Not detected (< Reporting Limit)

Remark:
*1 All primary aromatic amines as comprised in table 1 are considered within the screening.
*2 The examined item does meet the requirement.

TÜV Rheinland Taiwan Ltd. TÜVRheinland Chemical Laboratory

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Table 1: Screening List of Primary Aromatic Amines

Parameter	CAS no.	Parameter	CAS no.
2,4,5-Trimethylaniline	137-17-7	2,4-Dimethylaniline	95-68-1
2,4-Diaminoanisole	615-05-4	2-ethoxyaniline	94-70-2
2-Naphthylamine	91-59-8	3-Amino-4-methoxybenzanilide	120-35-4
3,3'-Dichlorobenzidine	91-94-1	3-Amino-4-methylbenzamide	19406-86-1
4,4'-methylene-bis-(2-chloro-aniline)	101-14-4	4,4'-Methylenebis-(3-cholor-2,6-diethylaniline)	106246-33-7
4,4'-methylenedianiline	101-77-9	4-aminobenzamide	2835-68-9
4,4'-oxydianiline	101-80-4	4-chloro-2,5-dimethoxyaniline	6358-64-1
4,4'-thiodianiline	139-65-1	4-Ethoxyaniline	156-43-4
4-aminoazobenzene	60-09-3	Benzoguanamine	91-76-9
4-aminobiphenyl	92-67-1	Dimethyl-2-aminoterephthalate	5372-81-6
4-chloro-o-toluidine	95-69-2	2-Chloroaniline	95-51-2
o-anisidine	90-04-0	5-Chloro-2-methoxyaniline	95-03-4
Benzidine	92-87-5	2-Nitroaniline	88-74-4
4-chloroaniline	106-47-8	1,3-Diiminoisoindoline	3468-11-9
o-aminoazotoluene	97-56-3	2-Chloro-4-nitroaniline	121-87-9
p-cresidine	120-71-8	2-Methoxy-4-nitroaniline	97-52-9
4,4'-bi-o-toluidine	119-93-7	4-Chloro-3-methoxyaniline	13726-14-2
2,4-toluenediamine	95-80-7	5-Amino-6-methyl-1,3-dihydro-2H-benzimidazol-2-one	67014-36-2
o-Toluidine	95-53-4	2-Aminonaphthalene-1-sulfonic acid	81-16-3
3,3'-Dimethoxybenzidine	119-90-4	4-Aminotoluene-3-sulfonic acid	88-44-8
4,4'-Methylene-di-o-toluidine	838-88-0	2,5-Dichloroaniline	95-82-9
m-Anisidine	536-90-3	2,4,5-Trichloroaniline	636-30-6
3-Chloroaniline	108-42-9	2,4-Dinitroaniline	97-02-09
o-phenylenediamine	95-54-5	Biphenyl-2-ylamine	90-41-5
p-phenylenediamine	106-50-3	2-Methyl-4-nitroaniline	99-52-5
m-phenylenediamine	108-45-2	1,5-naphthylenediamine	2243-62-1
2,6-toluenediamine	823-40-5	2,6-Dimethylaniline	87-62-7
p-toluidine	106-49-0	2-Methyl-5-nitroaniline	99-55-8
m-toluidine	108-44-1	5-Chloro-2-methylaniline	95-79-4
		Aniline	62-53-3

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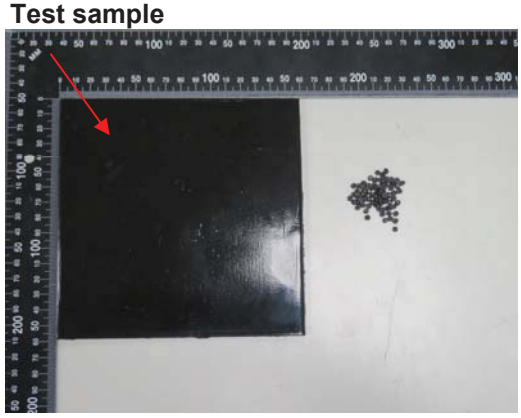
Test sample



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