





SGS (Thailand) Limited

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Test Report No. 5373148 Date: 22-Sep-2022

Date . 22-3ep-2022

Client: Excel Packaging Co.,Ltd.

135,135/1-2 Moo 9 Soi Kratoomlom 9 Puthamonthon Sai 4 Road

Kratoomlom, Sampran Nakornpathom 73220 Thailand

The following sample(s) was/were submitted and identified by client as:

Sample Name : PET (Sheet & Tray)

Sample Description : PET Color : Clear

The following sample(s) was/were identified by SGS as:

SGS Sample No. : 5595125

Sample Condition : Sample is contained in a plastic bag.

Quantity Submitted : 1 pack

Sample Receiving Date : 6-Sep-2022

Testing Period : 6-Sep-2022 to 22-Sep-2022

Test Method & Results : Please refer to next page(s).

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Test Requested & Result Summary

Test Requested: Please refer to the result summary (Test parameter(s) was/were selected by client).

Result Summary:

Test Requested	Conclusion
European Commission Regulation (EU) No 10/2011 and its amendment	
a) Plastic - Overall migration##	
3% Acetic Acid (W/V) Aqueous Solution	PASS
10% Ethanol (V/V) Aqueous Solution	PASS
Rectified Olive Oil	PASS
b) Plastic - Specific Migration of Heavy Metal#	PASS
c) Plastic -Specific Migration of Bisphenol A#	PASS
d) Plastic - Specific Migration of Primary Aromatic Amine#	PASS [^]

Remark:

- 1. Test results in this report are applicable for the item tested and reflects the tested sample as received.
- 2. ^ = Only Listed in Entry 43 to Appendix 8 of Annex XVII of REACH and in Table 1 of Annex I in (EU) No 10/2011.
- 3. #; The decision rules based on simple acceptance which the probability of false accept may be as high as 50% in case the results is exactly on the tolerance limit.
- 4. ##; The decision rules based on the requested specification or standard.

Signed for and on behalf of SGS (Thailand) Ltd.



Rutchuporn Moungsom Laboratory manager - Toy and Hard goods

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TEST RESULTS

European Commission Regulation (EU) No 10/2011 and its amendment

Plastic - Overall migration a)

Method: With reference to Commission Regulation (EU) No 10/2011 of 14 January 2011 Annex III and Annex V for selection of condition and EN 1186-1:2002 for selection of test method (1st migration);

EN 1186-3:2002 aqueous food simulants by total immersion method;

EN 1186-2:2002 olive oil by total immersion method.

Simulant Used	Test Condition	Result (1) (mg/dm2)	Reporting Limit (mg/dm2)	Permissible Limit (mg/dm2)
3% Acetic Acid (W/V) Aqueous Solution	2 hours at 100 Degree C	ND	3.0	10
10% Ethanol (V/V) Aqueous Solution	2 hours at 100 Degree C	ND	3.0	10
Rectified Olive Oil***	1 hour at 121 Degree C	ND	3.0	10
Comment		PASS		

Sample Description:

1. Clear plastic sheet

Note

- 1. mg/dm2 = milligram per square decimeter
- 2. Degree C = degree Celsius
- 3. ND = Not Detected
- 4. Permissible Limit is according to Commission Regulation (EU) No 10/2011 of 14 January 2011 and its amendment

- 1. Analytical tolerance of aqueous simulants is 2mg/dm2 or 12mg/kg
- 2. Analytical tolerance of fatty food simulants is 3mg/dm2 or 20mg/kg
- 3. Test condition & simulant were specified by client.
- 4. The ratio of surface area to volume is 10 dm2 per 1 kg of foodstuff in contact with.
- 5. The product is single-use as specified by client.
- 6. The test item(s) marked *** on test report is/are analyzed at SGS (Thailand) Limited, address: 10, 10/1 4 and 12 Soi Rama III S. 59, Chong Nonsi, Yan Nawa, Bangkok.

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TEST RESULTS

b) Specific migration of heavy metal

Method: With reference to EN 13130-1:2004. Analysis was performed by ICP-MS / ICP-OES. Simulant Used: 3% acetic acid (w/v) in aqueous solution

Test Condition: 60 Degree C for 10 days (1st Migration)

Single-use article:

Test Item	Result (1) (mg/kg) (1 st migration)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
Specific Migration of Aluminium***	ND	0.1	1
Specific Migration of Antimony***	ND	0.01	0.04
Specific Migration of Arsenic***	ND	0.01	ND
Specific Migration of Barium***	ND	0.25	1
Specific Migration of Cadmium***	ND	0.002	ND
Specific Migration of Chromium***	ND	0.01	ND
Specific Migration of Cobalt***	ND	0.01	0.05
Specific Migration of Copper***	ND	0.25	5
Specific Migration of Iron***	ND	5	48
Specific Migration of Lead***	ND	0.01	ND
Specific Migration of Lithium***	ND	0.1	0.6

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TEST RESULTS

TEST RESULTS				
Test Item	Result (1) (mg/kg) (1 st migration)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)	
Specific Migration of Manganese***	ND	0.1	0.6	
Specific Migration of Mercury***	ND	0.01	ND	
Specific Migration of Nickel***	ND	0.01	0.02	
Specific Migration of Zinc***	ND	0.5	5	
Specific Migration of Europium***	ND	0.025	-	
Specific Migration of Gadolinium***	ND	0.025	-	
Specific Migration of Lanthanum***	ND	0.025	-	
Specific Migration of Terbium***	ND	0.025	-	
Specific Migration of Europium + Gadolinium + Lanthanum + Terbium	ND		0.05	
Comment	PASS			

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TEST RESULTS

Test Item	Result (1) (mg/kg) (1st migration)	Reporting Limit (mg/kg)
Specific Migration of Ammonium	ND	1
Specific Migration of Calcium***	ND	1
Specific Migration of Magnesium***	ND	1
Specific Migration of Potassium***	ND	1
Specific Migration of Sodium***	ND	1

Sample Description:

1. Clear plastic sheet

Note

1. mg/kg = milligram per kilogram of foodstuff in contact with

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- 2. Degree C = degree Celsius
- 3. ND = Not Detected
- 4. Permissible Limit is according to Commission Regulation (EU) No 10/2011 of 14 January 2011 and its amendment

Remark:

- 1. Test condition & simulant were specified by client.
- 2. The ratio of surface area to volume is 6 dm2 per 1 kg of foodstuff in contact with.
- 3. The product is single-use as specified by client.
- 4. The test item(s) marked *** on test report is/are analyzed at SGS (Thailand) Limited, address: 10, 10/1 4 and 12 Soi Rama III S. 59, Chong Nonsi, Yan Nawa, Bangkok.

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TEST RESULTS

c) Specific Migration of Bisphenol A***

Method: With reference to EN 13130-1:2004 and DD CEN/TS 13130-13:2005, Regulation EU No10/2011. Analysis was performed by HPLC-MS/MS.

Simulant Used: 3% acetic acid (w/v) in aqueous solution

Test Condition: 60 degree C for 10 days (1st Migration)

Test Item	Result (1) (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
Specific Migration of Bisphenol A	ND	0.01	0.05^^
Comment	PASS		

Sample Description:

1. Clear plastic sheet

Note: 1. mg/kg = milligram per kilogram of foodstuff in contact with

- 2. ND = Not Detected
- 3. Permissible Limit is according to Commission Regulation (EU) No 10/2011 of 14 January 2011 and its amendment

Remark:

- 1. ^^ = The limits of Bisphenol A according to Commission Regulation (EU) 2018/213 shall be applied from 6 September
- 2. Test condition & simulant were specified by client.
- 3. The ratio of surface area to volume is 6 dm2 per 1 kg of foodstuff in contact with.
- 4. The product is single-use as specified by client.
- 5. The test item(s) marked *** on test report is/are analyzed at SGS (Thailand) Limited, address: 10, 10/1 4 and 12 Soi Rama III S. 59, Chong Nonsi, Yan Nawa, Bangkok.

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TEST RESULTS

d) Specific migration of Primary Aromatic Amine***

- Listed in Entry 43 to Appendix 8 of Annex XVII of REACH and in Table 1 of Annex I in (EU) No 10/2011

Method: With reference to EN13130-1:2004. Analysis was performed by LC-MSMS.

Simulant Used: 3% acetic acid (w/v) in aqueous solution Test Condition: 60 degree C for 10 dayrs (1st Migration)

Test Item	Cas No.	Result (1) 1st Migration (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
biphenyl-4-ylamine 4-aminobiphenyl xenylamine	92-67-1	ND	0.002	0.002
benzidine	92-87-5	ND	0.002	0.002
4-chloro-o-toluidine	95-69-2	ND	0.002	0.002
2-naphthylamine	91-59-8	ND	0.002	0.002
o-aminoazotoluene 4-amino-2',3-dimethylazobenzene 4-o-tolylazo-o-toluidine	97-56-3	ND	0.002	0.002
5-nitro-o-toluidine	99-55-8	ND	0.002	0.002
4-chloroaniline	106-47-8	ND	0.002	0.002
4-methoxy-m-phenylenediamine	615-05-4	ND	0.002	0.002
4,4'-methylenedianiline 4,4'-diaminodiphenylmethane	101-77-9	ND	0.002	0.002
3,3'-dichlorobenzidine 3,3'-dichlorobiphenyl-4,4'-ylenedia mine	91-94-1	ND	0.002	0.002

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Test Item	Cas No.	Result (1) 1st migration (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
3,3'-dimethoxybenzidine o-dianisidine	119-90-4	ND	0.002	0.002
3,3'-dimethylbenzidine 4,4'-bi-o-toluidine	119-93-7	ND	0.002	0.002
4,4'-methylenedi-o-toluidine	838-88-0	ND	0.002	0.002
6-methoxy-m-toluidine p-cresidine	120-71-8	ND	0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) 2,2'-dichloro-4,4'-methylene-dianiline	101-14-4	ND	0.002	0.002
4,4'-oxydianiline	101-80-4	ND	0.002	0.002
4,4'-thiodianiline	139-65-1	ND	0.002	0.002
o-toluidine 2-aminotoluene	95-53-4	ND	0.002	0.002
4-methyl-m-phenylenediamine	95-80-7	ND	0.002	0.002
2,4,5-trimethylaniline	137-17-7	ND	0.002	0.002
o-anisidine 2-methoxyaniline	90-04-0	ND	0.002	0.002
4-amino azobenzene	60-09-3	ND	0.002	0.002
1,3-phenylenediamine	108-45-2	ND	0.002	0.002
Comment		PASS		

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TEST RESULTS

Sample Description:

1. Clear plastic sheet

- 1. mg/kg = milligram per kilogram of foodstuff in contact with
- 2. degree C = degree Celsius
- 3. ND = Not Detected
- 4. Permissible Limit is according to Commission Regulation (EU) 2020/1245 of 2 September 2020.

Remark:

- 1. Test condition & simulant were specified by client.
- 2. The ratio of surface area to volume ratio is 6 dm2 per 1 kg of foodstuff in contact with.
- 3. The product is single-use as specified by client.
- 4. The test item(s) marked *** on test report is/are analyzed at SGS (Thailand) Limited, address: 10, 10/1 4 and 12 Soi Rama III S. 59, Chong Nonsi, Yan Nawa, Bangkok.

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SAMPLE/ATTACHMENT PICTURE



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