

**Test Report No.** 6026550

**Date :** 9-Oct-2024

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**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 : PS (Sheet & Tray)  
Sample Description : PS  
Color : Natural

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

SGS Sample No. : 6332929  
Sample Condition : Sample is contained in a plastic bag.  
Quantity Submitted : 1 bag  
Sample Receiving Date : 20-Sep-2024  
Testing Period : 20-Sep-2024 to 9-Oct-2024

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

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

**Rutchuporn Moungsom  
Toys and Hardlines Laboratory Manager**



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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
Notification of the Ministry of Public Health (No.435) B.E. 2565 (2022) (List no.1) : Qualities or standard for container made from plastic;	
a) Overall migration	
3% Acetic Acid (W/V)	PASS
50% Ethanol (V/V)	PASS
Rectified Olive Oil	PASS
b) Specific Migration of Heavy Metal	PASS
c) Specific Migration of Primary Aromatic Amine	PASS
d) clause 4(5) Visible Color Migration	PASS
e) Pathogenic microorganisms	See results

**Remark:**

1. Test results in this report are applicable for the item tested and reflects the tested sample as received.
2. 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.

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**TEST RESULTS**

**Notification of the Ministry of Public Health (No.435) B.E. 2565 (2022) (List no.1) : Qualities or standard for container made from plastic;**

**a) Overall migration**

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 1186-2:2022 Test methods for overall migration in vegetable oils  
EN 1186-3:2022 Test methods for overall migration in evaporable simulants

Simulant Used	Test Condition	Result (1) (mg/dm <sup>2</sup> )	Reporting Limit (mg/dm <sup>2</sup> )	Permissible Limit (mg/dm <sup>2</sup> )
3% Acetic Acid (W/V)	10 days at 40 Degree C	ND	3.0	10
50% Ethanol (V/V)	10 days at 40 Degree C	ND	3.0	10
Rectified Olive Oil***	10 days at 40 Degree C	ND	3.0	10
Comment	--	PASS	--	--

Sample Description :  
1.Natural plastic sheet

Note :  
1. mg/dm<sup>2</sup> = milligram per square decimeter  
2. Degree C = degree Celsius  
3. ND = Not Detected

Remark :  
1. Test condition & simulant were specified by client.  
2. The ratio of surface area to volume is 10 dm<sup>2</sup> 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

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)

Test Condition: 40 Degree C for 10 days(1st Migration)

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 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	--	--

Sample Description:

1. Natural plastic sheet

Note :

1. mg/kg = milligram per kilogram of foodstuff in contact with
2. Degree C = degree Celsius
3. ND = Not Detected

Remark:

1. Test condition & simulant were specified by client.
2. The ratio of surface area to volume is 6 dm<sup>2</sup> 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 Primary Aromatic Amine**

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

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

Test Condition: 40 degree C for 10 days (1st Migration)

Test Item	Cas No.	Result (1) (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
1,3-phenylenediamine***	108-45-2	ND	0.002	ND
4,4'-Methylenebis (3-chloro-2,6-diethylaniline)**	106246-33-7	ND	0.001	0.05
4,4'-diaminodiphenyl sulphone**	80-08-0	ND	0.002	5
2-aminobenzamide**	88-68-6	ND	0.002	0.05
Comment	--	PASS	--	--

Sample Description:

- Natural plastic sheet

Note:

- mg/kg = milligram per kilogram of foodstuff in contact with
- degree C = degree Celsius
- ND = Not Detected

Remark:

- Test condition & simulant were specified by client.
- The ratio of surface area to volume is 6 dm<sup>2</sup> per 1 kg of foodstuff in contact with.
- 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 but not included in the NSC-ONSC accreditation scope.
- 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**

Method : With reference to EN 13130-1 : 2004. Analysis was performed by UV-Vis Spectrophotometer.

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

Test Condition: 40 degree C for 10 days (1 st Migration)

Test Item	Result (1) (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
Primary Aromatic Amine	ND	0.002	0.01
Comment	PASS	--	--

Sample Description :

1. Natural plastic sheet

Note :

1. mg/kg = milligram per kilogram of foodstuff in contact with
2. C = degree Celsius
3. ND = Not Detected

Remark:

1. Test condition & simulant were specified by client.
2. The ratio of surface area to volume is 6 dm<sup>2</sup> per 1 kg of foodstuff in contact with.

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**TEST RESULTS**

**d) clause 4(5) Visible Color Migration\***

Method : With reference to Resolution AP (89) 1

Simulant Used	Result (1)	Requirement
3% Acetic Acid (W/V)	No color release observed	No colour release
20% Ethanol (V/V)	No color release observed	No colour release
Coconut Oil	No color release observed	No colour release
Comment	PASS	--

Sample Description :  
1. Natural plastic sheet

Note : 1. Requirement is according to Notification of the Ministry of Public Health (No.435) B.E. 2565 (2022) :  
Qualities or standard for container made from plastic ; clause 4(5).

Remark: Test(s) marked \* on this report are not included in the NSC-ONSC accreditation scope.

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TEST RESULTS

e) Pathogenic microorganisms

Test Items	Method	Results	Units
<i>Salmonella spp.</i> ***	ISO 6579-1 : 2017	Not detected	Per piece
<i>Staphylococcus aureus</i> ***	Compendium of methods for the examination of foods,5th edition,2015,chapter 39	Not detected	Per piece
<i>Clostridium perfringens</i> ***	Compendium of methods for the examination of foods,5th edition,2015,chapter 33	Not detected	Per piece
<i>Bacillus cereus</i> ***	Compendium of methods for the examination of foods,5th edition,2015,chapter 31	Not detected	Per piece
<i>E.coli</i> ***	Compendium of methods for the examination of foods,5th edition,2015,chapter 9	Not detected	Per piece
Total Plate Count***	ISO 4833-1: 2013	Less than 1	CFU/piece

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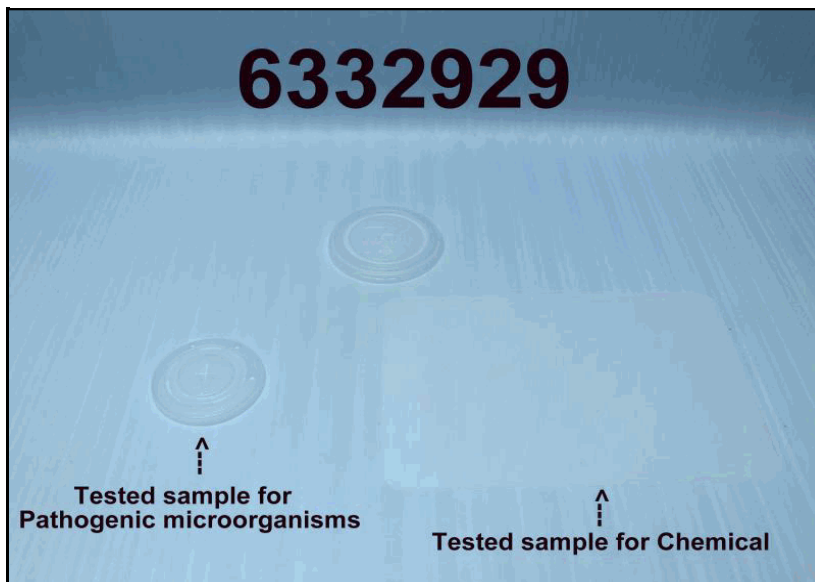
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SAMPLE/ATTACHMENT PICTURE



\*\*\*\*\* End of Report \*\*\*\*\*

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