



Test Report

No.T32020311260SC-01

Date: Dec 15, 2020

Page 1 of 7

K.P TECH CO., LTD
37, SIMIGOK-RO, IDONG-EUP, CHEOIN-GU, YONGIN-SI, GYEONGGI-DO, KOREA

This report supersedes all previous documents bearing the test report number T32020311260SC with amendment on product information as requested by client.

The following samples were submitted and identified on behalf of the client as:

GAG PET SHEET (SGS KOREA REF NO.AYAR20-02994)

SGS Case No. : CA320203123129
SGS Ref. No. : AYAR20-02994
Sample Receiving Date : NOV 16, 2020
Test Performing Date : NOV 16 – DEC 02, 2020

Test Requested : Please refer to the result summary.

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

Result Summary :

Test Requested	Conclusion
European Commission Regulation (EU) No 10/2011 and its amendments	--
a) Plastic – Overall Migration	PASS
b) Plastic – Specific Migration of Heavy Metals	PASS
c) PET – Specific Migration of Terephthalic Acid and Terephthalic Acid Dichloride	PASS
d) PET – Specific Migration of Ethylene Glycol and Diethylene Glycol	PASS
e) PET – Specific Migration of Antimony	PASS
f) PET – Specific Migration of Acetaldehyde	PASS
g) Specific Migration of Formaldehyde	PASS

Signed for and on behalf of
SGS Hong Kong Ltd.

Cheung Cheuk Fung, Henry
Assistant Operations Manager

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Test Results :

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

a) Plastic – Overall Migration

Method : With reference to EN 1186-1:2002 for selection of conditions and test methods (1st migration);
 EN 1186-3:2002 aqueous food simulants by total immersion method;
 EN 1186-2/13:2002 olive oil by total immersion method;

Simulant Used	Test Condition	Result (mg/dm ²)	Reporting Limit (mg/dm ²)	Permissible Limit (mg/dm ²)
		1		
3% Acetic Acid (W/V) Aqueous Solution	10 days at 40°C	ND	3.0	10
50% Ethanol (V/V) Aqueous Solution	10 days at 40°C	ND	3.0	10
Rectified Olive Oil	10 days at 40°C	4.8	3.0	10
Comment	--	PASS	--	--

Sample Description :

1. Transparent plastic (Film)

- Note : 1. mg/dm² = milligram per square decimeter
 2. °C = degree Celsius
 3. ND = Not Detected

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b) Plastic – Specific Migration of Heavy Metals

Method: Sample preparation in 3% acetic acid (w/v) in aqueous solution at 40°C for 10 days with reference to EN 13130-1:2004; followed by analysis using Inductively Coupled Argon Plasma Spectrometry (ICP) and Inductively coupled plasma-mass spectrometry (ICP-MS). (1st migration).

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Specific Migration of Barium	ND	0.25	1
Specific Migration of Cobalt	ND	0.03	0.05
Specific Migration of Copper	ND	0.25	5
Specific Migration of Iron	ND	0.25	48
Specific Migration of Lithium	ND	0.5	0.6
Specific Migration of Manganese	ND	0.25	0.6
Specific Migration of Nickel	ND	0.01	0.02
Specific Migration of Zinc	ND	0.5	5
Specific Migration of Aluminum	ND	0.1	1
Comment	PASS	--	--

Sample Description :

- Transparent plastic (Film)

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

c) PET – Specific Migration of Terephthalic Acid and Terephthalic Acid Dichloride

Method : Sample preparation in 3% acetic acid (w/v) in aqueous solution at 40°C for 10 days with reference to EN 13130-2:2004; followed by analysis using High Performance Liquid Chromatography – Diode Array Detector (HPLC-DAD) (1st migration).

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Specific Migration of Terephthalic Acid and and Terephthalic Acid Dichloride (expressed as Terephthalic Acid)	ND	1.0	7.5
Comment	PASS	--	--

Sample Description :

- Transparent plastic (Film)

Note : 1. mg/kg = milligram per kilogram of foodstuff in contact with
2. ND = Not Detected

d) PET – Specific Migration of Ethylene Glycol and Diethylene Glycol

Method : Sample preparation in 3% acetic acid (w/v) in aqueous solution at 40°C for 10 days with reference to EN 13130-1:2004; followed by analysis using Gas Chromatography – Mass Spectrometry (GC-MS) (1st migration).

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Specific Migration of Ethylene Glycol and Diethylene Glycol (expressed as Ethylene Glycol)	ND	20	30
Comment	PASS	--	--

Sample Description :

- Transparent plastic (Film)

Note : 1. mg/kg = milligram per kilogram of foodstuff in contact with
2. ND = Not Detected

e) PET – Specific Migration of Antimony

Method: Sample preparation in in 3% acetic acid (w/v) in aqueous solution at 40°C for 10 days with reference to EN 13130-1:2004; followed by analysis using Inductively Coupled Argon Plasma Spectrometry (ICP) (1st migration).

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Specific Migration of Antimony	ND	0.01	0.04
Comment	PASS	--	--

Sample Description :

- Transparent plastic (Film)

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

f) PET – Specific Migration of Acetaldehyde

Method : Sample preparation in 3% acetic acid (w/v) in aqueous solution at 40°C for 10 days with reference to EN 13130-1:2004; followed by analysis using Liquid Chromatography – Diode Array Detector (LC-DAD) (1st migration).

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Specific Migration of Acetaldehyde	ND	1	6
Comment	PASS	--	--

Sample Description :

- Transparent plastic (Film)

Note : 1. mg/kg = milligram per kilogram of foodstuff in contact with
 2. ND = Not Detected

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g) Specific migration of Formaldehyde

Method : Sample preparation in 3% acetic acid (w/v) in aqueous solution at 40°C for 10 days with reference to EN 13130-1:2004; followed by analysis using UV-visible spectrophotometer (1st migration).

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1		
Specific migration of Formaldehyde	ND	0.1	15
Comment	PASS	--	--

Sample Description :

- Transparent plastic (Film)

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

2. °C = degree Celsius

3. ND = Not Detected

4. Permissible limit is according to Commission Regulation (EU) No 10/2011 of 14 January 2011.

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Remark:

1. When statement of conformity is made, unless the decision rule was mentioned in above specified test items, the decision rule would be based on the non-binary statement with guard band (is equal to the expanded measurement uncertainty with a 95% coverage probability, $w = U_{95}$) in ILAC-G8:09/2019 Clause 4.2.3.
“Pass - the measured value is within (or below / above) the acceptance limit, where the acceptance limit is below / above to the guard band.” or “Pass - The measured values were observed in tolerance at the points tested. The specific false accept risk is up to 2.5%.”
“Fail - the measured value is out of (or below / above) the tolerance limit added / subtracted to the guard band.” or “Fail - One or more measured values were observed out of tolerance at the points tested”. The specific false reject risk is up to 2.5%.
“Inconclusive – It is not possible to state the conformity. Either one or more measured values were observed in the portion of the expanded measurement uncertainty intervals at the points tested where the specific risk is up to 50%.”

Sample Photo:



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*** End of Report ***

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