



Test Report

No.: T31920291959SC

Date: NOV 08, 2019

Page 1 of 7

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

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

PET/ PE LAMINATE

SGS Case No. : CA319202932129
SGS Ref No. : AYAR19-01747
Sample Receiving Date : OCT 22, 2019
Test Performing Date : OCT 22 – NOV 06, 2019

Test Requested : Please refer to the result summary.

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Result Summary :

Test Requested	Conclusion
1. 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 Antimony	PASS
e) PET – Specific Migration of Ethylene Glycol and Diethylene Glycol	PASS
f) PET – Specific Migration of Acetaldehyde	PASS
g) Plastic – Specific Migration of Formaldehyde	PASS

Signed for and on behalf of
SGS Hong Kong Ltd.



Che Wai Leuk, Jerry
Technical Manager

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Test Results :

1) 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	ND	3.0	10
Comment	--	PASS	--	--

Sample Description :

1. Semi-Transparent Plastic (Sheet)

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

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 :

1. Semi-Transparent Plastic (Sheet)

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 :

1. Semi-Transparent Plastic (Sheet)

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

d) PET – Specific Migration of Antimony

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) (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 :

1. Semi-Transparent Plastic (Sheet)

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



Test Report

No.: T31920291959SC

Date: NOV 08, 2019

Page 6 of 7

e) 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 :

1. Semi-Transparent Plastic (Sheet)

Note : 1. mg/kg = milligram per kilogram of foodstuff in contact with
2. 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 :

1. Semi-Transparent Plastic (Sheet)

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

g) Plastic – 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 :

1. Semi-Transparent Plastic (Sheet)

- 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.

Photo Appendix



Sample as received

*** End of Report ***

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.