



HUAY TESTING

Test Report

Report No.: HY260301050002-2

Date: January 13, 2026

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Applicant : Jinzhou Yongtai Packaging Co., Ltd.
Address : Dali Fengzhuang Village, Donglizhuang Town, Jinzhou City, Hebei Province

Report on the submitted sample(s) said to be:

Sample Name : PET Laminated Paper Series (PLP)
Model : PLP-PAPER
Additional Model : PLP-BOX, PLP-BOARD
Material : PET
Sample Received Date : January 05, 2026
Testing Period : January 05, 2026 to January 13, 2026
Test Result : Please refer to next page(s).

Test Requested:

1. As specified by client, in accordance with Regulation (EC) No 1935/2004&(EU) No 10/2011, (EC) 2020/1245, AFPS GS 2019:01 PAK, AP(89)1, (EU) 2024/3190 to Determine the submitted sample (PET):

- Overall migration
- Specific Migration of 19 Heavy metals
- Specific Migration of Primary Aromatic amine (PAA)
- Sensory test-taste and odour
- Polycyclic-aromatic hydrocarbons (PAHs) content
- Visible Color Migration
- Specific Migration of Terephthalic Acid
- Specific Migration of Ethylene glycol
- Specific Migration of Acetaldehyde
- Specific Migration of Hexene
- Specific Migration of BPA

Conclusion

Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass

Bay Liu

Approved by: _____

Lab Manager

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Test Result:

1. PET

- Overall migration

Test Methods: With reference to EN1186-1:2002 & EN1186-3:2022

Test Item	Test Condition	MDL (mg/dm ²)	Limit (mg/dm ²)	Test result(mg/dm ²)		
				1		
				1 st	2 nd	3 rd
Overall migration	3% Acetic acid, 40°C, 24h	3	3 rd migration:10, 3 rd < 2 nd < 1 st	N.D.	N.D.	N.D.
	95% Ethanol, 40°C, 24h	3	3 rd migration:10, 3 rd < 2 nd < 1 st	N.D.	N.D.	N.D.
	Isooctane, 20°C, 24h	3	3 rd migration:10, 3 rd < 2 nd < 1 st	N.D.	N.D.	N.D.
Conclusion				/	/	Pass

Note:

Sample is tested three times, third test result must be less than the limit and: 3rd<2nd<1st.



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-Specific Migration of 19 Heavy metals

Test Methods: With reference to EN 13130-1:2004, analysis by Inductively Coupled Plasma Mass Spectrometer (ICP-MS)

Test Item	Test condition	Unit	MDL	Test result			Limit
				1			
				1 st	2 nd	3 rd	
Aluminum (Al)	3% Acetic acid, 40 ℃, 24h	mg/kg	0.1	N.D.	N.D.	N.D.	1
Antimony (Sb)		mg/kg	0.02	N.D.	N.D.	N.D.	0.04
Arsenic (As)		mg/kg	0.01	N.D.	N.D.	N.D.	0.01
Barium (Ba)		mg/kg	0.1	N.D.	N.D.	N.D.	1
Cadmium (Cd)		mg/kg	0.002	N.D.	N.D.	N.D.	0.002
Chromium (Cr)		mg/kg	0.01	N.D.	N.D.	N.D.	0.01
Cobalt (Co)		mg/kg	0.02	N.D.	N.D.	N.D.	0.05
Copper (Cu)		mg/kg	0.1	N.D.	N.D.	N.D.	5
Iron (Fe)		mg/kg	0.1	N.D.	N.D.	N.D.	48
Lead (Pb)		mg/kg	0.01	N.D.	N.D.	N.D.	0.01
Lithium (Li)		mg/kg	0.1	N.D.	N.D.	N.D.	0.6
Manganese (Mn)		mg/kg	0.1	N.D.	N.D.	N.D.	0.6
Mercury (Hg)		mg/kg	0.01	N.D.	N.D.	N.D.	0.01
Nickel (Ni)		mg/kg	0.02	N.D.	N.D.	N.D.	0.02
Zinc (Zn)		mg/kg	0.1	N.D.	N.D.	N.D.	5
Europium (Eu)		mg/kg	0.02	N.D.	N.D.	N.D.	/
Gadolinium (Gd)		mg/kg	0.02	N.D.	N.D.	N.D.	/
Lanthanum (La)		mg/kg	0.02	N.D.	N.D.	N.D.	/
Terbium (Tb)		mg/kg	0.02	N.D.	N.D.	N.D.	/
Sum(Eu+Gd+La+Tb)		mg/kg	0.02	N.D.	N.D.	N.D.	0.05
Conclusion		/	/	Pass	Pass	Pass	/

Note:

Sample is tested three times, third test result must be less than the limit and: $3^{rd} < 2^{nd} < 1^{st}$.

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- Specific Migration of Primary Aromatic amine (PAA)

Test Methods: With reference to EN 13130-1:2004, analysis by Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

Test Item	Test Condition	CAS No.	Test result (mg/kg)			MDL (mg/kg)	Limit (mg/kg)
			1				
			1 st	2 nd	3 rd		
4-Aminodiphenyl	3% Acetic Acid, 40°C,24h	92-67-1	N.D.	N.D.	N.D.	0.002	0.002
Benzidine		92-87-5	N.D.	N.D.	N.D.	0.002	0.002
4-Chloro-o-Toluidine		95-69-2	N.D.	N.D.	N.D.	0.002	0.002
2-Naphthylamine		91-59-8	N.D.	N.D.	N.D.	0.002	0.002
o-Aminoazotoluene		97-56-3	N.D.	N.D.	N.D.	0.002	0.002
2-Amino-4-Nitrotoluene		99-55-8	N.D.	N.D.	N.D.	0.002	0.002
p-Chloroaniline		106-47-8	N.D.	N.D.	N.D.	0.002	0.002
2,4-Diaminoanisole		615-05-4	N.D.	N.D.	N.D.	0.002	0.002
4,4'-Diaminodiphenylmet hane		101-77-9	N.D.	N.D.	N.D.	0.002	0.002
3,3'-Dichlorobenzidine		91-94-1	N.D.	N.D.	N.D.	0.002	0.002
3,3'-Dimethoxybenzidine		119-90-4	N.D.	N.D.	N.D.	0.002	0.002
3,3'-Dimethylbenzidine		119-93-7	N.D.	N.D.	N.D.	0.002	0.002
3,3'-Dimethyl-4,4'diamin odiphenylmethane		838-88-0	N.D.	N.D.	N.D.	0.002	0.002
p-Cresidine		120-71-8	N.D.	N.D.	N.D.	0.002	0.002
4,4'-Methylene-Bis(2-Chloroaniline)		101-14-4	N.D.	N.D.	N.D.	0.002	0.002
4,4'-Oxydianiline		101-80-4	N.D.	N.D.	N.D.	0.002	0.002
4,4'-Thiodianiline		139-65-1	N.D.	N.D.	N.D.	0.002	0.002
o-Toluidine		95-53-4	N.D.	N.D.	N.D.	0.002	0.002
2,4-Toluylenediamine		95-80-7	N.D.	N.D.	N.D.	0.002	0.002
2,4,5-Trimethylaniline		137-17-7	N.D.	N.D.	N.D.	0.002	0.002
o-Anisidine		90-04-0	N.D.	N.D.	N.D.	0.002	0.002
4-Aminoazobenzene		60-09-3	N.D.	N.D.	N.D.	0.002	0.002
m-Phenylendiamine		108-45-2	N.D.	N.D.	N.D.	0.002	0.002
p-Phenylendiamine		106-50-3	N.D.	N.D.	N.D.	0.002	0.002
Benzoguanamin	91-76-9	N.D.	N.D.	N.D.	0.05	5	
4,4'-Methylenebis (3- chloro-2,6-diethylaniline	106246-33-7	N.D.	N.D.	N.D.	0.01	0.05	
Sum of other primary aromatic amine	/	/	N.D.	N.D.	N.D.	/	0.1
Conclusion			Pass	Pass	Pass	/	/

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Note:

Other primary aromatic amines are p-Phenyldiamine, Aniline, 2,6-Xylidine, 2,4-Xylidine, 2,6- Toluene-diamine, 1,5-Diaminonaphthalene, 4-Ethoxyaniline, 2-Amino-5-methylbenzoic acid 3-Amino-4-methoxybenzanilide, 3-Amino-4-methylbenzamide, 3-Methoxyaniline

Sample is tested three times, third test result must be less than the limit and: $3^{rd} < 2^{nd} < 1^{st}$.

- Sensory test-taste and odour

Test Methods: With reference to DIN 10955:2023-02

Test Item	Maximum Limit	Test result
		1
Sensorial Examination odour (Point scale)	2.5	0.5
Sensorial Examination taste (Point scale)	2.5	1.0
Conclusion	/	Pass

Note:**Scale evaluation:**

0= No perceptible odour /taste

1= Odour /taste just perceptible (Still difficult to Define)

2= Moderate odour / taste

3= Moderate strong odour / taste

4= Strong odour / taste

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- Polycyclic-aromatic hydrocarbons (PAHs) content

Test method: With reference to AfPS GS 2019:01 PAK, analysis by Gas Chromatography-Mass Spectrometer (GC-MS)

Test Item	CAS No.	Unit	MDL	Test result	Limit
				1	
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.2	N.D.	See Remark
Benzo[e]pyrene (BeP)	192-97-2	mg/kg	0.2	N.D.	
Benzo[a]anthracene (BaA)	56-55-3	mg/kg	0.2	N.D.	
Benzo[b]fluoranthene (BbF)	205-99-2	mg/kg	0.2	N.D.	
Benzo[j]fluoranthene (BjF)	205-82-3	mg/kg	0.2	N.D.	
Benzo[k]fluoranthene (BkF)	207-08-9	mg/kg	0.2	N.D.	
Chrysene (CHR)	218-01-9	mg/kg	0.2	N.D.	
Dibenzo[a,h]anthracene (DBA)	53-70-3	mg/kg	0.2	N.D.	
Benzo[g,h,i]perylene (BPE)	191-24-2	mg/kg	0.2	N.D.	
Indeno[1,2,3-cd]pyrene (IPY)	193-39-5	mg/kg	0.2	N.D.	
Phenanthrene (PHE)	85-01-8	mg/kg	/	N.D.	
Anthracene (ANT)	120-12-7	mg/kg	/	N.D.	
Fluoranthene (FLT)	206-44-0	mg/kg	/	N.D.	
Pyrene (PYR)	129-00-0	mg/kg	/	N.D.	
Sum(Phenanthrene, Anthracene, Fluoranthene, Pyrene)	/	mg/kg	1	N.D.	
Naphthalene (NAP)	91-20-3	mg/kg	1	N.D.	
Sum 15 PAH	/	mg/kg	1	N.D.	
Category	/	/	/	Category 1	/
Conclusion				Pass	/

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Remark:

Maximum PAH levels to be complied with AFPS GS 2019:01 PAK

Parameter	Category 1	Category2		Category 3	
	Materials intended for entry, toys in the range of 2009 / 48 / EC, products for children under 3 years old who can foresee long-term contact with skin (more than 30s)	Materials not included in Category 1 that are expected to be in contact with the skin for a long time (more than 30s), or repeatedly in contact with the skin for a short time		Materials not included in categories 1 and 2 that are expected to be in short-term contact with the skin (not more than 30s)	
		Children's products	Other consumer products	Children's products	Other consumer products
Benzo[a]pyrene (BaP)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Benzo[e]pyrene(BeP)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Benzo[a]anthracene (BaA)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Benzo[b]fluoranthene (BbF)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Benzo[j]fluoranthene (BjF)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Benzo[k]fluoranthene (BkF)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Chrysene (CHR)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Dibenzo[a,h]anthracene (DBA)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Benzo[g,h,i]perylene (BPE)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Indeno[1,2,3-cd]pyrene (IPY)	<0.2mg/kg	<0.2mg/kg	<0.5mg/kg	<0.5mg/kg	<1mg/kg
Phenanthrene (PHE)	<1mg/kg sum	<5mg/kg sum	<10mg/kg sum	<20mg/kg sum	<50mg/kg sum
Pyrene (PYR)					
Anthracene (ANT)					
Fluoranthene (FLT)					
Naphthalene (NAP)	<1mg/kg	<2mg/kg		<10mg/kg	
Sum 15PAH	<1mg/kg	<5mg/kg	<10mg/kg	<20mg/kg	<50mg/kg

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- Visible Color Migration

Test Methods: With reference to AP(89)1

Test Item	Test Condition	Limit	Test result
			1
Visible Color Migration	3% Acetic acid ,40°C, 24h	No color release	No color release
Conclusion			Pass

-Specific Migration of Terephthalic Acid

Test Methods: With reference to EN 13130-1-2004 & EN 13130-2:2004

Test Item	Test Condition	Unit	MDL	Limit	Test result		
					1		
					1 st	2 nd	3 rd
Specific Migration of Terephthalic Acid	3% Acetic acid, 40°C, 24h	mg/kg	0.3	7.5	N.D.	N.D.	N.D.
Conclusion					Pass	Pass	Pass

Note:

Sample is tested three times, third test result must be less than the limit and: $3^{\text{rd}} < 2^{\text{nd}} < 1^{\text{st}}$.

-Specific Migration of Ethylene glycol

Test Methods: With reference to EN 13130-1-2004 & EN 13130-7:2004

Test Item	Test Condition	Unit	MDL	Limit	Test result		
					1		
					1 st	2 nd	3 rd
Specific Migration of Ethylene glycol	3% Acetic acid, 40°C, 24h	mg/kg	3	30	N.D.	N.D.	N.D.
Conclusion					Pass	Pass	Pass

Note:

Sample is tested three times, third test result must be less than the limit and: $3^{\text{rd}} < 2^{\text{nd}} < 1^{\text{st}}$.



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-Specific Migration of Acetaldehyde

Test Methods: With reference to EN 13130-1-2004 ,analysis by gas chromatographic (GC)

Test Item	Test Condition	Unit	MDL	Limit	Test result		
					1		
					1 st	2 nd	3 rd
Specific Migration of Acetaldehyde	3% Acetic acid, 40°C, 24h	mg/kg	0.6	6	N.D.	N.D.	N.D.
Conclusion					Pass	Pass	Pass

Note:

Sample is tested three times, third test result must be less than the limit and: $3^{\text{rd}} < 2^{\text{nd}} < 1^{\text{st}}$.

-Specific Migration of Hexene

Test Methods: With reference to EN 13130-1-2004 ,analysis by gas chromatographic (GC)

Test Item	Test Condition	Unit	MDL	Limit	Test result		
					1		
					1 st	2 nd	3 rd
Specific Migration of Hexene	95% Ethanol, 40°C, 24h	mg/kg	0.2	3	N.D.	N.D.	N.D.
Conclusion					Pass	Pass	Pass

Note:

Sample is tested three times, third test result must be less than the limit and: $3^{\text{rd}} < 2^{\text{nd}} < 1^{\text{st}}$.



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- Specific Migration of BPA

Test Methods: With reference to EN 13130-1-2004 & BS DD CEN TS 13130-13:2005, analysis by High Performance Liquid Chromatography (HPLC)

Test Item	Test Condition	Unit	MDL	Limit	Test result		
					1		
					1 st	2 nd	3 rd
Specific Migration of BPA	3% Acetic acid, 40 °C, 24h	mg/kg	0.001	0.001	N.D.	N.D.	N.D.
Conclusion					Pass	Pass	Pass

Note:

Sample is tested three times, third test result must be less than the limit and: $3^{rd} < 2^{nd} < 1^{st}$.

Remark:

mg/kg = milligram per kilogram / mg/kg = ppm

% = percentage / 1mg/kg=0.0001%

mg/in² = Milligrams per square inch

N.D.= Not Detected (less than method detection limit)

MDL=Method Detection Limit.

Test Point Description

Test point	Test point description
1	Silver plastic film (PET)

** Modified History **

Report No.	Description	Issued Date	Remark
HY260301050002-2	Initial Test Report Release	January 13, 2026	Bay Liu

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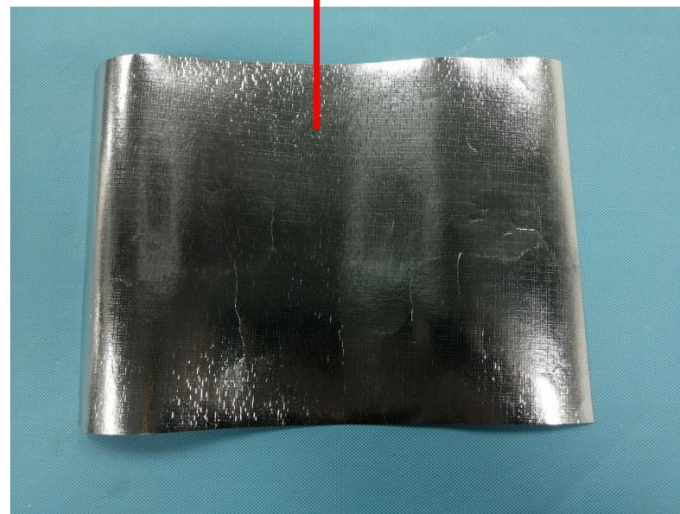
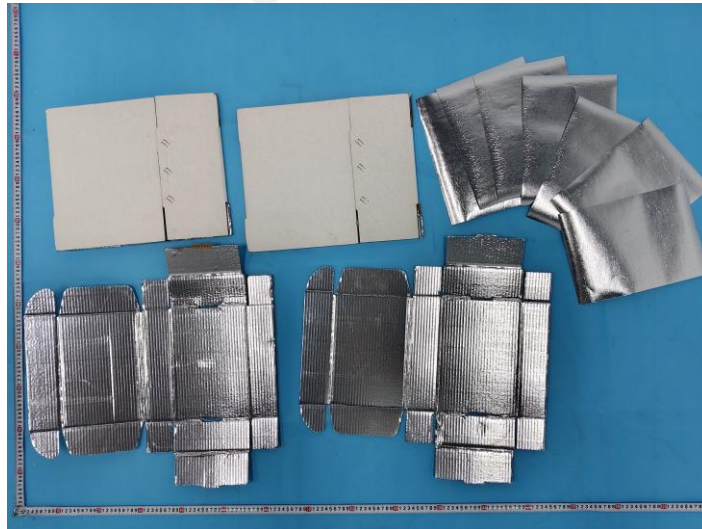
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The photo of the sample



Remark:

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- 2: The test results of this report are only valid for the tested samples.
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