Test Report No. 64.165.22.02361.01A
Rev. 00
Dated 2022-07-18

Applicant:	Zhongshan Ying Xin New Material Co., Ltd.
Address:	1/F-3, 19, Yifu Road, Nantou Town, Zhongshan, Guangdong, China (Mainland)
Sample Description:	Vacuum roll film / vacuum bag
Model No.:	HKN-VR2015, HKN-VR2815
Sample Received Date:	2022-06-22
Test Period:	From 2022-06-22 to 2022-07-18
Purpose of examination:	As specified by client, to test as regulated by the German Food & Feed Acts LFGB (§ 30 & 31) and Regulation (EC) No.1935/2004.
Test Result:	Refer to following page(s)
Remark:	1. The result relates only to the items tested. 2. The testing approach, the testing methods, and the reported results in this report demonstrate compliance or non-compliance to the client's requirements which were mutually agreed at the contract review and stipulated in the quotation. The testing approach, the testing methods, and the reported results may not or only partially fulfil the associated requirements of the applicable regulations.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

Prepared by:

Sam Luo

Sam Luo
Project Handler

Reviewed by:

Kevin Zhang

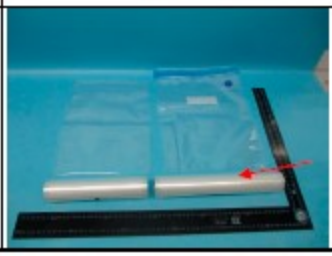
Kevin Zhang
Designated Reviewer

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group
5F, Communication Building, 163 Pingyun Rd, Huangpu West Ave.
Guangzhou 510656, P.R. China
Tel.: (86) 20 38320668
Fax: (86) 20 38320478

SUMMARY OF TEST RESULTS

Test Requested	Conclusion	Remarks
For material: Plastics Test for compliance with regulation (EU) No. 10/2011 and its amendments (EU) No. 2016/1416, (EU) No. 2017/752, EU) No. 2018/79 , (EU) No 284/2011, (EU) No. 2018/213, (EU) No. 2020/1245, Recommendation of BfR "Kunststoffe im Lebensmittelverkehr". 1. Overall Migration 2. Specific Migration of 19 Heavy Metals 3. Specific Migration of Primary Aromatic Amine 4. Specific Migration of Caprolactam 5. Total Chromium, Vanadium, Zirconium and Hafnium content	PASS	/
Sensory test 6. Sensory test with reference to DIN 10955: 2004	PASS	/

1. TESTED SUBJECT DESCRIPTION

Sample Number	Tested Item Description	Photo
001	Translucent plastic bag (PA6+PE)	

2. TEST RESULT

2.1. OVERALL MIGRATION TEST FOR PLASTICS

Test method: As specified in Regulation (EU) No. 10/2011 and its amendments; with reference to EN 1186: part 1, part 2, part 3, part 9, part 13 & part 14: 2002.

Surface area to Volume ratio: 10dm² : 1000ml

Simulant Used	Test Condition	Result [mg/dm²]	Requirement [mg/dm²]
		Sample 001	
3% Acetic Acid	100 °C for 4 hours	< 3.0	≤ 10
10% Ethanol	100 °C for 4 hours	< 3.0	≤ 10
95% Ethanol	60 °C for 7 hours	< 3.0	≤ 10
Isooctane	60 °C for 3 hours	5.6	≤ 10

Note:

- "mg/dm²" denotes milligram per square decimeter.
- The specification was quoted from regulation (EU) No. 10/2011 and its amendment (EU) No. 2020/1245.

2.2. SPECIFIC MIGRATION OF 19 HEAVY METALS TEST FOR PLASTICS

Test method: As specified in Regulation (EU) No. 10/2011 and its amendments; the sample(s) were migrated with food simulant, followed by Inductively Coupled Plasma Mass Spectrometry(ICP-MS) analysis.

Testing condition and simulant: 3% acetic acid at 100 °C for 24 hour(s).

Surface area to Volume ratio: 6dm² : 1000ml

Test Item		Result [mg/kg]	Requirement [mg/kg]
		Sample 001	
Barium	(Ba)	<0.10	≤ 1
Cobalt	(Co)	<0.05	≤ 0.05
Copper	(Cu)	<0.10	≤ 5
Iron	(Fe)	<0.10	≤ 48
Lithium	(Li)	<0.06	≤ 0.6
Manganese	(Mn)	<0.02	≤ 0.6
Zinc	(Zn)	<0.10	≤ 5
Aluminium	(Al)	<0.10	≤ 1
Nickel	(Ni)	<0.02	≤ 0.02
Antimony	(Sb)	<0.01	≤ 0.04
Arsenic	(As)	<0.01	Not Detected (< 0.01)
Cadmium	(Cd)	<0.002	Not Detected (< 0.002)
Chromium	(Cr)	<0.01	Not Detected (< 0.01)
Lead	(Pb)	<0.01	Not Detected (< 0.01)
Mercury	(Hg)	<0.01	Not Detected (< 0.01)
Lanthanum	(La)	<0.01	Sum ≤ 0.05
Europium	(Eu)	<0.01	
Gadolinium	(Gd)	<0.01	
Terbium	(Tb)	<0.01	

Note:

- "mg/kg" denotes milligram per kilogram foodstuff.
- The specification was quoted from regulation (EU) No. 10/2011 and its amendment (EU) No. 2020/1245.

2.3. SPECIFIC MIGRATION OF PRIMARY AROMATIC AMINE TEST FOR PLASTICS

Test method: As specified in Regulation (EU) No. 10/2011 and its amendments; the sample(s) were migrated with food stimulant, followed by Ultraviolet–visible Specphotometer (UV-Vis) analysis.

Testing condition and simulant: 3% acetic acid at 100 ºC for 4 hour(s).

Surface area to Volume ratio: 6dm² : 1000ml

Test Item	Result [mg/kg]	Requirement [mg/kg]
	Sample 001*	
Migration of Primary Aromatic Amine	< 0.01	Not Detected (< 0.01)

Test method: As specified in Regulation (EU) No. 10/2011 and its amendments; the sample(s) were migrated with food stimulant, followed by Liquid Chromatography with Tandem Mass Spectrometry Detection (LC-MS/MS) analysis.

Testing condition and simulant: 3% acetic acid at 100 ºC for 4 hour(s).

Surface area to Volume ratio: 6dm² : 1000ml

No.	Test Item	CAS No.	Result [mg/kg]	Requirement [mg/kg]
			Sample 001*	
1	biphenyl-4-ylamine 4-aminobiphenyl xenylamine	92-67-1	<0.002	< 0.002
2	Benzidine	92-87-5	<0.002	< 0.002
3	4-chloro-o-toluidine	95-69-2	<0.002	< 0.002
4	2-naphthylamine	91-59-8	<0.002	< 0.002
5	o-aminoazotoluene 4-amino-2',3-dimethylazobenzene 4-o-tolylazo-o-toluidine	97-56-3	<0.002	< 0.002
6	5-nitro-o-toluidine	99-55-8	<0.002	< 0.002
7	4-chloroaniline	106-47-8	<0.002	< 0.002
8	4-methoxy-m-phenylenediamine	615-05-4	<0.002	< 0.002
9	4,4'-methylenedianiline 4,4'-diaminodiphenylmethane	101-77-9	<0.002	< 0.002
10	3,3'-dichlorobenzidine 3,3'-dichlorobiphenyl-4,4'-ylenediamine	91-94-1	<0.002	< 0.002
11	3,3'-dimethoxybenzidine o-dianisidine	119-90-4	<0.002	< 0.002
12	3,3'-dimethylbenzidine 4,4'-bi-o-toluidine	119-93-7	<0.002	< 0.002
13	4,4'-methylenedi-o-toluidine	838-88-0	<0.002	< 0.002
14	6-methoxy-m-toluidine p-cresidine	120-71-8	<0.002	< 0.002
15	4,4'-methylene-bis-(2-chloro-aniline) 2,2'-dichloro-4,4'-methylene-dianiline	101-14-4	<0.002	< 0.002

No.	Test Item	CAS No.	Result [mg/kg]	Requirement [mg/kg]
			Sample 001*	
16	4,4'-oxydianiline	101-80-4	<0.002	< 0.002
17	4,4'-thiodianiline	139-65-1	<0.002	< 0.002
18	o-toluidine 2-aminotoluene	95-53-4	<0.002	< 0.002
19	4-methyl-m-phenylenediamine	95-80-7	<0.002	< 0.002
20	2,4,5-trimethylaniline	137-17-7	<0.002	< 0.002
21	o-anisidine 2-methoxyaniline	90-04-0	<0.002	< 0.002
22	4-amino azobenzene	60-09-3	<0.002	< 0.002
23	1,5- Diaminenaphthalene	2242-62-01	<0.002	< 0.002
24	Aniline (ANL)	62-53-3	<0.002	< 0.002
25	2,4-Dimethylaniline (2,4-DMA)	95-68-1	<0.002	< 0.002
26	2,6-Dimethylaniline (2,6-DMA)	87-62-7	<0.002	< 0.002
27	m-Phenylenediamine (m-PDA)	108-45-2	<0.002	< 0.002
28	p-Phenylenediamine (p-PDA)	106-50-3	<0.002	< 0.002
29	2,6-Toluenediamine (2,6-TDA)	823-40-5	<0.002	< 0.002

Note:

- "mg/kg" denotes milligram per kilogram foodstuff.
- The specification was quoted from regulation (EU) No. 10/2011 and its amendment (EU) No. 2020/1245.
- "*" denotes the test condition was specified by client.

2.4. SPECIFIC MIGRATION OF CAPROLACTAM TEST FOR PLASTICS

Test method: As specified in Regulation (EU) No. 10/2011 and its amendments; the sample(s) were migrated with food simulant, followed by Gas Chromatography/Mass Spectrometry (GC-MS) analysis.

Testing condition and simulant: 3% acetic acid at 100 ºC for 24 hour(s).

Surface area to Volume ratio: 6dm^2 : 1000ml

Test Item	CAS No.	Result [mg/kg]	Requirement [mg/kg]
		Sample 001	
Migration of Caprolactam	105-60-2	< 7.5	≤ 15

Note:

- "mg/kg" denotes milligram per kilogram foodstuff.
- The specification was quoted from regulation (EU) No. 10/2011 and its amendment (EU) No. 2020/1245.

2.5. TOTAL CHROMIUM, VANADIUM, ZIRCONIUM AND HAFNIUM CONTENT TEST FOR PLASTICS

Test method: Microwave digestion, followed by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) analysis.

Test Item	Result [mg/kg]	Requirement [mg/kg]
	Sample 001	
Chromium (Cr)	< 10	≤ 10
Vanadium (V)	< 15	≤ 20
Zirconium (Zr)	< 15	≤ 100
Hafnium (Hf)	< 15	≤ 100

Note:

- "mg/kg" denotes miligram per kilogram.
- The specification was quoted from Recommendation of the BfR "Kunststoffe im Lebensmittelverkehr" Part III "Polyethylene".

2.6. SENSORY TEST

Test method: With reference to DIN 10955: 2004. The submitted sample was treated with food stimulant. After this treatment, examined by panels with regard to any divergence in smell and taste.

Testing condition and simulant: Distilled water at 100 ºC for 24 hour(s)

Test Item	Grading Result	Recommended Level
	Sample 001	
Transfer of Smell	1	≤ 2.5
Transfer of Taste	1	≤ 2.5

Note:

- Explanation for grading are listed as below:
  Grading 0: No perceptible taste/smell deviation
  Grading 1: Just perceptible taste/smell deviation
  Grading 2: Weak taste/smell deviation
  Grading 3: Clear taste/smell deviation
  Grading 4: Strong taste/smell deviation

3. REMARK

The chemical testing was performed in TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Chemical lab and the test results were reviewed at TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch.

---------End of Report---------