



**BUREAU
VERITAS**

TEST REPORT

Technical Report: (6621)115-1288

May 13, 2021

Date Received: April 26, 2021

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Date Modified: May 07, 2021

BRUCE LEE
JINHUA LANGMAI DAILY USING CO., LTD
88 HUAFENG ROAD, FUCUN TOWN, JINDONG INDUSTRIAL AREA, JINHUA, ZHEJIANG CHINA

Sample Description: Sample(s) received is/are stated to be:
PAPER CUPCAKE LINER

Color:	COLORFUL	Style No(s):	/
Order No.:	/	PO No.:	/
Model No.:	/	Batch No.:	/
Age Grade:	/	Product End Use:	/
Vendor:	/	Retest No.:	/
Manufacturer:	JINHUA LANGMAI DAILY USING CO., LTD	Supplier Reference:	/
Buyer:	/	Country of Origin:	CHINA
Test Period:	May 07, 2021 to May 13, 2021	Country of Destination:	/

SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION
Sensory Test (Odour and Taste) for Paper and Paperboard in Contact with Foodstuffs – EC No. 1935/2004, § 30 and 31 LFGB and BfR Recommendation	PASS
Formaldehyde Content for Paper and Paperboard in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation	PASS
Extractable Heavy Metals Contents for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation	PASS
Specific Migration of Primary Aromatic Amine for Paper and Paperboard in Contact with Foodstuffs – § 30 and 31 LFGB, BfR Recommendation	PASS
Azo Dye stuff Content for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation	PASS
Migration of Dyes for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation	PASS
Fastness of Fluorescence for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation	PASS



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BVCPS (SHANGHAI) GENERAL CONTACT INFORMATION FOR THIS REPORT

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BUREAU VERITAS

CONSUMER PRODUCTS SERVICE DIVISION (SHANGHAI)

Laboratory Test location:

No. 368, Guangzhong Road, Zhuanqiao Town, Minhang, Shanghai.

No. 168, Guanghua Road, Zhuanqiao Town, Minhang, Shanghai.

Hyde Bao

PRODUCT LINE MANAGER(HARDLINE DIVISION)



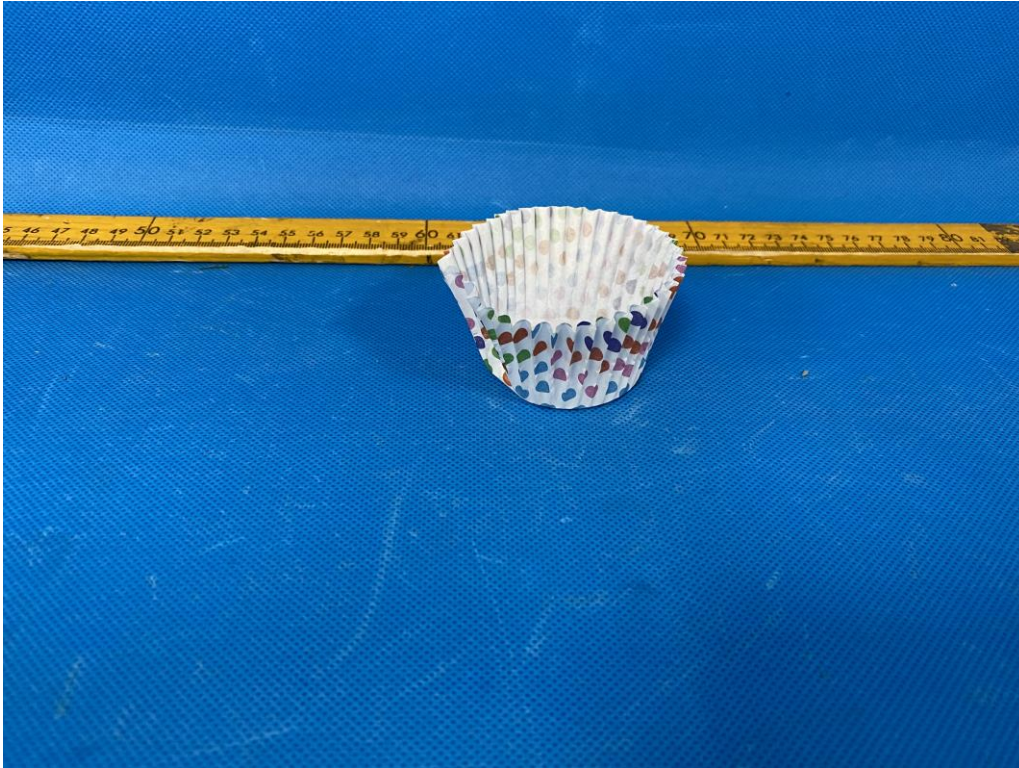
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Photo of the Submitted Sample



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TEST RESULT

Sample Description Assigned by Laboratory

Test Item	Description	Client Claimed Material
1	Colorful paper cupcake	PAPER

Sensory Test (Odour and Taste) for Paper and Paperboard in Contact with Foodstuffs – EC No. 1935/2004, § 30 and 31 LFGB and BfR Recommendation

Relative humidity in test vessel: 75%

Parameter	Result	Maximum Allowable Limit
	1	
Odour	1	2.5 Scale
Off-flavour in Butter	0	2.5 Scale
Off-flavour in Chocolate	0	2.5 Scale
Off-flavour in Biscuits	0	2.5 Scale
Off-flavour in Water	0	2.5 Scale
Conclusion	PASS	-

Note: Scale for odour: 0 = no perceptible odour;
1 = odour just perceptible (still difficult to define);
2 = moderate odour;
3 = moderately strong odour;
4 = strong odour
Scale for off-flavour: 0 = no perceptible off-flavour;
1 = off-flavour just perceptible (still difficult to define);
2 = moderate off-flavour;
3 = moderately strong off-flavour;
4 = strong off-flavour

Method: EN 1230-1:2001 and EN 1230-2: 2001

Remark: 1) The odour is described as with individual scale of 2 or above as per the testing standard EN 1230-1.
2) Selected test was specified by client.



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Formaldehyde Content for Paper and Paperboard in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result	Maximum Allowable Limit
		1	
Formaldehyde	mg/dm ²	<0.5	1
Conclusion	-	PASS	-

Note: “<” = less than
mg/dm² = milligram per square decimeter

Method: EN 645:1994 and analysis by EN 1541:2001.

Remark: 1) The limit refers to BfR Recommendation XXXVII.
2) Selected test was specified by client.

Extractable Heavy Metals Contents for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result	Maximum Allowable Limit
		1	
Cadmium (Cd)	µg/l	<1	5
Lead (Pb)	µg/l	<2	10
Chromium III (Cr III)	µg/dm ²	<1	4
Chromium VI (Cr VI)	µg/dm ²	<0.5	Not Detected
Aluminum (Al)	mg/kg	<0.5	1
Conclusion	-	PASS	-

Note: “<” = less than
µg/l = microgram per liter
µg/dm² = microgram per square decimeter
mg/L = milligram per liter
mg/kg = milligram per kilogram

Method: EN 645:1994 and analysis by Inductively Coupled Argon Plasma Spectrometer (ICP) and UV-Vis Spectrophotometer.

Remark: 1) The limit refers to BfR Recommendation XXXVI.
2) Selected test was specified by client.

Specific Migration of Primary Aromatic Amine for Paper and Paperboard in Contact with Foodstuffs – § 30 and 31 LFGB, BfR Recommendation

Parameter	Unit	Result	Maximum Allowable Limit
		1	
4-aminobiphenyl / 4-biphenylamine	ug/L	<2	2
o-anisidine / 2-methoxyaniline	ug/L	<2	2
Benzidine	ug/L	<2	2
4-Chloro-aniline / p-chloroaniline	ug/L	<2	2
4-Chloro-o-toluidine	ug/L	<2	2
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	ug/L	<2	2
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	ug/L	<2	2
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	ug/L	<2	2
2-Methoxy-5-methylaniline / p-cresidine	ug/L	<2	2
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	ug/L	<2	2
o-Toluidine / 2-aminotoluene	ug/L	<2	2
2,4-Toluenediamine	ug/L	<2	2
3,3-Dimethylbenzidine	ug/L	<2	2
2,4,5-Trimethylaniline	ug/L	<2	2
Aniline*	ug/L	<2	10
2,4-Dimethylaniline / 2,4-xylidine*	ug/L	<2	10
2,6-Dimethylaniline / 2,6-xylidine*	ug/L	<2	10
m-Phenylenediamine / 1,3-phenylenediamine*	ug/L	<2	10
p-Phenylenediamine / 1,4-phenylenediamine*	ug/L	<2	10
2,6-Toluenediamine*	ug/L	<2	10
1,5-Diaminenaphthalene*	ug/L	<2	10
2-naphthylamine	ug/L	<2	2
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	ug/L	<2	2
5-nitro-o-toluidine*	ug/L	<2	10
3,3'-dichlorobenzidine	ug/L	<2	2
3,3'-dimethoxybenzidine / o-dianisidine	ug/L	<2	2
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	ug/L	<2	2
4,4'-thiodianiline	ug/L	<2	2
4-amino azobenzene	ug/L	<2	2
Sum of primary aromatic amines with *	ug/L	<2	10
Conclusion	-	PASS	-

Note: “<” = less than
ug/L = microgram per liter

Method: EN 645:1994, LC-MSMS analysis.

Remark: 1) The limit refers to BfR Recommendation XXXVI.
2) Selected test was specified by client.



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Azo Dye Content for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result	Maximum Allowable Limit
		1	
o-Toluidine	mg/kg	<10	30
2-Methoxyaniline	mg/kg	<10	30
p-Chloroaniline	mg/kg	<10	30
p-Kresidine	mg/kg	<10	30
2,4,5-Trimethylaniline	mg/kg	<10	30
4-Chloro-o-Toluidine	mg/kg	<10	30
2,4-Toluylenediamine	mg/kg	<10	30
2,4-Diaminoanisole	mg/kg	<10	30
2-Naphthylamine	mg/kg	<10	30
2-Amino-4-nitrotoluene	mg/kg	<10	30
4-Aminodiphenyl	mg/kg	<10	30
p-Aminoazobenzene	mg/kg	<10*	30
4,4'-Oxydianiline	mg/kg	<10	30
Benzidine	mg/kg	<10	30
4,4'-Diaminodiphenylmethane	mg/kg	<10**	30
o-Aminoazotoluene	mg/kg	<10	30
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<10	30
3,3'-Dimethylbenzidine	mg/kg	<10	30
4,4'-Thiodianiline	mg/kg	<10	30
3,3'-Dichlorobenzidine	mg/kg	<10	30
4,4'-Methylene-bis-(2-chloraniline)	mg/kg	<10	30
3,3'-Dimethoxybenzidine	mg/kg	<10	30
Conclusion	-	PASS	-

Note: mg/kg = milligram per kilogram
 “<” = less than
 “>” = more than

Method: EN 14362-1:2017, EN 14362-3:2017

Remark: 1. The limit refers to BfR Recommendation XXXVI.

2.*Azo colorants that are able to form p-aminoazobenzene, generate aniline and 1,4-phenylenediamine under the condition of this method. Aniline and 1,4-phenylenediamine are not detected under the condition of this method.

3.*The presence of these colorants cannot be confirmed by the method stated as above. The result of p-aminoazobenzene shown is analysed and confirmed by §64 LFGB B 82.02-9.

4.** Conducting the official method 4, 4-diaminodiphenylmethane has been detected. Please note that detected aromatic amines must stem from azodyes but not from other materials e.g. Polyurethane. If forbidden amines are built by others materials (e.g. Polyurethane) the sample doesn't fail according to the European Legislation. By extracting the sample directly without applying the reduction step 4, 4-Diisocyanatodiphenylmethane has been detected.

5. Selected test was specified by client.



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Migration of Dyes for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation

Test Condition: Procedure D – Hot contact with fatty food: 30 min at (120 ± 3) °C in oil
Procedure D – Hot contact with moisture food: 30 min at (90 ± 3) °C in water

Parameter	Simulant Used	Result	Maximum Allowable Limit
		1	
Migration of Dyes	Distilled water	Grade 5	No less than Grade 5
	Olive Oil	Grade 5	
Conclusion	-	PASS	-

Note: Scale: 5 = negligible or no change or staining;
4 = slightly changed or stained;
3 = noticeably changed or stained;
2 = considerably changed or stained;
1 = much changed or stained

Method: EN 646: 2018

Remark: 1) The limit refers to BfR Recommendation XXXVI.
2) Selected test was specified by client.

Fastness of Fluorescence for Paper and Paperboard in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation

Test Condition: Procedure D – Hot contact with fatty food: 30 min at (120 ± 3) °C in oil
Procedure D – Hot contact with moisture food: 30 min at (90 ± 3) °C in water

Parameter	Simulant Used	Result	Maximum Allowable Limit
		1	
Fastness of Fluorescence	Distilled water	Grade 5	No less than Grade 5
	Olive Oil	Grade 5	
Conclusion	-	PASS	-

Note: Scale: 5 = negligible or no change or staining;
4 = slightly changed or stained;
3 = noticeably changed or stained;
2 = considerably changed or stained;
1 = much changed or stained

Method: EN 648: 2018

Remark: Selected test was specified by client.

END