TÜVRheinland®

Test Report No.:	SHG20110516701	*Page 1 of 18*
Client:	**Neoflam, Inc. Ningbo office** B-122,No.188 Donghanmen South Road, Yuyao City, Zhejiang, China	
Buyer's name:	Steuber GMBH	
Manufacturer's name:	n.a.	
Test item(s):	See test pages	
Identification/ Model No(s):	Style No: TB-107, TM-002, TB-102,TB-105, TM-001	
Sample Receiving date:	May. 16, 2011	
Delivery condition:	Apparent good, Samples tested as received	
Test location:	TÜV Rheinland (Shanghai) Co. Ltd.- Product and Environmental Analyses; Shanghai TUV building, No.177, Lane 777, West Guangzhong Road, Zhabei District, Shanghai 200072, P.R.China	

Test specification:	***Test result:***
Selected tests by test institute for the compliance with the following regulations concerning materials in contact with foodstuff: - Regulation (EC) No 1935/2004 - German § 30 and § 31 LFGB (Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch)	Pass

Other Information:
Test period: May. 31, 2011– Jun. 10, 2011

Abbreviations: ok / P = passed
fail / F = failed
n.a. / N = not applicable

Tested by: **Checked by:**

Jun. 13, 2011	Xiulan Cai	Chemist	Melanie Schubert	Technical Expert
Date	*Name/Position*		*Name/Position*	

Photo of test specimen:

Material List:

Item No.	Test Item (Product Description, Material, Colour)	Refer to item No
1	Neoflam plastic bottles, TB-107 FILP TOP, pink	
1-1	Bottle, tritan, pink	
1-2	Seal, silicone, transparent	
1-3	Lid, PP, pink	
2	Neoflam plastic bottles, TM-002 ICE, purple	
2-1	Pipe, PP, purple	
2-2	Body, tritan, purple	
2-3	Seal, silicone, transparent	Item 1-2
3	Neoflam plastic bottles, TB-105 BOTTLE DROPLET, kelly	

3-1	Bottle, tritan, kelly	
3-2	O-ring, silicone, kelly	
3-3	Lid, ABS, kelly	
4	Neoflam plastic bottles, TB-102 BOTTLE TETRIS, blue	
4-1	Bottle, tritan, blue	
4-2	Seal, silicone, blue	
4-3	Lid, ABS, blue	
5	Neoflam plastic bottles, TM-001 HOT COFFEE MUG	
5-1	Body, PP, natural colour	
5-2	Seal, silicone, transparent	Item 1-2

Overall result:

No.	Tested Item	Conclusion
1	Sensorial examination	Pass
2	Release of lead and cadmium	Pass
3	Transfer of colourants	Pass
4	Extractable substances	Pass
5	Total volatile organic substances (silicones)	Pass
6	Remaining Peroxides	Pass
7	Catalyst residues Platinum in silicone material	Pass
8	Release of Heavy Metals from Polymers	Pass
9	Polycyclic Aromatic Hydrocarbons (PAHs)_migration test	Pass
10	Specific Migration of Acrylonitrile	Pass
11	Specific Migration of Butadiene	Pass
12	Total volatile organic substances (VOC) acc. to BfR VI (Styrene Copolymers and Mixture of Styrene with other Polymers)	Pass
13	Bisphenol A	Pass
14	Specific Migration of 2,2,4,4-tetramethylcyclobutane-1,3-diol	Pass

Test results:

1 Sensorial examination

Test performance: according to DIN 10955:2004-06

Before testing, the product had been cleaned according to the product's instruction manual or in the absence of such manual, by flushing with water and soap for 3 times.

Evaluation scheme for the transfer of taste and smell:

0 = no discernible deviation

1 = barely discernible deviation

2 = weak deviation

3 = clear deviation

4 = strong deviation

Limit: 3 (failed)

The following food simulants and conditions were applied:

food simulant	test duration/temperature
Water	2h, 70℃ followed by 24h, 20℃

Item No.	1	
Parameter	Result	Conclusion
transfer of smell	0	Pass
transfer of taste	0	Pass

Item No.	2	
Parameter	Result	Conclusion

Item No.	2	
Parameter	Result	Conclusion
transfer of smell	0	Pass
transfer of taste	0	Pass

Item No.	3	
Parameter	Result	Conclusion
transfer of smell	0	Pass
transfer of taste	0	Pass

Item No.	4	
Parameter	Result	Conclusion
transfer of smell	0	Pass
transfer of taste	0	Pass

Item No.	5	
Parameter	Result	Conclusion
transfer of smell	0	Pass
transfer of taste	0	Pass

2 Global Migration

Test method: according to Directive 82/711/EEC and Council Directive 85/572/EEC and its corresponding regulations
Deviating to the regulations the following tests were performed as orientating single tests.

The following food simulants and conditions were applied:

food simulant	test duration/temperature
3% acetic acid	2h, 70℃ followed by 24h, 20℃
50% ethanol	2h, 70℃ followed by 24h, 20℃

Results 1st migration:

Item No.	1			
Parameter	Unit	Result	Limit	Conclusion
Migration preparation	-	5.53 dm^2/720ml	-	-
3% acetic acid	mg/dm^2	2	10	Pass

Item No.	2			
Parameter	Unit	Result	Limit	Conclusion
Migration preparation	-	520ml	-	-
3% acetic acid	mg/dm^2	< 2	10	Pass

Item No.	5			
Parameter	Unit	Result	Limit	Conclusion
Migration preparation	-	500ml	-	-
3% acetic acid	mg/dm^2	< 2	10	Pass

Item No.	3			
Parameter	Unit	Result	Limit	Conclusion
Migration preparation	-	4.70 dm^2/ 680ml	-	-
50% ethanol	mg/dm^2	< 2	10	Pass

Item No.	4			
Parameter	Unit	Result	Limit	Conclusion
Migration preparation	-	500ml	-	-
50% ethanol	mg/dm^2	< 2	10	Pass

Item No.	5			
Parameter	Unit	Result	Limit	Conclusion
Migration preparation	-	4.87 dm^2/ 500ml	-	-
50% ethanol	mg/dm^2	< 2	10	Pass

Requirement acc. to Commission Regulation (EU) No 10/2011: Global Migration ≤ 10 mg/dm^2

3 Transfer of colourants

Test method: according to Minute “24. Mitteilung zur Untersuchung von Kunststoffen”, BGesundhbl. 15, 285 (1972)

Item No.	1-1	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	1-2	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	1-3	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass

Item No.	1-3	
Color fastness to food stimulant	Evaluation	Conclusion
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	2-1	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	2-2	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	3-1	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	3-2	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	3-3	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass

Item No.	3-3	
Color fastness to food stimulant	Evaluation	Conclusion
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	4-1	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	4-2	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Item No.	4-3	
Color fastness to food stimulant	Evaluation	Conclusion
Water	No transfer of colourants	Pass
2% Acetic Acid	No transfer of colourants	Pass
10 % Ethanol	No transfer of colourants	Pass
Oil	No transfer of colourants	Pass

Requirement acc. to BfR recommendation on Food Contact Materials Part IX ”synthetics in contact with foodstuff”: no transfer of colourants into the food stimulant.

4 Extractable substances

Test method: according to Bundesgesundheitsbl. 4, (1961) 12 : 189

Sample Treatment:	Conditioning the desiccator for 24 hours, subseq: 3 % acetic Acid Reflux temperature / 5 h 10 % ethanol Reflux temperature / 5 h

Item No.	1-2

Parameter	Unit	Result	Conclusion
3% Acetic Acid			
Extractable substances	%	< 0.1	Pass
10 % Ethanol			
Extractable substances	%	< 0.1	Pass

Item No.	3-2		
Parameter	Unit	Result	Conclusion
3% Acetic Acid			
Extractable substances	%	< 0.1	Pass
10 % Ethanol			
Extractable substances	%	< 0.1	Pass

Item No.	4-2		
Parameter	Unit	Result	Conclusion
3% Acetic Acid			
Extractable substances	%	< 0.1	Pass
10 % Ethanol			
Extractable substances	%	< 0.1	Pass

Requirement acc. to recommendation of the BfR, ”Kunststoffe im Lebensmittelverkehr” Part XV ”Silicones”: extractable substances ≤ 0.5 %

5 Total volatile organic substances (silicones)

Test method: according o the 61st method announcement of the Federal Institute for Risk Assessment (Bundesgesundheitsbl., 46, (2003), page 362.)

Sample Treatment:	Conditioning the desiccator for 48 hours, subseq: 2h, 70℃ followed by 24h, 20℃

Item No.	1-2		
Parameter	Unit	Result	Conclusion
volatile organic compounds	%	< 0.1	Pass

Item No.	3-2		
Parameter	Unit	Result	Conclusion
volatile organic compounds	%	< 0.1	Pass

Item No.	4-2		
Parameter	Unit	Result	Conclusion
volatile organic compounds	%	< 0.1	Pass

Requirement acc. to recommendation of the BfR,"Kunststoffe im Lebensmittelverkehr" Part XV"Silicones": volatile organic substances ≤ 0.5 %

6 Remaining Peroxides

Test method: according to 58th method announcement of the Federal Institute for Risk Assessment (Bundesgesundheitsbl., 40, (1997), page 412.)

Item No.	1-2		
Parameter	Unit	Result	Conclusion
Remaining Peroxides	%	ND (<0.01)	Pass

Item No.	3-2		
Parameter	Unit	Result	Conclusion
Remaining Peroxides	%	ND (<0.01)	Pass

Item No.	4-2		
Parameter	Unit	Result	Conclusion
Remaining Peroxides	%	ND (<0.01)	Pass

Requirement acc. to recommendation of the BfR,"Kunststoffe im Lebensmittelverkehr" Part XV"Silicones": no positive reaction to peroxides

7 Catalyst residues Platinum in silicone material

Test method: Acid digestion, Determination of Platinum by means of ICP-OES

Item No.	1-2		
Parameter	Unit	Result	Conclusion
platinum	mg/kg	< 5	Pass

Item No.	3-2		
Parameter	Unit	Result	Conclusion
platinum	mg/kg	< 5	Pass

Item No.	4-2		
Parameter	Unit	Result	Conclusion
platinum	mg/kg	< 5	Pass

Requirement acc. to recommendation of the BfR,"Kunststoffe im Lebensmittelverkehr" Part XV"Silicones": platinum ≤ 50 mg/kg

8 Release of Heavy Metals from Polymers

Test method: Migration according to Directive 82/711/EEC and Council Directive 85/572/EEC and its corresponding regulations, Determination of Heavy Metals by ICP-MS

The following food simulants and conditions were applied:

food simulant	test duration/temperature
3% acetic acid	2h, 70℃ followed by 24h, 20℃

Results 1st migration:

Item No.	1			
Parameter	Unit	Result	Limit*	Conclusion
Migration preparation	-	720ml	-	-
Barium	mg/kg	< 0.02	1	Pass
Cobalt	mg/kg	< 0.02	0.05	Pass
Copper	mg/kg	< 0.02	5	Pass
Iron	mg/kg	< 0.05	48	Pass
Lithium	mg/kg	< 0.02	0.6	Pass
Manganese	mg/kg	< 0.02	0.6	Pass
Zinc	mg/kg	< 0.05	25	Pass

Item No.	3			
Parameter	Unit	Result	Limit*	Conclusion
Migration preparation	-	720ml	-	-
Barium	mg/kg	< 0.02	1	Pass
Cobalt	mg/kg	< 0.02	0.05	Pass
Copper	mg/kg	< 0.02	5	Pass
Iron	mg/kg	< 0.05	48	Pass
Lithium	mg/kg	< 0.02	0.6	Pass
Manganese	mg/kg	< 0.02	0.6	Pass
Zinc	mg/kg	< 0.05	25	Pass

* Requirements acc. to Regulation (EU) No 10/2011

9 Polycyclic Aromatic Hydrocarbons (PAHs) _ migration test

Test method : Migration according to Directive 82/711/EEC and Council Directive 85/572/EEC and its corresponding regulations, Determination with reference to ZEK 01.2-08

Requirement : ZEK 01.2 -08

Food simulant	Test duration/temperature
50% ethanol	2h, 70℃ followed by 24h, 20℃

Parameter	CAS No.	Unit	Item No - 2	Item No - 4
Sum of listed PAHs[2]	**--**	mg/l	**n.d**	**n.d**
Naphthalene	91-20-3	mg/l	n.d.	n.d.
Acenaphthylene	208-96-8	mg/l	n.d.	n.d.
Acenaphthene	83-32-9	mg/l	n.d.	n.d.
Fluorene	86-73-7	mg/l	n.d.	n.d.
Phenanthrene	85-01-8	mg/l	n.d.	n.d.
Anthracene	120-12-7	mg/l	n.d.	n.d.
Fluoranthene	206-44-0	mg/l	n.d.	n.d.
Pyrene	129-00-0	mg/l	n.d.	n.d.
Chrysene	218-01-9	mg/l	n.d.	n.d
Benz(a)anthracene	56-55-3	mg/l	n.d.	n.d.
Benzo(b)fluoranthene	205-99-2	mg/l	n.d	n.d
Benzo(k)fluoranthene	207-08-9	mg/l	n.d.	n.d.
Benzo(a)pyrene	**50-32-8**	mg/l	**n.d.**	**n.d.**
Indeno(1,2,3-cd)pyrene	193-39-5	mg/l	n.d.	n.d.
Dibenzo(a,h)anthracene	53-70-3	mg/l	n.d.	n.d.
Benzo(g,h,i)perylene	191-24-2	mg/l	n.d.	n.d.
Summary to requirement in ZEK 01.2 -08			**Pass**	**Pass**

Remark:

1 “mg/kg” denotes milligram per kilogram

2 In the case of all 16 PAH were not detected, the result is stated n.d. (not detected, less than 0.01 mg/kg simulant). Single components with an amount of < 0,01 mg/l were not considered by the calculation of the sum.

10 Specific Migration of Acrylonitrile

Test method: Migration according to Directive 82/711/EEC and Council Directive 85/572/EEC and its corresponding regulations, Determination of Acrylonitrile acc. to DIN 13130-3

Following migration conditions were applied:

food simulant	test duration/temperature
50 % ethanol	2h, 70℃ followed by 24h, 20℃

Item No.	3	
Parameter	Unit	Result
Migration Preparation	-	-
Acrylonitrile	mg/kg	< 0.01
Method Detection Limit	mg/kg	0.01
Conclusion	-	Pass

Item No.	4	
Parameter	Unit	Result
Migration Preparation	-	-
Acrylonitrile	mg/kg	< 0.01
Method Detection Limit	mg/kg	0.01
Conclusion	-	Pass

Requirement according to Commission Regulation (EU) No 10/2011: Specific Migration Limit (SML) of Acrylonitrile = n.d. (not detectable)

11 Specific Migration of Butadiene

Test method: Migration according to Directive 82/711/EEC and Council Directive 85/572/EEC and its corresponding regulations, Determination of Butadiene

acc. to DIN 13130-15

Following migration conditions were applied:

food simulant	test duration/temperature
50 % ethanol	2h, 70℃ followed by 24h, 20℃

Item No.	3	
Parameter	Unit	Result
Migration Preparation	-	-
Butadiene	mg/kg	< 0.01
Method Detection Limit	mg/kg	0.01
Conclusion	-	Pass

Item No.	4	
Parameter	Unit	Result
Migration Preparation	-	-
Butadiene	mg/kg	< 0.01
Method Detection Limit	mg/kg	0.01
Conclusion	-	Pass

Requirement according to Commission Regulation (EU) No 10/2011: Specific Migration Limit (SML) of Butadiene = n.d. (not detectable)

12 Total volatile organic substances (VOC) acc. to BfR VI (Styrene Copolymers and Mixture of Styrene with other Polymers)

The test has been performed according to the method of the 19th announcement, "Testing of synthetic material", Bundesgesundheitsbl., 14, (1971), page 265.

Item No.		3-3		
Parameter	Unit	Result	Limit	Conclusion

Volatile organic substances	mg/dm²	9	15	Pass

Item No.		4-3		
Parameter	Unit	Result	Limit	Conclusion
Volatile organic substances	mg/dm²	< 5	15	Pass

The recommendation of the BfR, ”Kunststoffe im Lebensmittelverkehr” ("synthetic material in contact with food") Part VI ” Styrene Copolymers and Graft Polymers, and Mixtures of Polystyrene withother Polymers” serves as a basis for the evaluation for this product. According to this recommendation, the material should not emit more than 15mg/dm² of volatile organic substances.

13 Bisphenol A

Test method : Solvent extraction and quantification by gas chromatography-mass selective detector (GC-MSD)

Reqiurement : Product labelling “ Bisphenol A free”

Parameter	CAS No.	unit	Detection Limit	Item – 2-2	Item – 4-1
Bisphenol A	80-05-7	mg/kg	1	n.d.	n.d.

Remark:

1. “n.d.” denotes not detected, less than 1 mg/kg
2. “mg/kg” denotes milligram per kilogram

Main test instruments used for this method:

Instrument	Manufactory	Model / Type
GC-MS	Agilent Technologies	GC (6890)-MS (5973i)
		GC (6890)-MS (5975)

13 Specific Migration of 2,2,4,4-tetramethylcyclobutane-1,3-diol

Test method: Migration according to Directive 82/711/EEC and Council Directive 85/572/EEC and its corresponding regulations, Determination acc. to DIN 13130-2

Following migration conditions were applied:

food simulant	test duration/temperature
3 % acetic acid	2h, 70℃ followed by 24h, 20℃

Item No.	1	
Parameter	Unit	Result
Migration Preparation	-	-
2,2,4,4-tetramethylcyclobutane-1,3-diol	mg/kg	< 1
Conclusion	-	Pass

Item No.	2	
Parameter	Unit	Result
Migration Preparation	-	-
2,2,4,4-tetramethylcyclobutane-1,3-diol	mg/kg	< 1
Conclusion	-	Pass

Requirement according to Commission Regulation (EU) No 10/2011: Specific Migration Limit (SML) of 2,2,4,4-tetramethylcyclobutane-1,3-diol = 5 mg/kg

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