

Test Report No.: 180248300c 001

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Client: ZHEJIANG UKPACK PACKAGING CO.,LTD
Contact Information: Tangjiazha village, Ditang Street Yuyao City, Zhejiang, China 315490
Buyer's name: n.a.
Manufacturer's name: NINGBO SUREDING PACKAGING CO.,LTD
2-2 TONGJI ROAD,SIMEN TOWN,YUYAO,ZHEJIANG
Components of Syrup dispenser pump
**Identification/
Model No(s):** UKS10
Components of Sauce dispenser pump
UKS30, UKR30, UKM30, UKFND30
Sample Receiving date: 2022-12-08
Testing Period: 2022-12-09 to 2023-01-10
Delivery condition: Apparent good, Samples tested as received

Test specification:

Performed parameter(s) for the compliance with the following regulations concerning materials in contact with foodstuff:

- German §31 LFGB (Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch)

Test conclusion:

PASS

Other Information:

Not available

For detailed sample picture please refer to last page

For and on behalf of TÜV Rheinland/ CCIC (Ningbo)Co., Ltd.



2023-01-16

Date

Chris W. W. Wang / Assistant Manager

Name / Position

Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed.

This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

'Decision Rule' document announced in our website (<https://www.tuv.com/landingpage/en/qm-gcn/>) describes the statement of conformity and its rule of enforcement for test results are applicable throughout this test report.

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Indication: Food contact

Product: Commodity, contact with foodstuff
§ 2 (6) No. 1, German Food, Commodities and Animal Feed Code of Law (LFGB)

Description of test specimen

Item

- 1 Components of Syrup dispenser pump
Components of Sauce dispenser pump

1. Material List:

Sample No.	Material	Color	Location
1	PE	Semi-transparent	Refer to photo
2	PE	Beige	Refer to photo
3	PP	Semi-transparent	Refer to photo
4	PP	White	Refer to photo
5	PP	Black	Refer to photo
6	PP	Blue	Refer to photo
7	PP	Golden	Refer to photo
8	PP	Dark blue	Refer to photo
10	SUS 304	Silver	Refer to photo
11	Glass	Transparent	Refer to photo

Remark:

According to client's information all PE, PP and SUS 304 items in same color are produced of same material. Tests were performed on randomly selected items.

2. Overall Results:

Test No.	Tested Item	Conclusion
1	Sensorial examination	PASS
2	Global Migration	PASS
3	Specific Migration of Metals	PASS
4	Specific Migration of Polycyclic Aromatic Hydrocarbons (PAHs)	PASS
5	Colourfastness	PASS
6	Nonylphenol in Polymers	PASS
7	Screening of Plasticizer	PASS
8	Specific Release of Metals	PASS
9	Release of Heavy Metals from Glassware	PASS

3. Results

3.1 Sensorial examination

Test method: It is examined to the extent of food simulant being used, which comes into contact with the product, undergoes detectable changes in taste and smell.

For this purpose, the food simulant was stored in the product under the below mentioned time and temperature. Afterwards, the food simulant was examined by an appropriate number of tasters with regard to any divergence in smell and taste. Another test sample, which was used as a reference, was treated by the same way except that it had no contact with the product to be tested.

Before testing, the product had been cleaned according to the product's instruction manual or in the absence of such manual, by normal household cleaning.

The test is carried out on the basis of DIN 10955:2004 by paired comparison test:

Evaluation scheme:

- 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	10 day(s) / 40 °C

Test No.:	1
Sample No.:	1
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

Test No.:	2
Sample No.:	2
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

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Test No.:	3
Sample No.:	3
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

Test No.:	4
Sample No.:	4
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

Test No.:	5
Sample No.:	5
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

Test No.:	6
Sample No.:	6
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

Test No.:	7
Sample No.:	7
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

Test No.:	8
Sample No.:	8
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

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Test No.:	9
Sample No.:	10
Parameter:	Result
Transfer of Smell:	0
Transfer of Taste:	0

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3.2 Global Migration

Test method: The migratory behaviour is examined with reference to Commission Regulation (EU) No 10/2011 and its amendments.

Limit: With reference to Commission Regulation (EU) No 10/2011 and its amendments

The following food simulants and conditions were applied:

Food simulant	Test duration / Temperature
Acetic acid 3 %	10 day(s) / 40 °C
Ethanol 95 %	10 day(s) / 40 °C
Isooctane	2 day(s) / 20 °C

Test No.:	1 ^{(*)2(*)3}					
Sample No.:	1					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	<RL	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	7	<RL	<RL	10

Test No.:	2 ^{(*)2(*)3}					
Sample No.:	2					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	3	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	<RL	<RL	<RL	10

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Test No.:	3 ^{(*)2} (*)3					
Sample No.:	3					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	<RL	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	4	2	<RL	10

Test No.:	4 ^{(*)2} (*)3					
Sample No.:	4					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	<RL	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	<RL	<RL	<RL	10

Test No.:	5 ^{(*)2} (*)3					
Sample No.:	5					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	<RL	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	<RL	<RL	<RL	10

Test No.:	6 ^{(*)2} (*)3					
Sample No.:	6					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	2	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	<RL	<RL	<RL	10

Test No.:	7 ^{(*)2} (*)3					
Sample No.:	7					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	<RL	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	<RL	<RL	<RL	10

Test No.:	8 ^{(*)2} (*)3					
Sample No.:	8					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Acetic acid 3 %	mg/dm ²	2	<RL	<RL	<RL	10
Ethanol 95 %	mg/dm ²	2	<RL	<RL	<RL	10
Isooctane	mg/dm ²	2	3	<RL	<RL	10

Abbreviations:

- RL = Reporting Limit
- mg/dm² = Milligram per square decimetre
- ml/dm² = Mililitre per square decimetre
- < = Less than

Remark :

*1 Acc. to DIN EN 1186-1 the following analytical tolerances have been observed:

- 3 mg/dm^2 in migration tests using rectified olive oil or substitutes,

- 1 mg/dm^2 in migration tests using aqueous simulants

A material or article that exceeds the overall migration limit by an amount not greater than the analytical tolerance mentioned above should therefore be deemed to be in compliance with the overall migration limit.

*2 Stability test is included in this test parameter.

*3 The migration results do not show increase between subsequent tests and therefore it meets the stability requirement.

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3.3 Specific Migration of Metals

Test method: The migratory behaviour was examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments. Determination by ICP-MS.

Limit: With reference to Commission Regulation (EU) No 10/2011 and its amendments

The following food simulant and condition were applied:

Food simulant	Test duration / Temperature
Acetic acid 3 %	10 day(s) / 40 °C

Test No.:	1 ^(*) 2 ^(*) 3					
Material No.:	1					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

Test No.:	2 ^{(*2)(*3)}					
Material No.:	2					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

Test No.:	3 ^{(*)2} (*)3					
Material No.:	3					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

Test No.:	4 ^{(*2)(*3)}					
Material No.:	4					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

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Test No.:	5 ^{(*2)(*3)}					
Material No.:	5					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

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Test No.:	6 ^{(*2)(*3)}					
Material No.:	6					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

Test No.:	7 ^{(*2)(*3)}					
Material No.:	7					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

Test No.:	g ^{(*)2} / ^{(*)3}					
Material No.:	8					
Migration ratio:	167 ml / 1.0 dm ²					
Parameter	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Aluminium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Antimony	mg/kg	0.01	n.d.	n.d.	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	n.d.	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	n.d.	n.d.	0.05
Copper	mg/kg	0.5	n.d.	n.d.	n.d.	5
Iron	mg/kg	5	n.d.	n.d.	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	n.d.	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	n.d.	n.d.	0.02
Zinc	mg/kg	1	n.d.	n.d.	n.d.	5
Europium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Gadolinium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Lanthanum	mg/kg	0.01	n.d.	n.d.	n.d.	--
Terbium	mg/kg	0.01	n.d.	n.d.	n.d.	--
Sum of Lanthanide substances	mg/kg	0.01	n.d.	n.d.	n.d.	0.05

Abbreviations:

RL = Reporting limit

n.d. = Not detected

mg/kg = Milligram per kilogram

ml/dm² = Millilitre per square decimetre

< = Less than

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Remark :

- *1 Single component with an amount below reporting limit was not considered by the calculation of the sum. In the case of all lanthanide substances europium, gadolinium, lanthanum and terbium were not detected, the result is stated n.d.
- *2 Stability test is included in this test parameter.
- *3 The migration results do not show increase between subsequent tests and therefore it meets the stability requirement.

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3.4 Specific Migration of Polycyclic Aromatic Hydrocarbons (PAHs)

Test method: The migratory behaviour was examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments. Determination by GC-MS.

Limit: Please refer to remark 1

The following food simulant and condition was applied:

Food simulant	Test duration / Temperature
Isooctane	2 day(s) / 20 °C

Test No.:	1 ^{(*)3} (*)4						
Material No.:	1						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

Test No.:	2 ^{(*)3} (^{*)4})						
Material No.:	2						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

Test No.:	3 ^{(*)3} (^{*)4})						
Material No.:	3						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

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Test No.:	4 ^{(*)3} (^{*)4})						
Material No.:	4						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

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Test No.:	5 ^{(*3)(*4)}						
Material No.:	5						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

Test No.:	6 ^{(*3)(*4)}						
Material No.:	6						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

Test No.:	7 ^{(*)3} (^{*)4})						
Material No.:	7						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

Test No.:	8 ^{(*3)(*4)}						
Material No.:	8						
Migration ratio:	167 ml / 1.0 dm ²						
Parameter	CAS No.	Unit	RL	1 st Migration Result	2 nd Migration Result	3 rd Migration Result	Limit
Benzo[a]pyrene (BaP)	50-32-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[e]pyrene	192-97-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[a]anthracene	56-55-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[b]fluoranthene	205-99-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[j]fluoranthene	205-82-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[k]fluoranthene	207-08-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Chrysene	218-01-9	mg/kg	0.01	n.d.	n.d.	n.d.	-
Dibenzo[a,h]anthracene	53-70-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Benzo[g,h,i]perylene	191-24-2	mg/kg	0.01	n.d.	n.d.	n.d.	-
Indeno[1,2,3-c,d]pyrene	193-39-5	mg/kg	0.01	n.d.	n.d.	n.d.	-
Naphthalene	91-20-3	mg/kg	0.01	n.d.	n.d.	n.d.	-
Anthracene	120-12-7	mg/kg	0.01	n.d.	n.d.	n.d.	-
Fluoranthene	206-44-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Phenanthrene	85-01-8	mg/kg	0.01	n.d.	n.d.	n.d.	-
Pyrene	129-00-0	mg/kg	0.01	n.d.	n.d.	n.d.	-
Sum of 15 PAHs	-	mg/kg	0.01	n.d.	n.d.	n.d.	n.d.

Abbreviations:

- RL = Reporting Limit
- mg/kg = Milligram per kilogram
- n.d. = Not detected
- ml/dm² = Millilitre per square decimetre
- < = Less than

Remark:

- *1 Polycyclic aromatic hydrocarbons (PAHs) are not listed substances for the production of plastic materials acc. to Regulation (EU) No. 10/2011, Annex I. A threshold of detection <0.01 mg/kg should be met.
- *2 Single component with an amount below reporting limit was not considered by the calculation of the sum. In the case all of PAHs were not detected, the result is stated n.d.
- *3 Stability test is included in this test parameter.

*4 The migration results do not show increase between subsequent tests and therefore it meets the stability requirement.

3.5 Colourfastness

Test method: 24th Communication on the testing of plastics in Bundesgesundheitsbl. 15 (1972) 285

Requirement: BfR Recommendations on Food Contact Materials (formerly “Plastics Recommendations”) Part IX “Colorants for Plastics and other Polymers used in Commodities” - *No transfer of colorants to foodstuffs is permitted*

Test No.:	1	2
Sample No.:	2	5
Parameter Colourfastness to	Difference between blank and filter paper contacted with sample	Difference between blank and filter paper contacted with sample
Water	No	No
Acetic acid 3 %	No	No
Ethanol 50 %	No	No
Oil	No	No

Test No.:	3	4
Sample No.:	6	7
Parameter Colourfastness to	Difference between blank and filter paper contacted with sample	Difference between blank and filter paper contacted with sample
Water	No	No
Acetic acid 3 %	No	No
Ethanol 50 %	No	No
Oil	No	No

Test No.:	5
Sample No.:	8
Parameter Colourfastness to	Difference between blank and filter paper contacted with sample
Water	No
Acetic acid 3 %	No
Ethanol 50 %	No
Oil	No

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3.6 Nonylphenol in Polymers

Test method: Organic solvent extraction, GC-MS

Limit: Nonylphenol is not a listed substance for the production of plastic materials acc. to Regulation (EU) No 10/2011, Annex I

Test No.:	1			
Sample No.:	1			
Parameter	Unit	RL	Result	Technically Preventable Limit
Nonylphenol	mg/kg	5	n.d.	5

Abbreviations:

n.d. = Not detected (<Reporting Limit)

RL = Reporting Limit

mg/kg = Milligram per kilogram

3.7 Screening of Plasticizer (#)

Test method: Extraction and Detection with reference to CPSC-CH-C1001-09.3. Screening list of plasticizers acc. to table 1.

Limit: Commission Regulation (EU) No 10/2011 and amendments

Test No.:	1				
Sample No.:	1				
Parameter	CAS No.	Unit	RL	Result	Limit ^(1,2)
Benzylbutyl phthalate (BBP)	85-68-7	%	0.01	n.d.	0.1
Diethylhexyl phthalate (DEHP)	117-81-7	%	0.01	n.d.	0.1
Dibutyl phthalate (DBP)	84-74-2	%	0.01	n.d.	0.05
Diisononyl phthalate (DINP)	28553-12-0, 68515-48-0	%	0.01	n.d.	0.1
Diisodecyl phthalate (DIDP)	26761-40-0, 68515-49-1	%	0.01	n.d.	0.1

Abbreviations:

n.d. = Not detected (<Reporting Limit)

RL = Reporting Limit

% = Percentage

Remark:

*1 If used as a plasticizer the following restrictions apply:

- BBP, DINP, DIDP: Can be used as a) as a plasticizer in repeated use materials and articles or b) as a plasticizer in single-use materials and articles containing non-fatty foods except for infant formulae and follow-on formulae as defined by Directive 2006/141/EC or processed cereal-based foods and baby foods for infants and young children as defined by Directive 2006/125/EC
- DEHP, DBP: Can be used as a plasticizer in repeated use materials and articles contacting non-fatty foods

Further limitations concerning the specific migration of the respective substance still apply.

*2 If used as a technical support agent the total content limitation of the respective substance within the final product apply as indicated in the table above.

Plasticizer Name	CAS No.
Di-n-pentylphthalat (DnPP)	131-18-0
Benzylbutyl phthalate (BBP)	85-68-7
Diethylhexyl phthalate (DEHP)	117-81-7
Dibutyl phthalate (DBP)	84-74-2

Plasticizer Name	CAS No.
Pentyl-iso-pentylphthalat	84777-06-0
Bis-(2-methoxyethyl)phthalat	117-82-8
Diethylhexylterephthalat (DEHT)	6422-86-2
Di-(2-butoxyethyl)phthalat	117-83-9

Diisononyl phthalate (DINP)	28553-12-0, 68515-48-0
Diisodecyl phthalate (DIDP)	26761-40-0, 68515-49-1
Di-n-octylphthalat (DNOP)	117-84-0
Dimethylphthalat (DMP)	131-11-3
Diethylphthalat (DEP)	84-66-2
Butyl-i-butylphthalat	17851-53-5
Trimethylpentandiolisobutyrat (TXIB)	6846-50-0
Diisononyladipat (DINA)	33703-08-1
Acetyltributylcitrat (ATBC)	77-90-7
Diethylhexyladipat (DEHA)	103-23-1
Hexamoll®	166412-78-8
Mesamoll®	91082-17-6
Triphenylphosphat	115-86-6
Tri-o-kresylphosphat	78-30-8
Tri-m-kresylphosphat	563-04-2
Tri-p-kresylphosphat	78-32-0
Butylbenzoat	136-60-7
Di(propylen glycol) dibenzoat, DPGDB	27138-31-4
Di(ethylen glycol) dibenzoat, DEGDB	120-55-8
LG FLEX EBN	610787-77-4
LG FLEX BET	610787-76-3
Tri(ethylhexyl)trimellitit, TOTM	3319-31-1
2-Ethylhexyldiphenylphosphat	1241-94-7
Di-iso-heptylphthalat, DIHeP	90937-19-2, 71888-89-6

Diallylphthalat	131-17-9
Dicyclohexylphthalat (DCP)	84-61-7
Bis-(3,5,5-trimethylhexyl)phthalat	14103-61-8
Dicapryladipat	108-63-4
Di-n-butylmaleat (DBM)	1190-39-2, 105-76-0
Di-(2-ethylhexyl)maleat	142-16-5
Butylstearat	123-95-5
Dimethyladipat	627-93-0
Dibutyladipat	105-99-7
Diisodecyladipat	27178-16-1, 27193-86-8
Di(2-(2-butoxyethoxy)ethyl)adipat	141-17-3
Bis(2-butoxyethyl)adipat	141-18-4
Stearylstearat	2778-96-3
Di-n-propylphthalat	131-16-8
Di-n-hexylphthalat, DNHP	84-75-3
Di-n-heptylphthalat	3648-21-3
Di-n-nonylphthalat, DnNP	84-76-4
Di-n-decylphthalat	84-77-5
Di-n-undecylphthalat	91082-17-6
Diisoundecylphthalat, DIUP	96507-86-7
Di(2-propylheptyl)phthalat, DPHP	53306-54-0
Diisooctylphthalat, DIOP	27554-26-3
Diisobutylphthalat, DIBP	84-69-5
Diisopentylphthalat DiPP	605-50-5

3.8 Specific Release of Metals

Test method: The sample preparation is performed with reference to “*Technical Guide on Metals and alloys used in food contact materials*”. The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission regulation 10/2011 and its amendments. Presence of elements were detected by means of ICP-MS.

Limit: Technical Guide on Metals and alloys used in food contact materials

The following food simulant and condition was applied:

Food simulant	Test duration / Temperature
Citric Acid 0.5 %	10 day(s) / 40 °C

Test No.:	1					
Sample No.:	10					
Volume to surface area ratio	375 ml					
	Sum 1 st + 2 nd test				3 rd test	
Parameter	Unit	RL	Result	Limits ^{(*)2}	Result	Limits ^{(*)1}
Silver (Ag)	mg/kg	0.05	<RL	0.56	<RL	0.08
Aluminum (Al)	mg/kg	0.1	<RL	35	<RL	5
Cobalt (Co)	mg/kg	0.01	<RL	0.14	<RL	0.02
Chromium (Cr)	mg/kg	0.01	0.02	1.75	<RL	0.25
Copper (Cu)	mg/kg	0.5	<RL	28	<RL	4
Iron (Fe)	mg/kg	5	<RL	280	<RL	40
Manganese (Mn)	mg/kg	0.1	<RL	12.6	<RL	1.8
Molybdenum (Mo)	mg/kg	0.02	<RL	0.84	<RL	0.12
Nickel (Ni)	mg/kg	0.01	<RL	0.98	<RL	0.14
Tin (Sn)	mg/kg	10	<RL	700	<RL	100
Vanadium (V)	mg/kg	0.01	<RL	0.07	<RL	0.01
Zinc (Zn)	mg/kg	1	<RL	35	<RL	5
Arsenic (As)	mg/kg	0.002	<RL	0.014	<RL	0.002
Barium (Ba)	mg/kg	0.1	<RL	8.4	<RL	1.2
Beryllium (Be)	mg/kg	0.01	<RL	0.07	<RL	0.01
Cadmium (Cd)	mg/kg	0.002	<RL	0.035	<RL	0.005
Mercury (Hg)	mg/kg	0.003	<RL	0.021	<RL	0.003
Lithium (Li)	mg/kg	0.02	<RL	0.336	<RL	0.048
Lead (Pb)	mg/kg	0.01	<RL	0.07	<RL	0.01
Antimony (Sb)	mg/kg	0.01	<RL	0.28	<RL	0.04

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Thallium (Tl)	mg/kg	0.0001	<RL	0.0007	<RL	0.0001
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Abbreviations:

- RL = Reporting Limit
- mg/kg = Milligram per kilogram
- < = Less than

Remark:

- *1 Compliance is established on the findings on the third test for products intended for repeated use.
- *2 In addition, the sum of each metal in the first and second test should not exceed the sevenfold limit.

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3.9 Release of Heavy Metals from Glassware

Test method: The test is performed reference to EN 1388-1:1995, EN 1388-2:1995 and DIN 51031:1986 respectively. The concentration of the elements is examined by means of atomic absorption spectroscopy or ICP-MS.

Limit: Pb, Cd: Directive 84/500/EEC
 Co: Working group of food chemistry experts from the federal states and the Federal Office of Consumer Protection and Food Safety (ALS), 109th Session 2017, Opinion No.2017/15
 Zn, Ba, Sb: Austrian Ceramic Ordinance

The following food simulant and condition was applied:

Food simulant	Test duration / Temperature
Acetic acid 4 %	24 hours/ 22 °C

Test No.:	1		
Category:	1		
Internal volume:	Less than one litre		
Sample No.:	11		
Parameter	Unit	Result	Limit ^(1,2)
Lead (Pb)	mg/dm ²	< 0.02	0.8
Cadmium (Cd)	mg/dm ²	< 0.002	0.07
Cobalt (Co)	mg/dm ²	< 0.01	0.02
Zinc (Zn)	mg/article	< 0.5	3.0
Barium (Ba)	mg/article	< 0.5	1.0
Antimony (Sb)	mg/article	< 0.5	1.0

Abbreviations:

mg/dm² = Milligram per square decimetre
 mg/article = Milligram per article
 mg/l = Milligram per litre
 < = Less than

Remarks:

*1 According to EU Directive 84/500/EEC, articles in contact with food should not exceed the following limits

Category	Description	Lead	Cadmium
1	Articles which can't and articles which can be filled, the internal depth of which, measured from the lowest point to the horizontal plane passing through the upper rim, does not exceed 25 mm	0.8 mg/dm ²	0.07 mg/dm ²
2	Other articles which can be filled	4.0 mg/l	0.3 mg/l
3	Cooking ware; packaging and storage vessels having a capacity of more than three litres	1.5 mg/l	0.1 mg/l

*2 According to Austrian Ceramic Ordinance (BGBl. Nr. 893/1993 and its amendment), articles in contact with food should not exceed the following limits:

Category	Description	Zinc	Antimony	Barium
Internal volume	Less than one litre	3.0 mg/article ^(#)	1.0 mg/article ^(#)	1.0 mg/article ^(#)
	Greater than one litre	3.0 mg/l	1.0 mg/l	1.0 mg/l

(#) Calculation is based on the internal volume of the article

(#)- Test sub-contracted to a laboratory which complies with the requirement of ISO/IEC 17025:2017.

4. Sample picture(s):



Sample 1



Above samples which are by client's declaration made of same material as tested Sample 1.



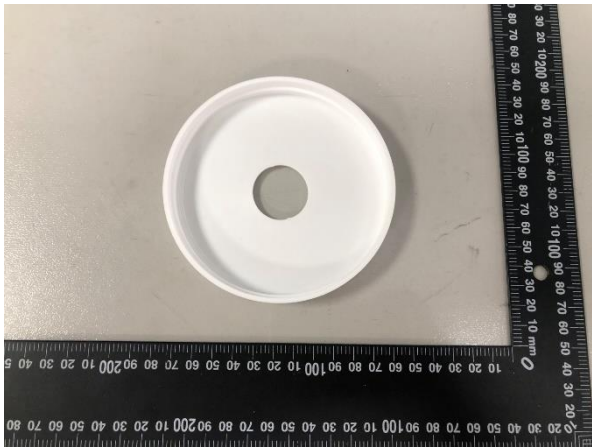
Sample 2



Sample 3



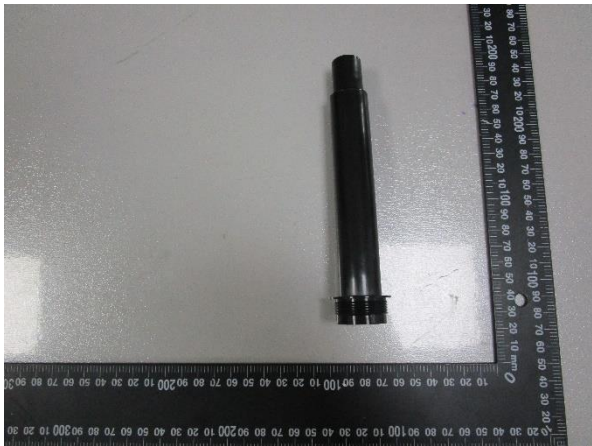
Above samples which are by client's declaration made of same material as tested Sample 3.



Sample 4



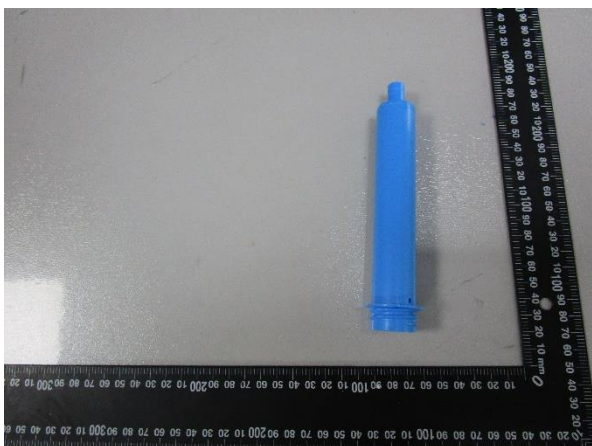
Above samples which are by client's declaration made of same material as tested Sample 4.



Sample 5



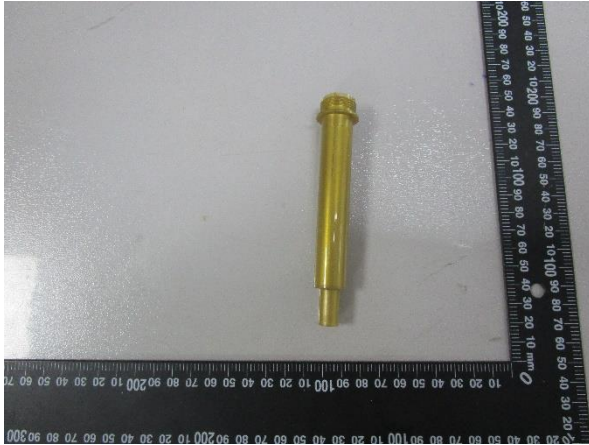
Above samples which are by client's declaration made of same material as tested Sample 5.



Sample 6



Above samples which are by client's declaration made of same material as tested Sample 6.



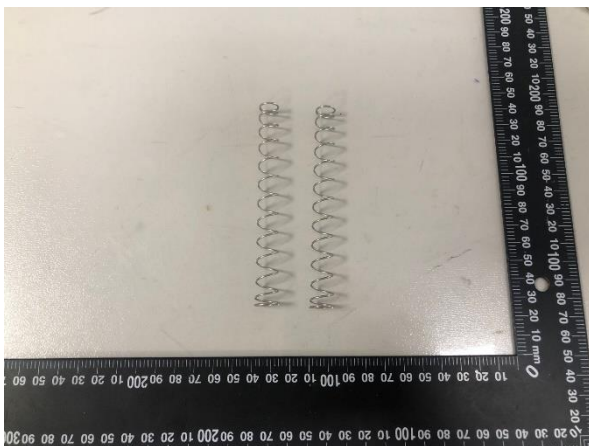
Sample 7



Above samples which are by client's declaration made of same material as tested Sample 7.



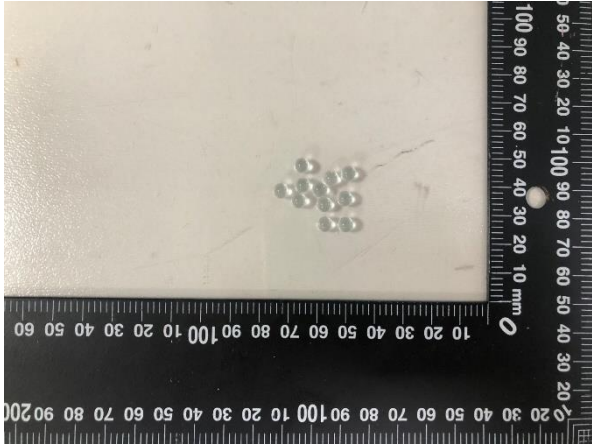
Sample 8



Sample 10



Above samples which are by client's declaration made of same material as tested Sample 10.



Sample 11



UKS10



UKS30



UKR30



UKM30



UKFND30

- END -

