



**BUREAU
VERITAS**

TEST REPORT

LAB NO. : (3224)109-0335
DATE : Apr. 28, 2024
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Applicant:

NINGBO AAA GROUP ELECTRIC APPLIANCE CO.,LTD

NO.158,KAIFA ROAD(EAST),ZHOUXIANG TOWN,CIXI CITY,ZHEJIANG 315324 P.R.CHINA

Date of Submission: 2024-04-18
Test Period: 2024-04-18 to 2024-04-28

Sample Description:	Espresso coffee maker		
Sample Status:	Intact		
Manufacturer:	/	Buyer:	/
Style No.(s):	3A-C279	PO No.:	/
Country of Origin:	/	Country of Destination:	/
Color:	/	Vendor:	/

Test Item(s): Details see attached page(s).

Overall Conclusion: The sample(s) **MEET** the respective requirements for the below tested items as stated in German § 30 and 31 LFGB (Food and Feed Code) for materials in contact with foodstuffs.

REMARK

If there are questions or concerns on this report, please contact the following persons:

Customer service

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BUREAU VERITAS TESTING TECHNICAL SERVICE (ZHEJIANG) CO.,LTD

Jane Ye.

PREPARED BY : Jessie

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SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION
Sensory Test (Odour and Taste) for Materials in Contact with Foodstuffs – EC No. 1935/2004 and § 30 and 31 LFGB	PASS
Overall Migration Test for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments	PASS
Specific Migration of Heavy Metals for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments	PASS
Specific Migration of Primary Aromatic Amine for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments	PASS
Specific Migration of Caprolactam for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments	PASS
Peroxides Value for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation	PASS
Specific Migration of Formaldehyde for Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments	PASS
Specific Migration of Phenolic Substance for Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments	PASS
Specific Migration of Terephthalic Acid (TPA) for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011 and Its Amendments	PASS
Specific Migration of Ethylene Glycol(EG) for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011 and Its Amendments	PASS
Volatile Organic Matter Content for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation	PASS
Extractable Matter Content for Silicon in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation	PASS
Total Chromium, Hafnium, Vanadium and Zirconium Content for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation	PASS
Total Zinc and Boron Content for Plastic Materials in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation	PASS
Total Lead Content for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation	PASS
Migration of Heavy Metals Contents for Metal in Contact with Foodstuffs – EC No. 1935/2004 and § 30 and 31 LFGB	PASS

Note: The tested part of the sample was specified by client.
The test conclusion was given based on the results of tested part.



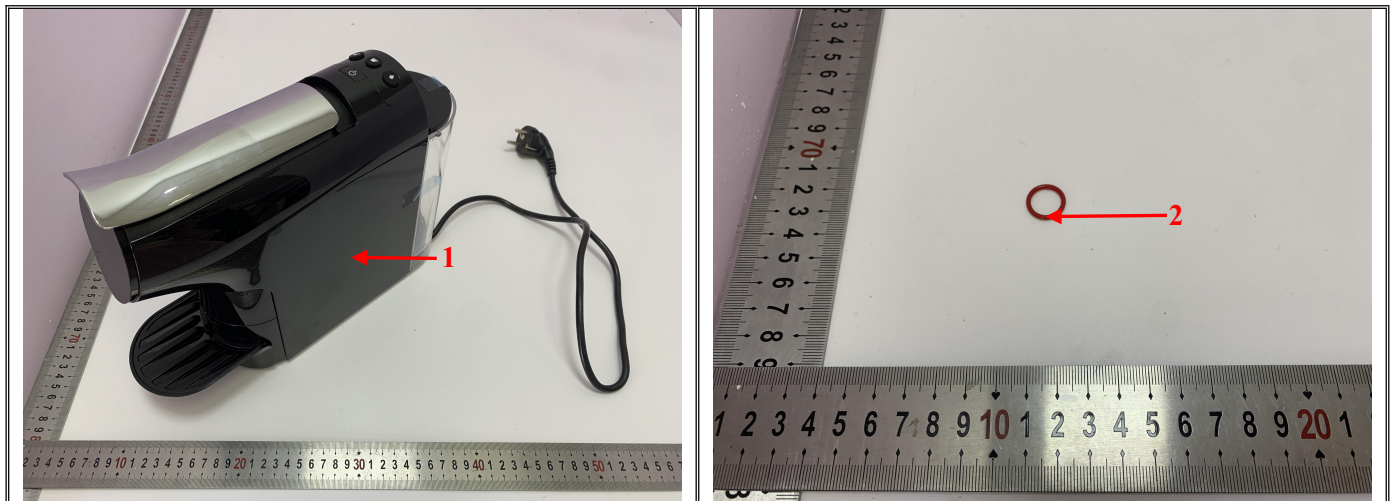
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Sample Description Assigned by Laboratory:

Test Item	Description	Client Claimed Material
1	Complete product	-
2	Red silicone ring (C230)	Silicone
3	Dark red silicone ring (EP950)	Silicone
4	Transparent soft plastic (C236)	Silicone
5	Transparent soft plastic (C222)	Silicone
6	Transparent soft plastic tube	Silicone
7	Red soft plastic (C228)	Silicone
8	Black plastic (C279)	PPS
9	Black plastic (279)	PPS
10	Black plastic (C279)	POM
11	White plastic tube	PTFE
12	Black plastic (C228)	PA66+43%GF
13	Transparnet plastic (C236)	PP
14	Black plastic lid (C236)	PP
15	Golden transparent plastic screw (C201)	PET
16	Beige plastic (C230)	PA66+33%GF
17	Transparent plastic (C236)	SMMA
18	Silvery metal spring (C225)	SUS 301
19	Silvery metal tube	SUS 304

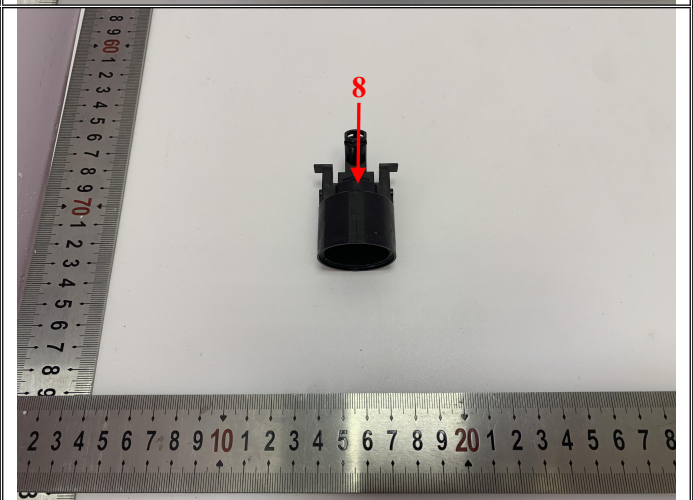
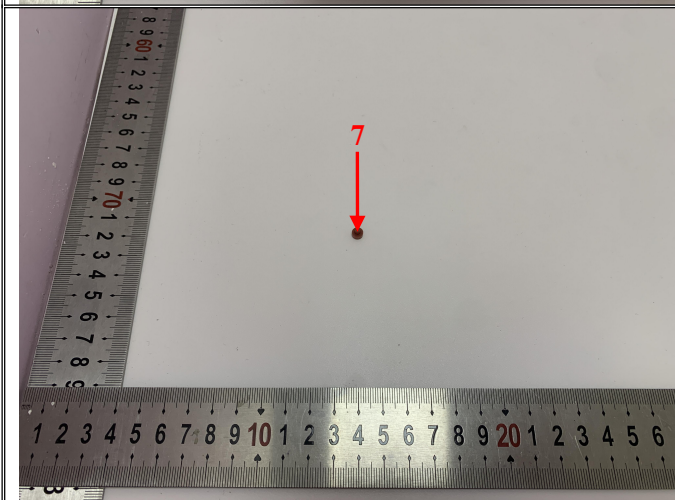
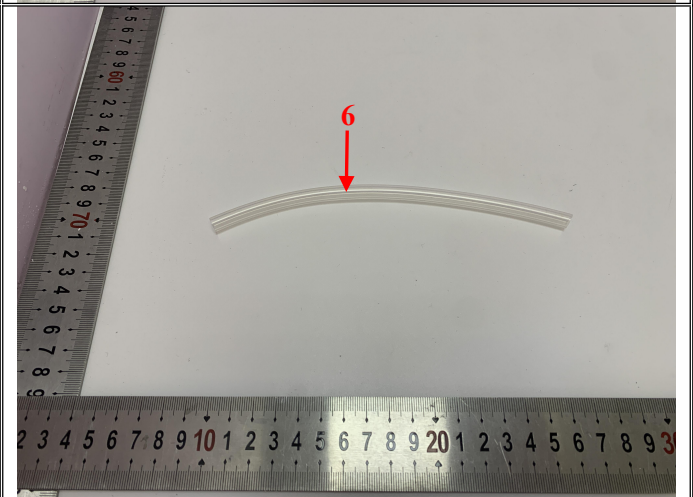
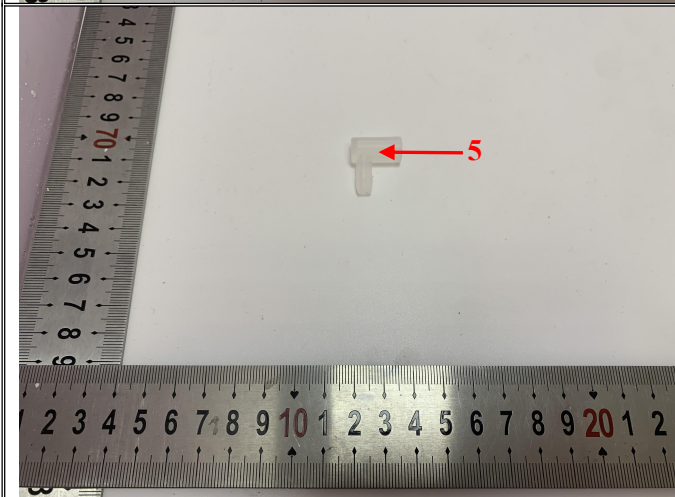
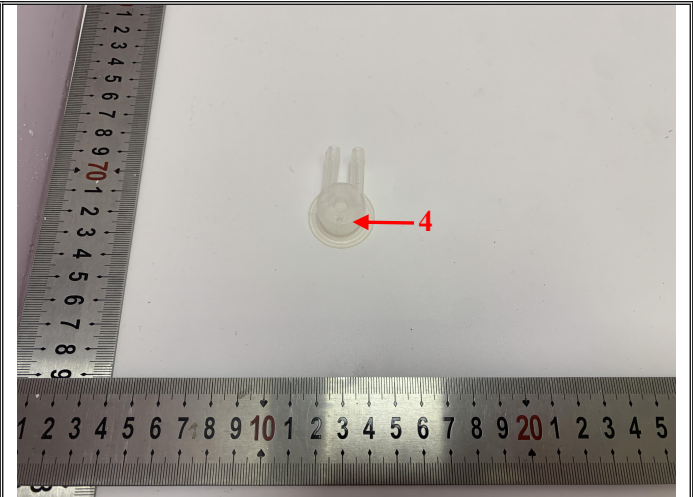
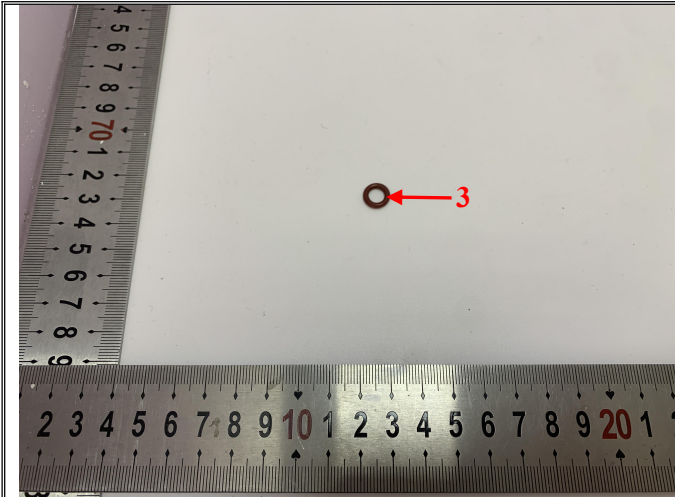
Photo of the Submitted Sample





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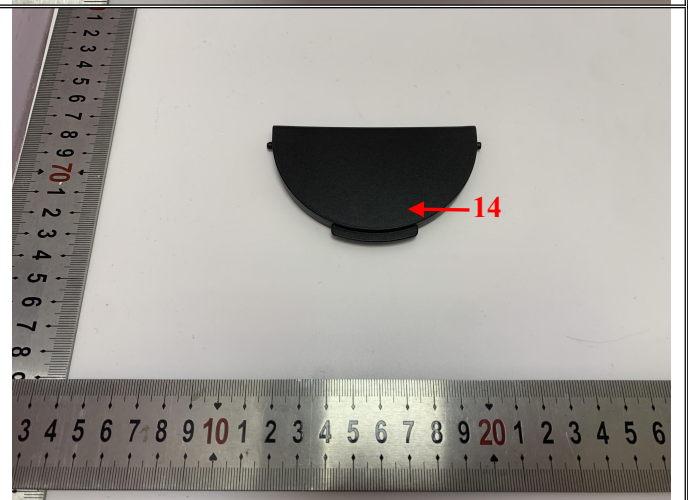
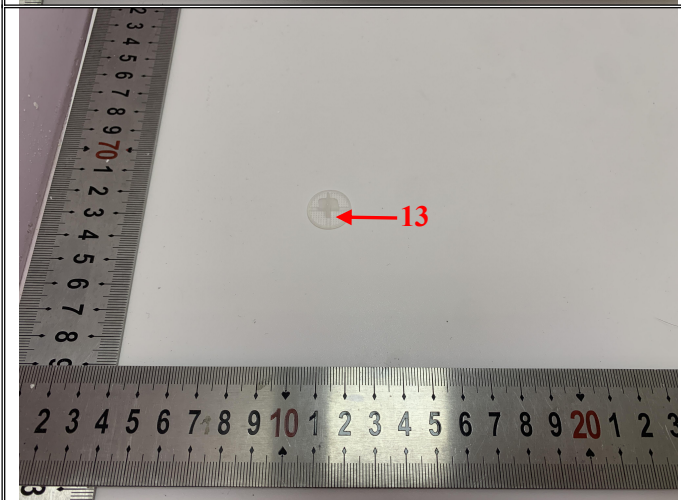
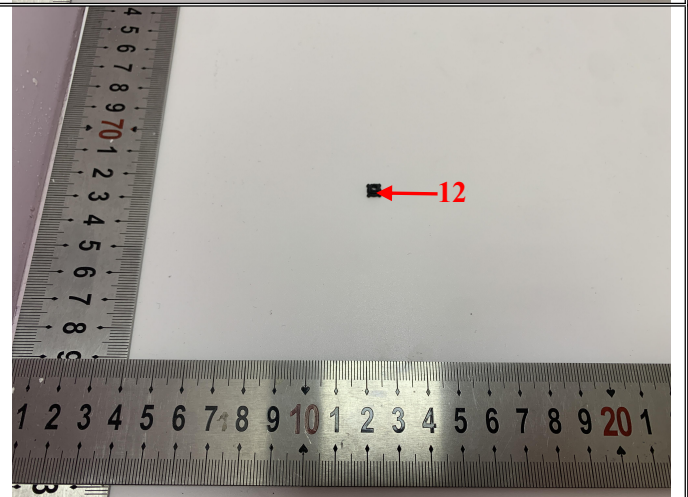
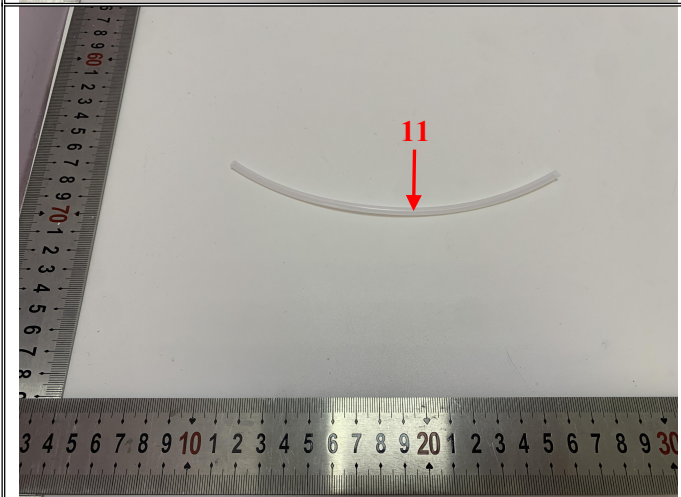
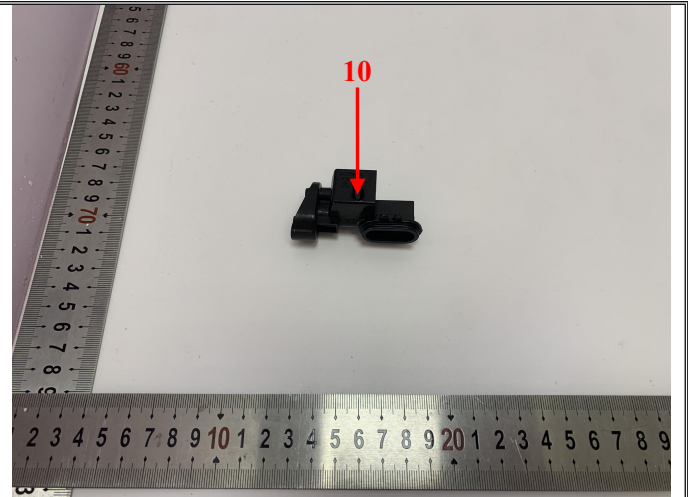
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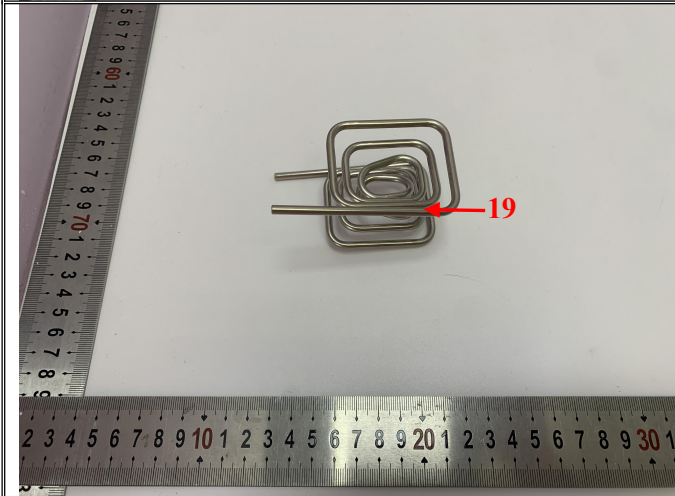
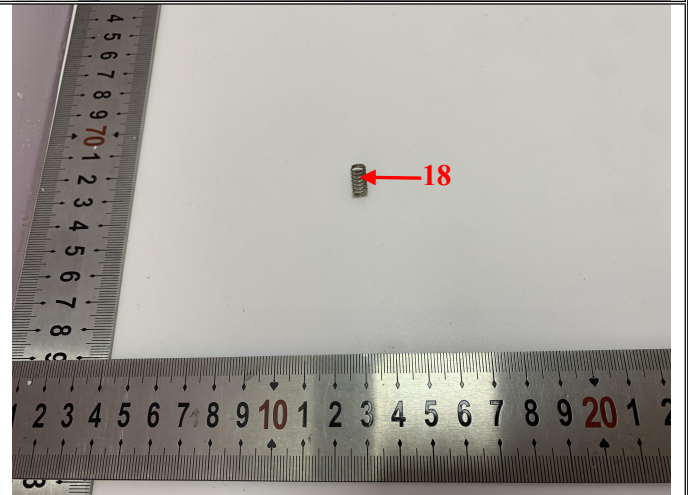
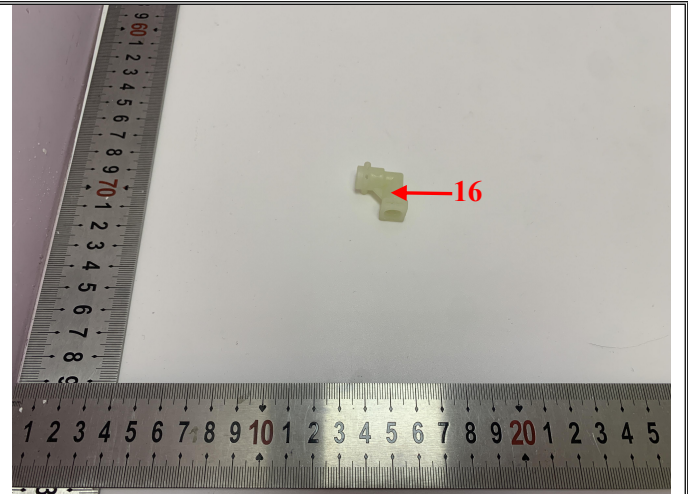
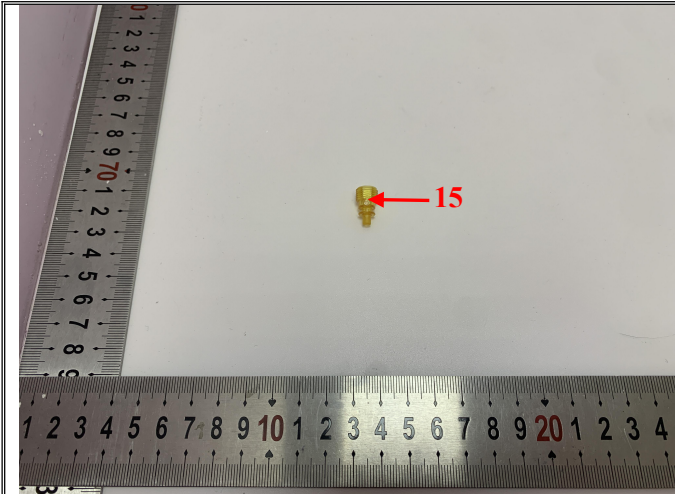
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TEST RESULT

Sensory Test (Odour and Taste) for Materials in Contact with Foodstuffs – EC No. 1935/2004 and § 30 and 31 LFGB

Parameter	Result	Maximum Allowable Limit
	1	
Odour transfer into foodstuff through simulant, Mineral water	0	2.5 Scale
Taste transfer into foodstuff through simulant, Mineral water	0	2.5 Scale
Conclusion	PASS	-

Note: Scale: 0 = no perceptible off-odour (or taste transfer);
 1 = off-odour (or taste transfer) just perceptible (but still difficult to define);
 2 = slight off-odour (or taste transfer);
 3 = distinct off-odour (or taste transfer);
 4 = strong off-odour (or taste transfer)

Method: DIN 10955: 2023

Overall Migration Test for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments

Test Condition: 2 h at 70 °C (10% Ethanol)

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		8				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		9				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-



Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		10				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		11				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		12				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		13				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		14				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-



Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		15				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		16				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	1.0			-	-
Volume of stimulant used	mL	100			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

Simulant Used	Unit	Result			Maximum Allowable Limit (3 rd)	Analytical Tolerance
		17				
		1st Migrate	2nd Migrate	3rd Migrate		
Food contact surface area	dm ²	4.6			-	-
Volume of stimulant used	mL	600			-	-
10% Ethanol	mg/dm ²	<5	<5	<5	10	+2
Conclusion	-	PASS			-	-

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

Method: EN 1186-1: 2002; EN 1186-3: 2022

Remark: 1) The migration test is carried out according to EC Regulation No. 10/2011 and the corresponding regulatory statutes.

2) For article intended for repeated use, the migration tests are carried out three times on the same test sample.



Specific Migration of Heavy Metals for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			8			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			9			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			10			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			11			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			12			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			13			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			14			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			15			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			16			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-



Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3rd)
			17			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	4.6			-
Volume of stimulant used	-	mL	600			-
Barium (Ba)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Cobalt (Co)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Copper (Cu)	Distilled water	mg/kg	<0.5	<0.5	<0.5	5
Iron (Fe)	Distilled water	mg/kg	<5	<5	<5	48
Lithium (Li)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Manganese (Mn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	0.6
Zinc (Zn)	Distilled water	mg/kg	<0.1	<0.1	<0.1	5
Aluminum (Al)	Distilled water	mg/kg	<0.1	<0.1	<0.1	1
Nickel (Ni)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.02
Antimony (Sb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.04
Arsenic (As)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Cadmium (Cd)	Distilled water	mg/kg	<0.002	<0.002	<0.002	Not detected
Chromium (Cr)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Europium (Eu)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Gadolinium (Gd)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lanthanum (La)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Lead (Pb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Mercury (Hg)	Distilled water	mg/kg	<0.01	<0.01	<0.01	Not detected
Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Sum of Europium (Eu), Gadolinium (Gd), Lanthanum (La), and/or Terbium (Tb)	Distilled water	mg/kg	<0.01	<0.01	<0.01	0.05
Conclusion	-	-	PASS			-

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

Method: EN 13130-1: 2004 and analysis by Inductively Coupled Plasma Mass Spectrometers (ICP-MS).

- Remark:
- 1) The migration test is carried out according to EU regulation No. 10/2011 and the corresponding regulatory statutes.
 - 2) For article intended for repeated use, the migration tests are carried out three times on the same test sample.
 - 3) Due to the fact that SML for As, Cr, Pb, Hg is specified as not detectable meaning < 0.01 mg/kg and SML for Cd is specified as not detectable meaning < 0.002 mg/kg analysis and assessment has to be performed using the 1st migrate in any case no matter whether article/materials is intended for single or repeated use.



Specific Migration of Primary Aromatic Amine for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Primary Aromatic Amines (PAAs)

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		8			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		9			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		10			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		11			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		12			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		14			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		15			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		16			
		1st Migrate	2nd Migrate	3rd Migrate	
Aniline	mg/kg	<0.002	<0.002	<0.002	0.01(sum)
2,4-Dimethylaniline / 2,4-xylidine	mg/kg	<0.002	<0.002	<0.002	
2,6-Dimethylaniline / 2,6-xylidine	mg/kg	<0.002	<0.002	<0.002	
p-Phenylenediamine / 1,4-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	
2,6-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	
1,5-Diaminenaphthalene	mg/kg	<0.002	<0.002	<0.002	
Conclusion	-	PASS			-

Primary Aromatic Amines (PAAs)

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		8			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002



**BUREAU
VERITAS**

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4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-

Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		9			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		10			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		11			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		12			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		14			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		15			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3'-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-



Parameter	Unit	Result			Maximum Allowable Limit(3 rd)
		16			
		1st Migrate	2nd Migrate	3rd Migrate	
4-aminobiphenyl / 4-biphenylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-anisidine / 2-methoxyaniline	mg/kg	<0.002	<0.002	<0.002	0.002
Benzidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-aniline / p-chloroaniline	mg/kg	<0.002	<0.002	<0.002	0.002
4-Chloro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Diaminodiphenylether / 4,4'-oxydianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-Methylenedianiline / 4,4'-diamino-diphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
4,4-Methylenedi-o-toluidine / 3,3'-dimethyl-4,4'-diaminodiphenylmethane	mg/kg	<0.002	<0.002	<0.002	0.002
2-Methoxy-5-methylaniline / p-cresidine	mg/kg	<0.002	<0.002	<0.002	0.002
4-Methoxy-m-phenylenediamine / 2,4-diaminoanisole	mg/kg	<0.002	<0.002	<0.002	0.002
o-Toluidine / 2-aminotoluene	mg/kg	<0.002	<0.002	<0.002	0.002
2,4-Toluenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3-Dimethylbenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
2,4,5-Trimethylaniline	mg/kg	<0.002	<0.002	<0.002	0.002
m-Phenylenediamine / 1,3-phenylenediamine	mg/kg	<0.002	<0.002	<0.002	0.002
2-naphthylamine	mg/kg	<0.002	<0.002	<0.002	0.002
o-aminoazotoluene/ 4-amino-2',3-dimethylazobenzene/ 4-o-tolylazo-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
5-nitro-o-toluidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dichlorobenzidine	mg/kg	<0.002	<0.002	<0.002	0.002
3,3'-dimethoxybenzidine / o-dianisidine	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-methylene-bis-(2-chloro-aniline) / 2,2'-dichloro-4,4'-methylene-dianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4,4'-thiodianiline	mg/kg	<0.002	<0.002	<0.002	0.002
4-amino azobenzene	mg/kg	<0.002	<0.002	<0.002	0.002
Conclusion	-	PASS			-

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

Method: EN 13130-1: 2004, LC-MS/ LC-MS/MS analysis.

Remark: 1) The migration test is carried out according to EU regulation No. 10/2011 and the corresponding regulatory statutes.

2) PAA listed in entry 43 to Appendix 8 of Annex XVII to Regulation (EC) No 1907/2006 and 1,3-phenylenediamine are specified as not detectable meaning < 0.002 mg/kg, assessment has to be performed using the 1st migrate in any case no matter whether article/materials is intended for single or repeated use.



Specific Migration of Caprolactam for Plastic Materials in Contact with Foodstuffs –Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			12			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Caprolactam	Distilled water	mg/kg	<5	<5	<5	15
Conclusion	-	-	PASS			-

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			16			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Caprolactam	10% Ethanol	mg/kg	<5	<5	<5	15
Conclusion	-	-	PASS			-

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

Method: EN 13130-1: 2004 and prCEN/TS 13130-16:2004.

Remark: 1) The migration test is carried out according to EC Regulation No. 10/2011 and the corresponding regulatory statutes.

2) For article intended for repeated use, the migration tests are carried out three times on the same test sample.

Peroxides Value for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation

Parameter	Result						Maximum Allowable Limit
	2	3	4	5	6	7	
Peroxides	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	-

Parameter	Result					Maximum Allowable Limit
	12	13	14	16	17	
Peroxides	Absent	Absent	Absent	Absent	Absent	Absent
Conclusion	PASS	PASS	PASS	PASS	PASS	-

Method: European Pharmacopeia 5.0, Ph. Eur. Method 2.5.5.

Remark: The limit refers to BfR Recommendation X,VII,XV,VI, XXII.



Specific Migration of Formaldehyde for Materials in Contact with Foodstuffs –Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			10			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Formaldehyde	Distilled water	mg/kg	<1	<1	<1	15
Conclusion	-	-	PASS			-

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			11			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Formaldehyde	Distilled water	mg/kg	<1	<1	<1	15
Conclusion	-	-	PASS			-

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

Method: EN 13130-1: 2004 and CEN/TS 13130-23:2005.

Remark: 1) The migration test is carried out according to EU regulation No. 10/2011 and the corresponding regulatory statutes.
2) For article intended for repeated use, the migration tests are carried out three times on the same test sample.

Specific Migration of Phenolic Substance for Materials in Contact with Foodstuffs –Commission Regulation (EU) No. 10/2011, Commission Regulation (EU) No. 2020/1245 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			11			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of stimulant used	-	mL	100			-
Phenolic Substance	Distilled water	mg/dm ²	<0.05	<0.05	<0.05	0.05
Conclusion	-	-	PASS			-

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



Method: Food simulants extraction and analysis by Liquid Chromatography (LC).

Remark: 1) The limit refers to BfR Recommendation LI.

2) The migration test is carried out according to EC Regulation No. 10/2011 and the corresponding regulatory statutes.

Specific Migration of Terephthalic Acid (TPA) for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			15			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of simulant used	-	mL	100			-
Terephthalic Acid (TPA)	Distilled water	mg/kg	<2.5	<2.5	<2.5	7.5
Conclusion	-	-	PASS			-

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

Method: EN 13130-1: 2004 and EN 13130-2: 2004.

Remark: 1) The migration test is carried out according to EU regulation No. 10/2011 and the corresponding regulatory statutes.

2) For article intended for repeated use, the migration tests are carried out three times on the same test sample.

Specific Migration of Ethylene Glycol(EG) for Plastic Materials in Contact with Foodstuffs – Commission Regulation (EU) No. 10/2011 and Its Amendments

Test Condition: 0.5 h at 100 °C (Distilled water)

Parameter	Simulant Used	Unit	Result			Maximum Allowable Limit(3 rd)
			15			
			1st Migrate	2nd Migrate	3rd Migrate	
Food contact surface area	-	dm ²	0.6			-
Volume of simulant used	-	mL	100			-
Ethylene Glycol(EG)	Distilled water	mg/kg	<10	<10	<10	30
Conclusion	-	-	PASS			-

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



Method: EN 13130-1: 2004 and EN 13130-7: 2004.

Remark: 1) The migration test is carried out according to EU regulation No. 10/2011 and the corresponding regulatory statutes.

2) For article intended for repeated use, the migration tests are carried out three times on the same test sample.

Volatile Organic Matter Content for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation

Test Condition: 24 h at 90 °C

Parameter	Unit	Result		Maximum Allowable Limit
		17		
Volatile Organic Matter	% (w/w)	0.0687		0.5
Conclusion	-	PASS		-

Test Condition: 4 h at 200 °C

Parameter	Unit	Result						Maximum Allowable Limit
		2	3	4	5	6	7	
Volatile Organic Matter	% (w/w)	0.188	0.423	<0.05	<0.05	0.0554	0.300	0.5
Conclusion	-	PASS	PASS	PASS	PASS	PASS	PASS	-

Remark: The cut sample was conditioned at 100 °C for 1 hour to remove sorbed water before treatment at 200°C for 4 hours.

Note: “<” = less than
% w/w = percent weight by weight

Method: Gravimetric method.

Remark: The limit refers to BfR Recommendation XXII, XV.

Extractable Matter Content for Silicon in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result						Maximum Allowable Limit
		2	3	4	5	6	7	
Extractable Matter	% w/w	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.5
Conclusion	-	PASS	PASS	PASS	PASS	PASS	PASS	-

Note: “<” = less than
% w/w = percent weight by weight

Method: Gravimetric method after reflux for 5 hours with water.

Remark: The limit refers to BfR Recommendation XV.



Total Chromium, Hafnium, Vanadium and Zirconium Content for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result		Maximum Allowable Limit
		13	14	
Total Chromium (Cr)	mg/kg	<2	<2	10
Total Hafnium (Hf)	mg/kg	<10	<10	100
Total Vanadium (V)	mg/kg	<2	<2	20
Total Zirconium (Zr)	mg/kg	<10	<10	100
Conclusion	-	PASS	PASS	-

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

Method: Acid digestion and analysis by Inductively Coupled Argon Plasma Spectrometer (ICP).

Remark: The limit refers to BfR Recommendation VII.

Total Zinc and Boron Content for Plastic Materials in Contact with Foodstuffs - § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result		Maximum Allowable Limit
		10		
Total Boron (B)	%	<0.001		0.008
Total Zinc (Zn)	%	<0.005		1
Conclusion	-	PASS		-

Note: “<” = less than

Method: Acid digestion and analysis by Inductively Coupled Argon Plasma Spectrometer (ICP).

Remark: The limit refers to BfR Recommendation XXXIII.

Total Lead Content for Plastic Materials in Contact with Foodstuffs – § 30 and 31 LFGB and BfR Recommendation

Parameter	Unit	Result		Maximum Allowable Limit
		15		
Lead Oxide as Lead	mg/kg	<10		40
Conclusion	-	PASS		-

Note: “<” = less than
mg/kg = milligrams per kilogram

Method: Acid digestion and analysis by Inductively Coupled Argon Plasma Spectrometer (ICP).

Remark: The limit refers to BfR Recommendation XVII.



Migration of Heavy Metals Contents for Metal in Contact with Foodstuffs – EC No. 1935/2004 and § 30 and 31 LFGB

Test Condition: Artificial tap water: 0.5 h at 100 °C

Parameter	Unit	Result			Seven Times of Maximum Specific Release Limit(s) (SRLs) ^{a, b)}
		18			
		1st Migrate	2nd Migrate	Sum of 1st & 2nd Migrate ^{a)}	
Envelope volume	cm ³	125	125	-	-
Volume of stimulant used	mL	125	125	-	-
Aluminum (Al)	mg/kg	<0.1	<0.1	<0.1	35
Antimony (Sb)	mg/kg	<0.004	<0.004	<0.004	0.28
Chromium (Cr)	mg/kg	<0.1	<0.1	<0.1	1.75
Cobalt (Co)	mg/kg	<0.005	<0.005	<0.005	0.14
Copper (Cu)	mg/kg	<0.5	<0.5	<0.5	28
Iron (Fe)	mg/kg	<5	<5	<5	280
Magnesium (Mg)	mg/kg	<0.5	<0.5	<0.5	-
Manganese (Mn)	mg/kg	<0.1	<0.1	<0.1	12.6
Molybdenum (Mo)	mg/kg	<0.01	<0.01	<0.01	0.84
Nickel (Ni)	mg/kg	<0.02	<0.02	<0.02	0.98
Silver (Ag)	mg/kg	<0.01	<0.01	<0.01	0.56
Tin (Sn)	mg/kg	<5	<5	<5	700
Titanium (Ti)	mg/kg	<0.5	<0.5	<0.5	-
Vanadium (V)	mg/kg	<0.002	<0.002	<0.002	0.07
Zinc (Zn)	mg/kg	<1	<1	<1	35
Arsenic (As)	mg/kg	<0.001	<0.001	<0.001	0.014
Barium (Ba)	mg/kg	<0.1	<0.1	<0.1	8.4
Beryllium (Be)	mg/kg	<0.001	<0.001	<0.001	0.07
Cadmium (Cd)	mg/kg	<0.001	<0.001	<0.001	0.035
Lead (Pb)	mg/kg	<0.002	<0.002	<0.002	0.07
Lithium (Li)	mg/kg	<0.01	<0.01	<0.01	0.336
Mercury (Hg)	mg/kg	<0.0004	<0.0004	<0.0004	0.021
Thallium (Tl)	mg/kg	<0.00005	<0.00005	<0.00005	0.0007
Conclusion	-	-	-	PASS	-



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Parameter	Unit	Result	Maximum Specific Release Limit(s) (SRLs) ^[a]
		18 3rd Migrate	
Envelope volume	cm ³	125	-
Volume of stimulant used	mL	125	-
Aluminum (Al)	mg/kg	<0.1	5
Antimony (Sb)	mg/kg	<0.004	0.04
Chromium (Cr)	mg/kg	<0.1	0.25
Cobalt (Co)	mg/kg	<0.005	0.02
Copper (Cu)	mg/kg	<0.5	4
Iron (Fe)	mg/kg	<5	40
Magnesium (Mg)	mg/kg	<0.5	-
Manganese (Mn)	mg/kg	<0.1	1.8
Molybdenum (Mo)	mg/kg	<0.01	0.12
Nickel (Ni)	mg/kg	<0.02	0.14
Silver (Ag)	mg/kg	<0.01	0.08
Tin (Sn)	mg/kg	<5	100
Titanium (Ti)	mg/kg	<0.5	-
Vanadium (V)	mg/kg	<0.002	0.01
Zinc (Zn)	mg/kg	<1	5
Arsenic (As)	mg/kg	<0.001	0.002
Barium (Ba)	mg/kg	<0.1	1.2
Beryllium (Be)	mg/kg	<0.001	0.01
Cadmium (Cd)	mg/kg	<0.001	0.005
Lead (Pb)	mg/kg	<0.002	0.01
Lithium (Li)	mg/kg	<0.01	0.048
Mercury (Hg)	mg/kg	<0.0004	0.003
Thallium (Tl)	mg/kg	<0.00005	0.0001
Conclusion	-	PASS	-



Parameter	Unit	Result			Seven Times of Maximum Specific Release Limit(s) (SRLs) ^{a, b)}
		19			
		1st Migrate	2nd Migrate	Sum of 1st & 2nd Migrate ^{a)}	
Envelope volume	cm ³	1000	1000	-	-
Volume of stimulant used	mL	1000	1000	-	-
Aluminum (Al)	mg/kg	<0.1	<0.1	<0.1	35
Antimony (Sb)	mg/kg	<0.004	<0.004	<0.004	0.28
Chromium (Cr)	mg/kg	<0.1	<0.1	<0.1	1.75
Cobalt (Co)	mg/kg	<0.005	<0.005	<0.005	0.14
Copper (Cu)	mg/kg	<0.5	<0.5	<0.5	28
Iron (Fe)	mg/kg	<5	<5	<5	280
Magnesium (Mg)	mg/kg	<0.5	<0.5	<0.5	-
Manganese (Mn)	mg/kg	<0.1	<0.1	<0.1	12.6
Molybdenum (Mo)	mg/kg	<0.01	<0.01	<0.01	0.84
Nickel (Ni)	mg/kg	<0.02	<0.02	<0.02	0.98
Silver (Ag)	mg/kg	<0.01	<0.01	<0.01	0.56
Tin (Sn)	mg/kg	<5	<5	<5	700
Titanium (Ti)	mg/kg	<0.5	<0.5	<0.5	-
Vanadium (V)	mg/kg	<0.002	<0.002	<0.002	0.07
Zinc (Zn)	mg/kg	<1	<1	<1	35
Arsenic (As)	mg/kg	<0.001	<0.001	<0.001	0.014
Barium (Ba)	mg/kg	<0.1	<0.1	<0.1	8.4
Beryllium (Be)	mg/kg	<0.001	<0.001	<0.001	0.07
Cadmium (Cd)	mg/kg	<0.001	<0.001	<0.001	0.035
Lead (Pb)	mg/kg	<0.002	<0.002	<0.002	0.07
Lithium (Li)	mg/kg	<0.01	<0.01	<0.01	0.336
Mercury (Hg)	mg/kg	<0.0004	<0.0004	<0.0004	0.021
Thallium (Tl)	mg/kg	<0.00005	<0.00005	<0.00005	0.0007
Conclusion	-	-	-	PASS	-



Parameter	Unit	Result	Maximum Specific Release Limit(s) (SRLs) ^[a]
		19	
		3rd Migrate	
Envelope volume	cm ³	1000	-
Volume of stimulant used	mL	1000	-
Aluminum (Al)	mg/kg	<0.1	5
Antimony (Sb)	mg/kg	<0.004	0.04
Chromium (Cr)	mg/kg	<0.1	0.25
Cobalt (Co)	mg/kg	<0.005	0.02
Copper (Cu)	mg/kg	<0.5	4
Iron (Fe)	mg/kg	<5	40
Magnesium (Mg)	mg/kg	<0.5	-
Manganese (Mn)	mg/kg	<0.1	1.8
Molybdenum (Mo)	mg/kg	<0.01	0.12
Nickel (Ni)	mg/kg	<0.02	0.14
Silver (Ag)	mg/kg	<0.01	0.08
Tin (Sn)	mg/kg	<5	100
Titanium (Ti)	mg/kg	<0.5	-
Vanadium (V)	mg/kg	<0.002	0.01
Zinc (Zn)	mg/kg	<1	5
Arsenic (As)	mg/kg	<0.001	0.002
Barium (Ba)	mg/kg	<0.1	1.2
Beryllium (Be)	mg/kg	<0.001	0.01
Cadmium (Cd)	mg/kg	<0.001	0.005
Lead (Pb)	mg/kg	<0.002	0.01
Lithium (Li)	mg/kg	<0.01	0.048
Mercury (Hg)	mg/kg	<0.0004	0.003
Thallium (Tl)	mg/kg	<0.00005	0.0001
Conclusion	-	PASS	-

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

Method: With reference to Metals and Alloys used in Food Contact Materials and articles - A Practical Guide to Manufacturers and Regulators (2013 1st Edition) published by European Directorate for the Quality of Medicines and HealthCare (EDQM), Chapter 3.

Remark: 1) ^[a] denotes as this (these) maximum specific release limit(s) was (were) referenced from Metals and Alloys used in Food Contact Materials and articles - A Practical Guide to Manufacturers and Regulators (2013 1st Edition) published by European Directorate for the Quality of Medicines and HealthCare (EDQM), Chapter 1, Article 4, Tables 1 and 2.
2) Appropriate test condition(s) was (were) selected according to Guidelines on Testing Conditions for Articles in Contact with Foodstuffs (With a Focus on Kitchenware) (2009 1st Edition) published by European Commission Joint Research Center (JRC).
3) Artificial tap water was prepared according to German Standard DIN 10531: 2011-06.
4) ^[b] denotes as the sum of the results of the first and second migrates should not be exceed seven times the SRL

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