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Connectivity & Products
Non Food

Taunusstein, 28.05.2024

Test-report no. 6896103

Original Sample ID	Sample Description	Sample Receipt Date
240394653	Eurostraws - drinking straws	19/04/2024

General Information

SGS-Client's ID	:	10008056
SGS-Customer-Order	:	6977586
Ordering date	:	18/04/2024
Testing period	:	25/04/2024 – 13/05/2024
Order No.	:	40000592
Testing scope	:	Test according to client's requirements

Assessment

Overall assessment	pass
The tested samples meet the requirements of LFGB and Regulation (EC) No. 1935/2004 in the tested items. Stability criteria according to Regulation (EU) No. 10/2011 are met.	

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	Date	Name	Function	Department
Created	28.05.2024	i. A. Sabine Klemens	Customer Service Assistant	Connectivity & Products
Released	28.05.2024	i.A. Hung Vu Chi	Customer Service Consultant	Connectivity & Products

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Summary of results

Test	Result
sensory test	pass
overall migration	pass
Specific migration of metals according to Regulation (EU) No 10/2011	pass
PAH	pass
Plasticizers	pass
Nonylphenole	pass
Octylphenole	pass
Bisphenol A	pass
Short chain chlorinated paraffins (SCCP)	pass
Chlorinated Phenols	pass
wood preservatives screening	pass
Specific migration of formaldehyde	pass
specific migration of 1,4-butanediol (Ref. No: 13720/40580, CAS No: 110-63-4)*	pass

Note:

Conclusions on pass/fail are based on the test result from the actual sampling of the received sample(s).

Conclusions are based on the relevant requirements; measurement uncertainties are not taken into account. Only results above the relevant detection limit are taken into account for the calculation of sums.

Test was conducted on composite of random parts of the item as per client's request and the test result is the overall result.

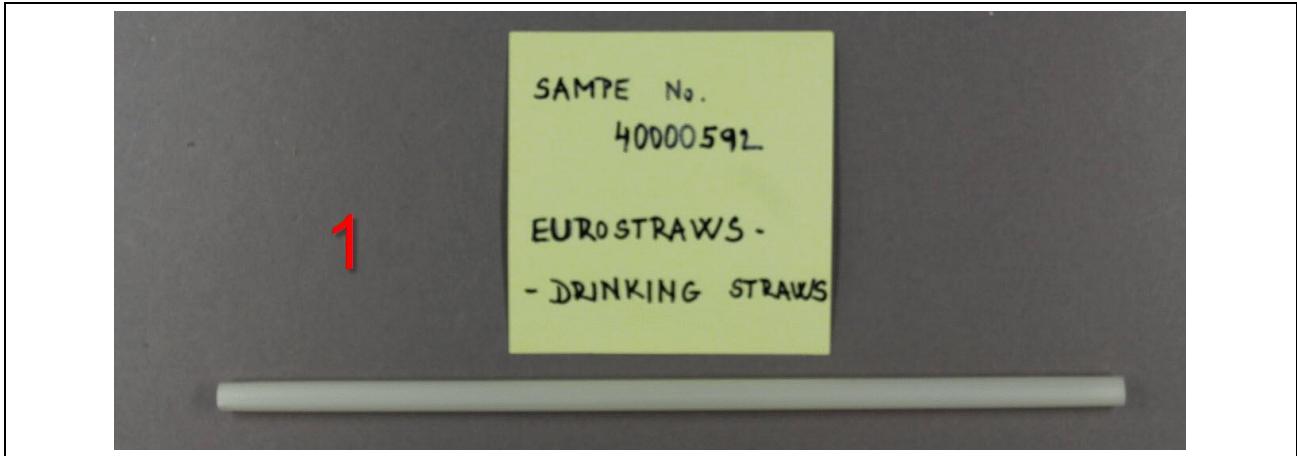
The composite sampling method is based on the client's special request and could be a modification from the testing standard.

For 2-composite mix with results exceeding one half of the relevant requirements or 3-composite mix with results exceeding one third of the relevant requirements, the composite sample may have the possibility of one or more components that can lead to a failure result, it is recommended to test on individual basis.

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Photo documentation**List of sample parts**

Comp. no	Component-ID	Sample-Description	Original Sample ID
1	-	Eurostraws - drinking straws	240394653

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Analytical results
sensory test

Test Method
DIN 10955 2024-01

simulant	water
duration	2 hours
temperature	70 +/- 2°C
approach	1 part per immersion volume

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
		<u>1</u>

Median Odour ^[1]	1st contact
	0.5
Median Taste ^[1]	
	2.5
Conclusion	Pass

Note:

Key:	0	=	no change
	1	=	very slight off odour / off-taste
	2	=	slight off- odour / off-taste
	3	=	distinct off- odour / off-taste
	4	=	strong off-odour/ off-taste

Requirement: With an assessment from 0 to 2.75 there is no, respectively a tolerable organoleptic impact existent in terms of Regulation (EC) No 1935/2004.

^[1] Median up to 2.5 rounded at 0.5 grades

overall migration

Test Method
DIN EN 1186-3:2022

simulant	3% acetic acid
duration	2 hours
temperature	70 +/- 2°C
approach	10 dm ² /L

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
		<u>1</u>	<u>1</u>	<u>1</u>
overall migration	mg/dm ²	1st contact	2nd contact	3rd contact
Conclusion		10 Pass	3 Pass	1 Pass

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Test Method
DIN EN 1186-3:2022

simulant 50% ethanol
duration 2 hours
temperature 60 +/- 2°C
approach 10 dm²/L

<u>Sample(s) / Subsample(s)</u>	<u>Unit</u>	<u>Result</u> 1	<u>Result</u> 1	<u>Result</u> 1
overall migration	mg/dm ²	1st contact 10 Pass	2nd contact 3 Pass	3rd contact 1 Pass
Conclusion				

Note:

Requirement: max. 10 mg/dm² (Regulation (EU) No 10/2011)

analytical tolerance of the method (§ 64 LFGB B 80.30-3 (EG)):

- 2 mg/dm² for aqueous simulants
- 3 mg/dm² for olive oil and fat substitutes

Specific migration of metals according to Regulation (EU) No 10/2011

Test Method
ICP-MS (DIN EN ISO 17294-2 2017-01) resp. ICP-OES (DIN EN ISO 11885 2009-09) migration DIN 13130-1

simulant 3% acetic acid
duration 2 hours
temperature 70 +/- 2°C
approach 6 dm²/L

<u>Sample(s) or Subsample(s)</u>	<u>Unit</u>	<u>Result</u> 1	<u>Result</u> 1	<u>Result</u> 1
Aluminum (Al)	mg/kg	1st contact < 0.1	2nd contact < 0.1	3rd contact < 0.1
Arsenic (As)	mg/kg	< 0.01	< 0.01	< 0.01
Antimony (Sb)	mg/kg	< 0.01	< 0.01	< 0.01
Barium (Ba)	mg/kg	< 0.25	< 0.25	< 0.25
Lead (Pb)	mg/kg	< 0.005	< 0.005	< 0.005
Cadmium (Cd)	mg/kg	< 0.002	< 0.002	< 0.002
Chromium (Cr)	mg/kg	< 0.01	< 0.01	< 0.01
Cobalt (Co)	mg/kg	< 0.01	< 0.01	< 0.01
Iron (Fe)	mg/kg	< 5	< 5	< 5
Copper (Cu)	mg/kg	< 0.5	< 0.5	< 0.5
Lithium (Li)	mg/kg	< 0.1	< 0.1	< 0.1
Manganese (Mn)	mg/kg	< 0.1	< 0.1	< 0.1
Nickel (Ni)	mg/kg	0.01	< 0.01	< 0.01
Mercury (Hg)	mg/kg	< 0.005	< 0.005	< 0.005
Zinc (Zn)	mg/kg	< 0.5	< 0.5	< 0.5
Europium (Eu)	mg/kg	< 0.025	< 0.025	< 0.025
Gadolinium (Gd)	mg/kg	< 0.025	< 0.025	< 0.025
Lanthanum (La)	mg/kg	< 0.025	< 0.025	< 0.025
Terbium (Tb)	mg/kg	< 0.025	< 0.025	< 0.025
Conclusion		Pass	Pass	Pass

Note:

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Requirement:	Regulation (EU) No 10/2011	Aluminum	max. 1 mg/kg food simulant
		Antimony	max. 0.04 mg/kg food simulant
		Arsenic:	ND (< 0.01 mg/kg food simulant)
		Barium:	max 1 mg/kg food simulant
		Cadmium:	ND (< 0.002 mg/kg food simulant)
		Chromium:	ND (< 0.01 mg/kg food simulant)
		Cobalt:	max. 0.05 mg/kg food simulant
		Copper:	max. 5 mg/kg food simulant
		Iron:	max. 48 mg/kg food simulant
		Lead:	ND (< 0.01 mg/kg food simulant)
		Lithium:	max. 0.6 mg/kg food simulant
		Manganese:	max .6 mg/kg food simulant
		Mercury:	ND (< 0.01 mg/kg food simulant)
		Nickel:	max. 0,02 mg/kg food simulant
		Zinc:	max. 5 mg/kg food simulant
		Sum Europium, Gadolinium, Lanthan, Terbium:	
			max. 0.05 mg/kg food simulant

PAH

Test Method

AfPS GS 2019:01, PAK-with use of GC-MS

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
Benzo[a]anthracene (56-55-3) ^[1]	mg/kg	< 0.2
Chrysene (218-01-9) ^[1]	mg/kg	< 0.2
Benzo[e]pyrene (192-97-2) ^[1]	mg/kg	< 0.2
Benzo[b]fluoranthene (205-99-2) ^[1]	mg/kg	< 0.2
Benzo[k]fluoranthene (207-08-9) ^[1]	mg/kg	< 0.2
Benzo[j]fluoranthene (205-82-3) ^[1]	mg/kg	< 0.2
Benzo[a]pyrene (50-32-8) ^[1]	mg/kg	< 0.2
Dibenz[ah]anthracene (53-70-3) ^[1]	mg/kg	< 0.2
Conclusion EU-PAHs		Pass
Acenaphthylene (208-96-8)	mg/kg	< 0.2
Acenaphthene (83-32-9)	mg/kg	< 0.2
Fluorene (86-73-7)	mg/kg	< 0.2
Phenanthrene (85-01-8)	mg/kg	< 0.2
Anthracene (120-12-7)	mg/kg	< 0.2
Fluoranthene (206-44-0)	mg/kg	< 0.2
Pyrene (129-00-0)	mg/kg	< 0.2
Naphthalene (91-20-3)	mg/kg	< 0.2
Benzo[ghi]perylene (191-24-2)	mg/kg	< 0.2
Indeno[1,2,3-cd]pyrene (193-39-5)	mg/kg	< 0.2
Total 18 PAH ^[2]	mg/kg	-
Conclusion (per single substance)		Pass

Note:

Requirement: not listed in Regulation (EU) No 10/2011 (<0.2 mg/kg)

^[1] PAH according to the Commission Regulation (EU) No 1272/2013 amending Annex XVII to Regulation (EC) No 1907/2006 effective

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from December 27, 2015

[²] For the summation only results above the reporting limit are taken into account.

Plasticizers
Test Method

SOP M 889 2015-01, with use of GC-MS after extraction with toluene

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
		1
Dibutyl phthalate (DBP) (84-74-2)	mg/kg	< 5.0
Benzyl butyl phthalate (BBP) (85-68-7)	mg/kg	< 5.0
Bis(2-ethylhexyl) phthalate (DEHP) (117-81-7)	mg/kg	< 5.0
Diisononyl phthalate (DINP) (28553-12-0) ^[1]	mg/kg	< 5.0
Di-n-octyl phthalate (DNOP) (117-84-0)	mg/kg	< 5.0
Diisodecyl phthalate (DIDP) (26761-40-0) ^[2]	mg/kg	< 5.0
Diisobutyl phthalate (DIBP) (84-69-5)	mg/kg	< 5.0
Di-C7-C11-(linear and branched)-alkyl phthalate (DHNUP) (68515-42-4)	mg/kg	< 5.0
Diisoheptyl phthalate (DIHP) (71888-89-6)	mg/kg	< 5.0
Dibutyl sebacate (DBS) (109-43-3)	mg/kg	< 5.0
Bis(2-ethylhexyl) adipate (DEHA) (103-23-1)	mg/kg	< 5.0
Dihexyl phthalate (branched and linear)(DHP) (68515-50-4)	mg/kg	< 5.0
Tri-n-butyl acetyl citrate (TBAC) (77-90-7)	mg/kg	< 5.0
Di-n-pentyl phthalate (DPP) (131-18-0)	mg/kg	< 5.0
Diisopentyl phthalate (DIPP) (605-50-5)	mg/kg	< 5.0
n-pentyl-isopentyl phthalate (PIPP) (776297-69-9)	mg/kg	< 5.0
Dipentyl phthalates (DPP, DIPP, PIPP) (84777-06-0)	mg/kg	< 5.0
Triethyl citrate (TEC) (77-93-0)	mg/kg	< 5.0
Diallyl phthalate (DAP) (131-17-9)	mg/kg	< 5.0
Bis(2-methoxyethyl) phthalate (DMEP) (117-82-8)	mg/kg	< 5.0
Dihexyl phthalate (DHP) (84-75-3)	mg/kg	< 5.0
Bis(2-ethylhexyl) terephthalate (DEHT) (6422-86-2)	mg/kg	< 5.0
Diisononyl cyclohexane-1,2-dicarboxylate (DINCH) (166412-78-8)	mg/kg	< 5.0
Conclusion		Pass

Note:

Requirement: Regulation (EU) No. 10/2011 (Material)

BBP	max. 0,1%
DEHP	max. 0,1%
DBP	max. 0,05%
DIDP	max. 0,1%
DINP	max. 0,1%

Additionally specific migration limits are defined. If one or more substance(s) are observed in material it should be clarified if migration limits are met.

[¹] phthalic acid, diesters with primary, saturated C 8 -C 10 branched alcohols, more than 60 % C 9

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[2] phthalic acid, diesters with primary, saturated C 9 -C 11 alcohols more than 90 % C 10

Nonylphenole**Test Method**

SOP M 0889 2015-01, with use of GC-MS after extraction with toluene

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
nonylphenols (total)	mg/kg	1
Conclusion		< 5.0 Pass

Note:

Requirement: not listed in Regulation (EU) No. 10/2011 (< 5 mg/kg)

Octylphenole**Test Method**

SOP M 0889 2015-01, with use of GC-MS after extraction with toluene

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
4-n-octylphenol (OP) (1806-26-4)	mg/kg	1
Conclusion		< 5.0 Pass

Note:

Requirement: not listed in Regulation (EU) No. 10/2011 (< 5 mg/kg)

Bisphenol A**Test Method**

SOP M 3489 2019_02, with use of LC-MS/MS

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
Bisphenol A (80-05-7)	mg/kg	1
Conclusion		< 0.1 Pass

Note:

Requirement: intentional usage prohibited (Lois no 2012-1442): at the moment an indicative threshold of 0.1 mg/kg is discussed.
When exceeding the threshold supplier need to declare that Bisphenol A is not intentionally added.

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Short chain chlorinated paraffins (SCCP)
Test Method

DIN EN ISO 22818:2021-06, with use of GC-NCI-MS after extraction with toluene

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
Short chain chlorinated paraffins (SCCP)	mg/kg	1
Conclusion		< 50 Pass

Note:

Requirement: < 1500 mg/kg in articles (Regulation (EU) 2019/1021)

Chlorinated Phenols
Test Method

SOP M 3125 2019-12, measured with GC-MS

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
Pentachlorophenol (87-86-5)	mg/kg	1
2,3,4 - Trichlorophenol (15950-66-0)	mg/kg	< 0.1
2,3,5 - Trichlorophenol (933-78-8)	mg/kg	< 0.1
2,3,6 - Trichlorophenol (933-75-5)	mg/kg	< 0.1
2,4,5 - Trichlorophenol (95-95-4)	mg/kg	< 0.1
2,4,6 - Trichlorophenol (88-06-2)	mg/kg	< 0.1
3,4,5 - Trichlorophenol (609-19-8)	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol (935-95-5)	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol (58-90-2)	mg/kg	< 0.1
2,3,4,5-Tetrachlorophenol (76437-40-6)	mg/kg	< 0.1
Conclusion		Pass

Note:

Requirement: PCP: < 5 mg/kg (German Chemicals Prohibition Ordinance)

wood preservatives screening
Test Method

Extraction with cyclohexane (hot), measurement with GC-MS and internal standardisation

<u>Sample(s) /Subsample(s)</u>	<u>Unit</u>	<u>Result</u>
o,p-DDT (789-02-6)	mg/kg	1
p,p-DDT (50-29-3)	mg/kg	<1
o,p-DDD (53-19-0)	mg/kg	<0.5
p,p-DDD (72-54-8)	mg/kg	<0.5
o,p-DDE (3424-82-6)	mg/kg	<0.5
p,p-DDE (72-55-9)	mg/kg	<0.5
cis-trans-Permethrin (52645-53-1)	mg/kg	<1
Dichlofluanid (1085-98-9)	mg/kg	<1
Methoxychlor (72-43-5)	mg/kg	<1
Chlorthalonil (1897-45-6)	mg/kg	<1
Lindan (58-89-9)	mg/kg	<0.5
Summe HCH (außer Lindan)	mg/kg	<0.5
Trichlorbenzol	mg/kg	<0.5
Tetrachlorbenzol	mg/kg	<0.5

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Die Prüfergebnisse beziehen sich ausschließlich auf die untersuchten Prüfgegenstände und den Zeitpunkt der Durchführung der Prüfung im Rahmen der Prüfvorgaben. Die Veröffentlichung und Vervielfältigung unserer Prüfberichte und Gutachten zu Werbezwecken sowie deren auszugsweise Verwendung in sonstigen Fällen bedürfen unserer schriftlichen Genehmigung. Werte nach „<“ sind Bestimmungsgrenzen. Die Bestimmung der mit * gekennzeichneten Parameter wurde mit einem Kooperationspartner durchgeführt. Wir möchten darauf hinweisen, dass die Beurteilung der Ergebnisse ohne Berücksichtigung der Messunsicherheiten erfolgt. Auf Wunsch können wir Ihnen jedoch die Messunsicherheiten zur Verfügung stellen und nach Absprache zur Beurteilung der Ergebnisse heranziehen.
The test results refer exclusively to the examined test items and the date of the test under the test specifications. Written acknowledgement for publication and duplication of our analytical reports for promotional purpose, as well as fractional use for other purposes are mandatory. Numbers following „<“ represent limits of quantification. Determination of parameters marked with * was performed with a cooperation partner. We would like to point out that measurement uncertainties are not taken into account for conclusions. On request, we can provide measurement uncertainties and take them into account for conclusions upon consultation.

Member of the SGS Group (Société Générale de Surveillance)

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Pentachlorbenzol	mg/kg	<0.5
Hexachlorbenzol (118-74-1)	mg/kg	<0.5
Dieldrin (60-57-1)	mg/kg	<0.5
Heptachlor (76-44-8)	mg/kg	<0.5
Heptachlorepoxyd (1024-57-3)	mg/kg	<0.5
alpha-Endosulfan (115-29-7)	mg/kg	<0.5
beta-Endosulfan (33213-65-9)	mg/kg	<0.5
Pentachlorphenol (87-86-5)	mg/kg	<0.5
Beurteilung / Conclusion		Pass

Note:

Requirement: Pentachlorophenol: max. 5 mg/kg (German Chemicals Prohibition Ordinance)
others: no explicit limit

[1] n.t.: totalling invalid, since all single values < limit of quantification

Specific migration of 1,4-butanediol (Ref. No: 13720/40580, CAS No: 110-63-4)*
Test Method

migration: DIN 13130-1; measurement: GC-MS

simulant	50% ethanol
duration	2 hours
temperature	60 +/- 2°C
approach	10 dm ² /L

<u>Sample(s) or Subsample(s)</u>	Unit	<u>Result</u>	<u>Result</u>	<u>Result</u>
		<u>1</u>	<u>1</u>	<u>1</u>
1,4-butanediol (110-63-4)	mg/kg	1st contact < 0.01 pass	2nd contact < 0.01 pass	3rd contact < 0.01 pass
Conclusion				

Note:

Requirement: max. 5 mg/kg food simulant (Regulation (EU) No 10/2011)

Specific migration of formaldehyde
Test Method

DIN CEN/TS 13130-23 2005-05 / DIN CEN/TS 13130-23 2005-05

simulant	3% acetic acid
duration	2 hours
temperature	70 +/- 2°C
approach	6 dm ² /L

<u>Subsample(s)</u>	Unit	<u>Result</u>	<u>Result</u>	<u>Result</u>
		<u>1</u>	<u>1</u>	<u>1</u>
		1st contact	2nd contact	3rd contact
Formaldehyde (50-00-0)	mg/kg	< 0.3	< 0.3	< 0.3
Conclusion		Pass	Pass	Pass

Note:

Requirement: max. 15 mg/kg food simulant (Regulation (EU) No 10/2011)

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*** End of test report ***

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