TÜVRheinland®
Precisely Right.

Test Report No.: 0154256186a 001

Client:

Buyer's name:	CAPVENTURE BV
Manufacturer's name:	n.a.
Test item(s):	BAMBOO FIBER CUP
Identification / Model No(s):	CS01-BF21001A/1400220
Sample Receiving date:	2017-06-14
Testing Period:	2017-06-15 to 2017-06-21 & 2017-06-21 to 2017-07-04

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:
Country of Origin: China
Country of Destination: Europe

For and on behalf of TÜV Rheinland (Shanghai) Co., Ltd.

2017-07-14	Amy Zhao / Technical Manager
Date	*Name / Position*

Test result is drawn according to the kind and extent of tests performed.
This test report relates to the a. m. 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.

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	BAMBOO FIBER CUP

1. Material List:

Sample No.	Material	Color	Location
1	Bamboo fibre with PU coating	Pink	Cup
1A	Coating	Transparent	PU coating
2	Bamboo fibre with PU coating	Yellow	Cup
2A	Coating	Transparent	PU coating
3	Bamboo fibre with PU coating	Grape	Cup
3A	Coating	Transparent	PU coating

2. Overall Results:

Test No.	Tested Item	Conclusion
1	Sensorial examination	Pass
2	Global Migration from Plastic	Pass
3	Specific Migration of metals, Metal-release from Plastic	Pass
4	Specific Migration of Polycyclic Aromatic Hydrocarbons (PAHs)	Pass
5	Colourfastness	Pass
6	Specific Migration of Formaldehyde(1) (Articles within the Scope of (EU) No 284/2011)	Pass
7	Specific Migration of 2,4,6-Triamino-1,3,5-triazine (Melamine)	Pass
8	Pentachlorophenol, Trichlorphenol and Tetrachlorphenol (Wood)	Pass
9	Pesticides	Pass
10	Specific Migration of Primary Aromatic Amines from Coating	Pass
11	Isocyanates	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	2 hour(s) / 70 °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:	0.5

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

3.2 Global Migration from Plastic

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. Deviating to the regulations the following tests were performed as orientating single tests.

Limit: 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 %	2 hour(s) / 70 °C
Ethanol 50 %	2 hour(s) / 70 °C

Results 3rd Migration:

Test No.:	1		
Sample No.:	1		
Migration ratio:	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
Acetic acid 3 %	mg/dm^2	<2	10
Ethanol 50 %	mg/dm^2	<2	10

Results 3rd Migration:

Test No.:	2		
Sample No.:	2		
Migration ratio:	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
Acetic acid 3 %	mg/dm^2	<2	10
Ethanol 50 %	mg/dm^2	<2	10

Results 3rd Migration:

Test No.:	3		
Sample No.:	3		
Migration ratio:	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
Acetic acid 3 %	mg/dm^2	<2	10
Ethanol 50 %	mg/dm^2	<2	10

Abbreviations:

mg/dm^2 = Milligram per square decimetre

< = Less than

3.3 Specific Migration of metals, Metal-release from Plastic

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. The determination of amounts of metals that were released is done via ICP-MS.

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

The following food simulant and condition was applied:

Food simulant	Test duration / Temperature
Acetic acid 3 %	2 hour(s) / 70 °C

Test No.:	1		
Sample No.:	1		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
Barium	mg/kg	< 0.1	1
Cobalt	mg/kg	< 0.01	0.05
Copper	mg/kg	< 0.1	5
Iron	mg/kg	< 1.0	48
Lithium	mg/kg	< 0.1	0.6
Manganese	mg/kg	< 0.1	0.6
Zinc	mg/kg	< 1.0	5(*1)
Aluminium	mg/kg	< 0.1	1(*2)
Nickel	mg/kg	< 0.01	0.02(*3)

Test No.:	2		
Sample No.:	2		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
Barium	mg/kg	< 0.1	1
Cobalt	mg/kg	< 0.01	0.05
Copper	mg/kg	< 0.1	5
Iron	mg/kg	< 1.0	48
Lithium	mg/kg	< 0.1	0.6
Manganese	mg/kg	< 0.1	0.6
Zinc	mg/kg	< 1.0	5(*1)
Aluminium	mg/kg	< 0.1	1(*2)
Nickel	mg/kg	< 0.01	0.02(*3)

Test No.:	3		
Sample No.:	3		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
Barium	mg/kg	< 0.1	1
Cobalt	mg/kg	< 0.01	0.05
Copper	mg/kg	< 0.1	5
Iron	mg/kg	< 1.0	48
Lithium	mg/kg	< 0.1	0.6
Manganese	mg/kg	< 0.1	0.6
Zinc	mg/kg	< 1.0	5(*1)
Aluminium	mg/kg	< 0.1	1(*2)
Nickel	mg/kg	< 0.01	0.02(*3)

Abbreviations:

mg/kg = Milligram per kilogram

< = Less than

Remark :

*1 The migration limit of 5 mg/kg shall be applied from 14 September 2018 according to Commission Regulation (EU) 2016/1416. The migration limit of 25 mg/kg is still accepted and considered as pass.

*2 The migration limit for Aluminium of 1 mg/kg shall be applied from 14 September 2018 according to Commission Regulation (EU) 2016/1416. During the transitional period, Aluminium release is not considered for compliance evaluation.

*3 The migration limit for Nickel of 0.02 mg/kg shall be applied from 19 May 2019 according to Commission Regulation (EU) 2017/752. During the transitional period, Nickel release is not considered for compliance evaluation.

3.4 Specific Migration of Polycyclic Aromatic Hydrocarbons (PAHs)

Test method: The sample preparation is performed with reference to EN 13130-1:2004. Test conditions are chosen according to Directive 82/711/EEC, Council Directive 85/572/EEC and its corresponding regulations. Presence of PAHs is detected by means of GC-MS.

Limit: Please refer to remark 1

The following food simulant and condition was applied:

Food simulant	Test duration / Temperature
Ethanol 50 %	2 hour(s) / 70 °C

Test No.:	1		
Sample No.:	1		
Parameter	**Unit**	**Result**	**Limit**
Sum of 18 PAHs(2)	mg/kg	n.d	n.d. (<0.01)

Test No.:	2		
Sample No.:	2		
Parameter	**Unit**	**Result**	**Limit**
Sum of 18 PAHs(2)	mg/kg	n.d	n.d. (<0.01)

Test No.:	3		
Sample No.:	3		
Parameter	**Unit**	**Result**	**Limit**
Sum of 18 PAHs(2)	mg/kg	n.d	n.d. (<0.01)

Abbreviations:

n.d. = Not detected

mg/kg = Milligram per kilogram

< = Less than

Remark:

*1 Acc. to the World Health Organization (WHO) numerous representatives of the Polycyclic Aromatic Hydrocarbons (PAH) substance group are classified as carcinogenic, mutagenic or teratogenic (CMR). Under the principles of Article 3 of the Regulation (EC) 1935/2004 it must be ensured that these substances do not transfer into foodstuffs. Therefore no migration into foodstuffs shall be detectable.

*2 The selection of analysed PAHs has been based on AfPS GS 2014:01 PAK.

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

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

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

3.6 Specific Migration of Formaldehyde[(1)] (Articles within the Scope of (EU) No 284/2011)

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. Presence of Formaldehyde is detected according to EN 13130-23.

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

The following food simulant and condition was applied:

Food simulant	**Test duration / Temperature**
Acetic acid 3 %	2 hour(s) / 70 °C

Results 3rd Migration:

Test No.:	1		
Sample No.:	1		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result [(2)]**	**Limit**
Formaldehyde	mg/kg	< 3	15

Results 3rd Migration:

Test No.:	2		
Sample No.:	2		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result [(2)]**	**Limit**
Formaldehyde	mg/kg	< 3	15

Results 3rd Migration:

Test No.:	3		
Sample No.:	3		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result (2)**	**Limit**
Formaldehyde	mg/kg	< 3	15

Abbreviations:

mg/kg = Milligram per kilogram

< = Less than

Remark:

*1 Including HMTA expressed as Formaldehyde

*2 The Formaldehyde migration was carried out on three articles, only the highest result for all migration tests is reported.

3.7 Specific Migration of 2,4,6-Triamino-1,3,5-triazine (Melamine)

Test method: The migratory behaviour is examined with reference to Chapter V, Article 18 of Commission Regulation 10/2011 and its amendments. Presence of Melamine is detected according to EN 13130-27.

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

The following food simulant and condition was applied:

Food simulant	**Test duration / Temperature**
Acetic acid 3 %	2 hour(s) / 70 °C

Results 3rd Migration:

Test No.:	1		
Sample No.:	1		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
2,4,6-Triamino-1,3,5-triazine	mg/kg	0.04	2.5

Results 3rd Migration:

Test No.:	2		
Sample No.:	2		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
2,4,6-Triamino-1,3,5-triazine	mg/kg	0.01	2.5

Results 3rd Migration:

Test No.:	3		
Sample No.:	3		
Migration ratio	150 ml / 1.26 dm^2		
Parameter	**Unit**	**Result**	**Limit**
2,4,6-Triamino-1,3,5-triazine	mg/kg	0.04	2.5

Abbreviations:

mg/kg = Milligram per kilogramm

< = Less than

3.8 Pentachlorophenol, Trichlorphenol and Tetrachlorphenol (Wood)

Test method: Ref. to 64 LFGB B82.02-8:2001

Limit: With reference to Resolution ResAP (2002) 1 on paper and board materials and articles intended to come into contact with foodstuffs

Test No.:	1				
Sample No.:	1				
Parameter	**Unit**	**RL**	**Result**	**Limit**	**Technically preventable limit**
Pentachlorophenol (PCP)	mg/kg	0.1	n.d.	0.15	-
Trichlorphenol (TriCP)	mg/kg	0.1	n.d.	-	n.d.
Tetrachlorphenol (TeCP)	mg/kg	0.1	n.d.	-	n.d.

Abbreviations:

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

RL = Reporting Limit

mg/kg = Milligram per kilogram

3.9 Pesticides

Test method: Organic solvent extraction, GC-ECD, GC-MS

Table 1: Selected Pesticides being tested

Test No.:	1				
Sample No.:	1				
Selected Pesticides	**Cas no.**	**Unit**	**RL**	**Result**	**Limit [(1)]**
Allethrin	584-79-2	mg/kg	0.15	n.d.	n.d.
1-chloronaphthalene	90-13-1	mg/kg	0.15	n.d.	n.d.
2-chloronaphthalene	91-58-7	mg/kg	0.15	n.d.	n.d.
Chloropyrifos	2921-88-2	mg/kg	0.15	n.d.	n.d.
Chlorothalnil	1897-45-6	mg/kg	0.15	n.d.	n.d.
Cyfluthrin	68359-37-5	mg/kg	0.15	n.d.	n.d.
Cypermethrin	52315-07-8	mg/kg	0.15	n.d.	n.d.
DDE	3424-82-6, 72-55-9	mg/kg	0.15	n.d.	n.d.
DDT	50-29-3, 789-02-6	mg/kg	0.15	n.d.	n.d.
Diazinon	333-41-5	mg/kg	0.15	n.d.	n.d.
Dichlofluanid	1085-98-9	mg/kg	0.15	n.d.	n.d.
Dieldrin	60-57-1	mg/kg	0.15	n.d.	n.d.
α-Endosulfan	959-98-8	mg/kg	0.15	n.d.	n.d.
β-Endosulfan	33213-65-9	mg/kg	0.15	n.d.	n.d.
Fenitrothion	122-14-5	mg/kg	0.15	n.d.	n.d.
Fenthion	55-38-9	mg/kg	0.15	n.d.	n.d.
Fenvalerate	51630-58-1	mg/kg	0.15	n.d.	n.d.
Furmecyclox	60568-05-0	mg/kg	0.15	n.d.	n.d.
Hexachlorobenzene	118-74-1	mg/kg	0.15	n.d.	n.d.
Lindane(g-HCH)	58-89-9	mg/kg	0.15	n.d.	n.d.
Malathion	121-75-5	mg/kg	0.15	n.d.	n.d.
Methoxychlor	72-43-5	mg/kg	0.15	n.d.	n.d.
Parathion-ethyl	56-38-2	mg/kg	0.15	n.d.	n.d.
Parathion-methyl	298-00-0	mg/kg	0.15	n.d.	n.d.
Pentachloroanisole	1825-21-4	mg/kg	0.15	n.d.	n.d.
Permethrin	52645-53-1	mg/kg	0.15	n.d.	n.d.
Piperonyl butoxide	51-03-06	mg/kg	0.15	n.d.	n.d.
Propiconazole	60207-90-1	mg/kg	0.15	n.d.	n.d.

Propoxur	114-26-1	mg/kg	0.15	n.d.	n.d.
Tebuconazole	107534-96-3	mg/kg	0.15	n.d.	n.d.
Tetrachlorvinylphos	22248-79-9	mg/kg	0.15	n.d.	n.d.
Tetramethrin	7696-12-0	mg/kg	0.15	n.d.	n.d.
Tolyfluanid	731-27-1	mg/kg	0.15	n.d.	n.d.

Abbreviations:

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

RL = Reporting Limit

mg/kg = Milligram per kilogram

Remark:

*1 Technically preventable limit

3.10 Specific Migration of Primary Aromatic Amines from Coating

Test method: The sample preparation is performed with reference to EN 13130-1:2004. Test conditions are chosen with reference to Directive 82/711/EEC, Council Directive 85/572/EEC and its corresponding regulations. Presence of primary aromatic amines is carried out with reference to Kunststoffe im Lebensmittelverkehr, Book 2, Teil B II, XXI.

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

The following food simulant and condition was applied:

Food simulant	**Test duration / Temperature**
Acetic acid 3 %	2 hour(s) / 70 °C

Test No.:	1		
Sample No.:	1		
Parameter	**Unit**	**Result**	**Limit**
Primary aromatic amines	mg/kg	< 0.01	n.d. (<0.01)

Test No.:	2		
Sample No.:	2		
Parameter	**Unit**	**Result**	**Limit**
Primary aromatic amines	mg/kg	< 0.01	n.d. (<0.01)

Test No.:	3		
Sample No.:	3		
Parameter	**Unit**	**Result**	**Limit**
Primary aromatic amines	mg/kg	< 0.01	n.d. (<0.01)

Abbreviations:

mg/kg = milligram per kilogramm

< = Less than

3.11 Isocyanates

Test method: According to EN 13130-8:2004

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

Test No.:	1				
Sample No.:	1A				
Parameter (Expressed as NCO)	**CAS No.**	**Unit**	**RL**	**Result**	**Limit**
Cyclohexyl isocyanate	3173-53-3	mg/kg	0.2	n.d.	1
Diphenylmethane-4,4-diisocyanate	101-68-8	mg/kg	0.5	n.d.	1
Hexamethylene diisocyanate	822-06-0	mg/kg	0.2	n.d.	1
Isophorone Diisocyanate	4098-71-9	mg/kg	0.2	n.d.	1
1,3-Bis(2-isocyanate-2-propyl)benzene	2778-42-6	mg/kg	0.2	n.d.	1
2,4-Toluene diisocyanate	584-84-9	mg/kg	0.2	n.d.	1
2,6-Toluene diisocyanate	91-08-7	mg/kg	0.2	n.d.	1

Abbreviations:

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

RL = Reporting Limit

mg/kg = Milligram per kilogramm

4. **Sample picture(s):**

Item 1

Sample 1

Sample 2

Sample 3

- END -