TÜVRheinland®
Precisely Right.

Report No.:	238543538a 003	*Page 1 of 7*
Client:	Nü Personal Care Ltd. High Wycombe, England HP11 1QG, United Kingdom	
Test item(s):	1 material(s) of polymer, white	
Identification/Model No(s):	環保吸管 Eco Straw / GMX/GEX BamNu Straw	
Sample obtaining method:	Sending by customer	
Condition at delivery:	Test item complete and undamaged.	
Sample receiving date:	2022-05-19	
Testing period:	2022-05-19 – 2022-06-09 ; 2022-06-13 – 2022-06-24	
Place of testing:	TÜV Rheinland Hong Kong Ltd.	

Test specification:	***Test result:***
Performed parameter(s) for the compliance with the following regulations concerning materials in contact with foodstuff:	
Commission Regulation (EU) No.10/2011 and its amendments	Pass

Other information: Single-use product
This test report supersedes test report no. 238543538a 002.

For and on behalf of
TÜV Rheinland Taiwan Ltd.

2022-10-13
Date

Arthur Cheng/Project Manager
Name/Position

TÜV Rheinland Taiwan Ltd. TÜVRheinland Softlines

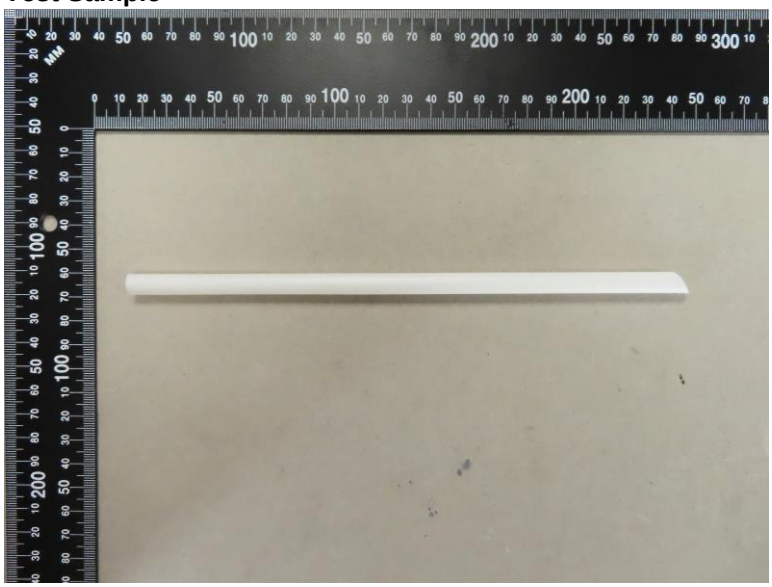
Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed.
This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does 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..

Sample list:

Lab no.: TCL220519-14

Mat. No.	Material	Color	Location
1	Biodegradable Polymer (PBAT+Oystershell (Bio-calcium carbonate)	white	straw

Test Sample



Test Results

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: 2.5 (failed)

The following food simulants and conditions were applied:

Food simulant	Test duration / Temperature
Water	2 hour(s) / 70 °C

Sample	Mat.1
Parameter:	**Result**
Transfer of Smell:	0
Transfer of Taste:	0

The examined item does meet the requirement

2. Global Migration

Test method: The migratory behaviour was 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 %	2 hour(s) / 70 °C
Ethanol 20 %	2 hour(s) / 70 °C

Results 1st Migration:

Sample	Mat.1		
Parameter	**Unit**	**Result**	**Limit**
Acetic acid 3 %	mg/dm^2	4	10
Ethanol 20 %	mg/dm^2	7*	10

* Colorless residue was found after testing.

Abbreviations: mg/dm^2 = Milligram per square decimetre
< = Less than

The examined item does meet the requirement

3. Specific Migration of metals, Metal-release from Plastic

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 simulants and conditions were applied:

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

Results 1st Migration:

Sample	Mat.1			
Parameter	**Unit**	**RL**	**Result**	**Limit**
Aluminium	mg/kg	0.1	n.d.	1
Antimony	mg/kg	0.01	n.d.	0.04
Arsenic	mg/kg	0.01	n.d.	n.d.
Barium	mg/kg	0.1	n.d.	1
Cadmium	mg/kg	0.002	n.d.	n.d.
Total Chromium	mg/kg	0.01	n.d.	n.d.
Cobalt	mg/kg	0.01	n.d.	0.05
Copper	mg/kg	0.5	n.d.	5
Iron	mg/kg	5	n.d.	48
Lead	mg/kg	0.01	n.d.	n.d.
Lithium	mg/kg	0.1	n.d.	0.6
Manganese	mg/kg	0.1	n.d.	0.6
Mercury	mg/kg	0.01	n.d.	n.d.
Nickel	mg/kg	0.01	n.d.	0.02
Zinc	mg/kg	1	n.d.	5
Europium	mg/kg	0.01	n.d.	-
Gadolinium	mg/kg	0.01	n.d.	-
Lanthanum	mg/kg	0.01	n.d.	-
Terbium	mg/kg	0.01	n.d.	-
Sum of Lanthanide substances	mg/kg	0.01	n.d.	0.05
Ammonium	mg/kg	10	n.d.	-
Calcium	mg/kg	10	n.d.	-
Magnesium	mg/kg	10	n.d.	-
Potassium	mg/kg	10	n.d.	-
Sodium	mg/kg	10	n.d.	-

Abbreviations:
RL = Reporting limit
mg/kg = Milligram per kilogram
n.d. = Not detected (< Reporting limit)
< = Less than

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 The migration is subject to Article 11(3) and Article 12
*3 The examined item does meet the requirement.

4. Specific Migration of Terephthalic Acid

Test method: The migratory behavior was examined with reference to Commission Regulation (EU) No. 10/2011 and its amendments. Determination with ref. to EN 13130-2:2004.

Limit: With reference to 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 1st Migration:

Sample	Mat.1			
Parameter	**CAS No.**	**Unit**	**Result**	**Limit**
Terephthalic Acid	100-21-0	mg/kg	<1	7.5

Abbreviations: mg/kg = Milligram per kilogram
< = Less than

The examined item does meet the requirement

5. Specific Migration of 1,4-Butanediol

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

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

The following food simulant and condition was applied:

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

Results 1st Migration:

Sample	Mat.1			
Parameter	**CAS No.**	**Unit**	**Result**	**Limit**
1,4-Butanediol	110-63-4	mg/kg	<2	5

Abbreviations: mg/kg = Milligram per kilogram
< = Less than

The examined item does meet the requirement

6. Specific Migration of Primary Aromatic Amines from Plastic

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

Limit: With reference to 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 1st Migration:

Sample	Mat.1				
Parameter	CAS no.	Unit	RL	Result	Limit
2,4,5-Trimethylaniline	137-17-7	mg/kg	0.002	n.d.	n.d.
2,4-Diaminoanisole	615-05-4	mg/kg	0.002	n.d.	n.d.
2-Naphthylamine	91-59-8	mg/kg	0.002	n.d.	n.d.
3,3'-Dichlorobenzidine	91-94-1	mg/kg	0.002	n.d.	n.d.
4,4'-methylene-bis-(2-chloro-aniline)	101-14-4	mg/kg	0.002	n.d.	n.d.
4,4'-methylenedianiline	101-77-9	mg/kg	0.002	n.d.	n.d.
4,4'-oxydianiline	101-80-4	mg/kg	0.002	n.d.	n.d.
4,4'-thiodianiline	139-65-1	mg/kg	0.002	n.d.	n.d.
4-aminoazobenzene	60-09-3	mg/kg	0.002	n.d.	n.d.
4-aminobiphenyl	92-67-1	mg/kg	0.002	n.d.	n.d.
4-chloro-o-toluidine	95-69-2	mg/kg	0.002	n.d.	n.d.
o-anisidine	90-04-0	mg/kg	0.002	n.d.	n.d.
Benzidine	92-87-5	mg/kg	0.002	n.d.	n.d.
4-chloroaniline	106-47-8	mg/kg	0.002	n.d.	n.d.
o-aminoazotoluene	97-56-3	mg/kg	0.002	n.d.	n.d.
p-cresidine	120-71-8	mg/kg	0.002	n.d.	n.d.
4,4'-bi-o-toluidine	119-93-7	mg/kg	0.002	n.d.	n.d.
2,4-toluenediamine	95-80-7	mg/kg	0.002	n.d.	n.d.
o-Toluidine	95-53-4	mg/kg	0.002	n.d.	n.d.
3,3'-Dimethoxybenzidine	119-90-4	mg/kg	0.002	n.d.	n.d.
4,4'-Methylene-di-o-toluidine	838-88-0	mg/kg	0.002	n.d.	n.d.
2-Methyl-5-nitroaniline	99-55-8	mg/kg	0.002	n.d.	n.d.
m-phenylenediamine	108-45-2	mg/kg	0.002	n.d.	n.d.
Benzoguanamine	91-76-9	mg/kg	0.01	n.d.	5
4,4'-Methylenebis-(3-cholor-2,6-diethylaniline)	106246-33-7	mg/kg	0.01	n.d.	0.05
PAAs not listed in entry 43 to Appendix 8 of Annex XVII to Regulation (EC) No 1907/2006 and its amendments					
2,4-Dimethylaniline	95-68-1	mg/kg	0.01	n.d.	-
2-ethoxyaniline	94-70-2	mg/kg	0.01	n.d.	-
3-Amino-4-methoxybenzanilide	120-35-4	mg/kg	0.01	n.d.	-
3-Amino-4-methylbenzamide	19406-86-1	mg/kg	0.01	n.d.	-
4-aminobenzamide	2835-68-9	mg/kg	0.01	n.d.	-
4-chloro-2,5-dimethoxyaniline	6358-64-1	mg/kg	0.01	n.d.	-
4-Ethoxyaniline	156-43-4	mg/kg	0.01	n.d.	-
Dimethyl-2-aminoterephthalate	5372-81-6	mg/kg	0.01	n.d.	-
2-Chloroaniline	95-51-2	mg/kg	0.01	n.d.	-
5-Chloro-2-methoxyaniline	95-03-4	mg/kg	0.01	n.d.	-

2-Nitroaniline	88-74-4	mg/kg	0.01	n.d.	-
1,3-Diiminoisoindoline	3468-11-9	mg/kg	0.01	n.d.	-
2-Chloro-4-nitroaniline	121-87-9	mg/kg	0.01	n.d.	-
2-Methoxy-4-nitroaniline	97-52-9	mg/kg	0.01	n.d.	-
4-Chloro-3-methoxyaniline	13726-14-2	mg/kg	0.01	n.d.	-
5-Amino-6-methyl-1,3-dihydro-2H-benzimidazol-2-one	67014-36-2	mg/kg	0.01	n.d.	-
2-Aminonaphthalene-1-sulfonic acid	81-16-3	mg/kg	0.01	n.d.	-
4-Aminotoluene-3-sulfonic acid	88-44-8	mg/kg	0.01	n.d.	-
2,5-Dichloroaniline	95-82-9	mg/kg	0.01	n.d.	-
2,4,5-Trichloroaniline	636-30-6	mg/kg	0.01	n.d.	-
2,4-Dinitroaniline	97-02-09	mg/kg	0.01	n.d.	-
Biphenyl-2-ylamine	90-41-5	mg/kg	0.01	n.d.	-
2-Methyl-4-nitroaniline	99-52-5	mg/kg	0.01	n.d.	-
1,5-naphthylenediamine	2243-62-1	mg/kg	0.01	n.d.	-
2,6-Dimethylaniline	87-62-7	mg/kg	0.01	n.d.	-
5-Chloro-2-methylaniline	95-79-4	mg/kg	0.01	n.d.	-
Aniline	62-53-3	mg/kg	0.01	n.d.	-
m-Anisidine	536-90-3	mg/kg	0.01	n.d.	-
3-Chloroaniline	108-42-9	mg/kg	0.01	n.d.	-
o-phenylenediamine	95-54-5	mg/kg	0.01	n.d.	-
p-phenylenediamine	106-50-3	mg/kg	0.01	n.d.	-
2,6-toluenediamine	823-40-5	mg/kg	0.01	n.d.	-
p-toluidine	106-49-0	mg/kg	0.01	n.d.	-
m-toluidine	108-44-1	mg/kg	0.01	n.d.	-
Sum of Primary Aromatic Amines	-	mg/kg	0.01	n.d.	n.d.

Abbreviations:
RL = Reporting Limit
mg/kg = Milligram per kilogramm
n.d. = Not detected
< = Less than
N.A. = Not Applicable

Remark: *1 Single components with an amount of less than reporting limit were not considered by the calculation of the sum. In the case of all of Primary Aromatic Amines were not detected, the result is stated n.d.
*2 The examined item does meet the requirement

--- End of Test-Report ---