



## **Chemical Analysis**

### **EU - Migration**

The migration was set-up according to Commission Regulation (EU) No 10/2011 and customer instructions. The sample material was exposed to the simulants as follows:

Migration preparation:

- total immersion, cut

- Overall migration and Specific Migration:

--- simulant B: 3 % acetic acid, 2 h / 40°C

--- simulant D1: 50 % ethanol, 2 h / 40°C

The migration was performed according to EN 1186.

### **Heavy Metals**

The sample was analysed for the heavy metals lead, cadmium, mercury and chromium by X-ray fluorescence spectroscopy (XRF) in accordance with the ORRChem and the Directive 94/62/EC.

### **GC-MS Screening**

After concentrating, the 50 % ethanol migration solution was analysed using the GC-QTOF-MS/FID screening method. All relevant substances were compared with the NIST library and our internal library and calculated with the added internal standards.

### **Sensory Evaluation: Off-Flavour of a Test Food by Multi-Comparison Test (Simple Sensory Evaluation)**

The test was carried out in accordance with EN 1230-2 and DIN 10955 and in accordance with the Swiss Regulation.

The sample material was exposed to the test food. The ratio was 1 piece with 100 g test food. The test food was in direct contact with the sample material.

The following side was facing the test food:

- total immersion, cut

The test food was:

- tap water

Storage was performed in a closed glass container under the following conditions:

- 2 h / 40°C (according to customer)

As a blank, the same test food was stored in the same way, but without sample material.

The sensory test was done with 6 testers.

Each tester received one portion each of sample and blank. The testers knew which one was the sample and which was the blank. The test was carried out as simple comparison test between sample and blank.

Both odour and taste of the test food were evaluated.

## **Results**

### **Basis of Calculation**

The conversion of the measured values to foodstuff is based on the following surface-to-volume ratio (S/V). For any other S/V the resulting migration values are different which might lead to another general assessment of the sample.

Assumed S/V: 1 piece / 0.2 kg food

### EU - Overall Migration

The limits are 10 mg/dm<sup>2</sup> and 60 mg/kg food according to Regulation (EU) No 10/2011 and the Swiss Regulation on Food Contact Materials. The following deviations are tolerated:

For all simulants except D2: 10 ± 2 mg/dm<sup>2</sup> and 60 ± 12 mg/kg food

For simulant D2 (olive oil): 10 ± 3 mg/dm<sup>2</sup> and 60 ± 20 mg/kg food

The overall migration values obtained with the tested simulants are below the limit.

### Heavy Metals

No elevated amounts of lead, cadmium, mercury and chromium were detectable. The group limit of 100 mg/kg material is not exceeded.

In this regard, the present sample fulfils the requirements on packaging and packaging waste of the ORRChem and the Directive 94/62/EC.

### GC-MS Screening

After subtracting the solvent blank, no substances > 0.010 mg/kg food (= 10 ppb) were detected in the GC-QTOF-MS/FID screening. In this case, the limit of quantification is 0.0017 mg/piece and 0.0085 mg/kg food.

### Sensory Evaluation: Off-Flavour of a Test Food by Multi-Comparison Test (Simple Sensory Evaluation)

The sensory evaluation showed that the sample did not perceptibly influence the odour and did not perceptibly influence the taste of the test food.

The grading of the odour or taste difference is based on a scale from 0 to 4. Values > 2 are considered as deviant.  
0 - not perceptible | 1 - just perceptible | 2 - moderate | 3 - distinct | 4 - strong

The sensory evaluation was carried out in May 2016 in Dietikon (ZH), Switzerland.

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Report released by: , Technical Manager

This report is signed electronically and therefore valid.

Mr Thomas Gude, phone number (direct) +41 58 577 10 80

**Sample report 2016L22088/1**

Designation PLA Drinking Staws  
Amount Straws  
Identification PLA Drinking Staws  
Received on 17/05/2016  
Packing bag

**Migration / Extraction**

Parameter Method	Result Units	Indic. Value	limit of quant.
<b>2 h / 40°C</b>			
<b>Overall migration 3 % acetic acid</b> LMPMET0705	<1 mg/piece		LOQ: 1
<b>Overall migration 3 % acetic acid</b> LMPMET0705	<5 mg/kg food	60	LOQ: 5
<b>Overall migration 50 % ethanol</b> LMPMET0705	<1 mg/piece		LOQ: 1
<b>Overall migration 50 % ethanol</b> LMPMET0705	<5 mg/kg food	60	LOQ: 5

**Metals / Elements**

Parameter Method	Result Units	limit value accord. to Swiss regul.	limit of quant.
<b>direct analysis</b>			
<b>Lead</b> NHCMET097 (XRF)	<20 mg/kg		LOQ: 20
<b>Cadmium</b> NHCMET097 (XRF)	<20 mg/kg		LOQ: 20
<b>Mercury</b> NHCMET097 (XRF)	<20 mg/kg		LOQ: 20
<b>Chromium</b> NHCMET097 (XRF)	<20 mg/kg		LOQ: 20
<b>Sum of Pb, Cd, Hg, Cr</b> NHCMET097 (XRF)	<80 mg/kg	100	LOQ: 80

**Specific substances**

Parameter Method	Result Units
<b>50 % ethanol</b>	
<b>Screening GC-QTOF-MS/FID</b> FCMMET03SCR (GC-QTOF-MS/FID)	done

LOD: limit of detection na: not in the accredited range  
LOQ: limit of quantification

Experimental conditions will be given on request. The results are valid for the listed samples only. It is not allowed to use a shortened version of this report nor parts of it. Our general conditions of business apply (www.sqts.ch).



## Sensory evaluation

Parameter Method	Result	Units
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— 2 h / 40°C

Sensory assessment with water (smell/taste) LMPMET0707(na)	0/0	
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LOD: limit of detection      na: not in the accredited range  
LOQ: limit of quantification

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**PLÀSTICS  
TORNER S.L.**

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### ALIMENTARY CONFORMANCE CERTIFICATE

Commodity: DRINKING STRAWS

Item: CRCU250

We confirm that the above mentioned items from PLÀSTICS TORNER, S.L. under the VAT number B58801358 and RSI 39.04611/B and all the raw materials used in this production comply with food packaging requirements according to the (EU) No 10/2011 of 14 January 2011 on plastic material and articles to come in contact with food.

We also confirm that there are only virgin resin PP Polypropylene and PP and PE masterbatches for the production.

**PLÀSTICS TORNER, S.L.**  
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Jordi Guarda Torner

Date: August 11, 2016