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Att.: Jørgen Poulsen

Date
April 12, 2016

Your ref

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Our ref
392-2016-00048801/TKI6

Test report – Migration

Sample material

Identification	One sample to be tested for overall and specific migration
Sample receipt	February 4, 2016
Number / type	1 sample identified as: Lab no. 392-2016-00048801: JX255ALU+PTFE MEMBRANE ANTISTATIC
Analytical period	March 1 - April 12, 2016

Applied methods

Method nor.	Parameter	Principle	Limit of detection	U _m (%) ⁽¹⁾
EN 1186-2	Overall migration	Exposure to olive oil by total immersion. Gravimetric + GC/FID determination	2 mg/dm ²	30%
EN 1186-3	Overall migration	Exposure to 3% acetic acid and 10% ethanol by total immersion. Gravimetric determination	1 mg/dm ²	20%
EN 13130* EPA 3052m*	Metals [#]	Migration simulant analysed by ICP/MS	0.005 – 0.05 mg/kg	30%
Internal*	Tetrafluoro-ethylene [¶] (residual content)	Solvent dissolution and analysis by Head-space-GC/MS	0.5 mg/kg	30%
Calculation*	Tetrafluoro-ethylene	Worst case calculation of the specific migration based on residual content	-	-

The migration was performed in accordance with EN 1186 part 2: *Test methods for overall migration into olive oil by total immersion* and EN 1186 part 3: *Test methods for overall migration into aqueous food simulants by total immersion*.

Principle

Olive oil: The sample was exposed (2 dm² to 100 ml) for 10 days at 40 °C by total immersion. At the end of the test period, the sample was removed from the food simulant. The sample was weighed and extracted with pentane by means of Soxhlet extraction for 16 hours. The amount of extracted olive oil was determined by gas chromatography with flame ionisation detection (GC/FID). The loss of weight was adjusted the excessive oil extracted from the sample and the calculated loss equals the total migration.

3% acetic acid and 10% ethanol: The sample was exposed (2 dm² to 100 ml) for 10 days at 40 °C (60 °C for specific migration). At the end of the test period, the sample was removed from the food simulant. The simulant was then evaporated and the dry matter determined by weighing.

Specific migration: An aliquot of the food simulant is analysed for the specific compound as listed above.

The test was performed with triplicates.

(1)U_m (%): The expanded uncertainty U_m is equal to 2 x RSD%, see also www.eurofins.dk. Keyword: Uncertainty

* Not part of the accreditation; # performed by Eurofins Miljø A/S – DANAK accreditation no. 168; ¶ performed by Eurofins approved subcontractor

Results

Results are presented below

The test results relate only to the items tested.

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Analytical results

The determined overall migration from the sample to the simulant is given in the table below. The result is an average of the three determinations. As described in the standard EN 1186 all results are given in total mg/dm².

Table 1: Overall migration

Unit: mg/dm ² / Sample id: Simulant	JX255ALU+PTFE MEMBRANE ANTISTATIC				
	Single determinations			Average	OML value
3% acetic acid	3.1	3.0	3.1	3.1	10
10% ethanol	< 1	< 1	< 1	< 1	10
Olive oil	< 2	< 2	< 2	< 2	10

<: means less than

Table 2: Specific migration

Unit: mg/kg / Sample id: Specific compound	JX255ALU+PTFE MEMBRANE ANTISTATIC			
	Cas. no.	Food simulant	Average	SML value
Barium*	7440-39-3	3% acetic acid	0.9	1
Cobalt*	7440-48-4	3% acetic acid	< 0.0005	0.05
Copper*	7440-50-8	3% acetic acid	0.004	5
Iron*	7439-89-6	3% acetic acid	0.05	48
Lithium*	7439-93-2	3% acetic acid	< 0.005	0.6
Manganese*	7439-96-5	3% acetic acid	< 0.01	0.6
Zinc*	7440-66-6	3% acetic acid	0.4	25
Tetrafluoroethylene*	116-14-3	Residual content	< 0.001 mg/dm ²	-
Tetrafluoroethylene*	116-14-3	Worst case calculation	< 0.006	0.05

<: means less than; * Not part of the accreditation

Analytical results

Conclusion:

The results for specific migration are well below the specific migration limit.

The threshold value for overall migration is 10 mg/dm^2 and the results show that the product tested **complies** with the requirements in EU regulation No 10/2011/EC as amended by regulation No. 321/2011/EC, 1282/2011/EC, 1183/2012/EC, 202/2014/EC and 2015/174/EC on plastic material and articles intended to come into contact with food for the above mentioned test conditions.

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