

Report

Migration to MPPO, 10 ppb screening

This report replaces report 2018-0174 ver.2 from 2018-05-03.

Customer

Tielman Sweden AB

Commission

2018-0174 ver. 3

Date

2018-06-14

Commission: 2018-0174 ver. 3

Arrived: 2018-04-17

Your order no.:

No. of samples: 3

Your ref.: Maria Boman

Tielman Sweden AB

Alkagatan 2

582 77 LINKÖPING

Migration to MPPO, 10 ppb screening

Type of sample

Paper and plastic

Methods

Migration to MPPO (method EN 14338):

Determination of migration from the sample was performed using modified polyphenylene oxide (MPPO) as a simulant. Migration parameters: 20 min. at 220°C. The MPPO was extracted with acetone.

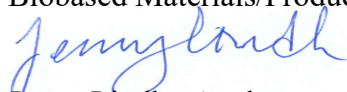
The characterization and quantification of the compounds were performed using gas chromatography/mass spectrometry (GC/MS).

The migration is estimated using the conventional assumption that 1 kg of food is packed in 6 dm² of sample. In reality the amount of packaging material used per kg foodstuff will vary depending on many factors, such as e.g. the density of the foodstuff and the configuration of the packaging.

This report replaces report 2018-0174 ver. 2 from 2018-05-03. The quantification of the compounds for sample 3 have been corrected and sum migration have been excluded.

Stockholm 2018-06-14

Biobased Materials/Product Safety



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Results

Specific migration (10 ppb screening) to MPPO.

Sample 1. Candor LF (printed)

<u>r.t. (min.)</u>	<u>Suggested compound</u>	<u>CAS#</u>	<u>mg/kg (simulant)</u>
7.5	Acetophenone	98-86-2	0.02
18.9-19.3	Sesquiterpenes		0.02
20.2-20.4	1-Propene-1,2,3-tricarboxylic acid, tributyl ester	7568-58-3	0.26
20.5	Butyl citrate	77-94-1	0.07
21.0-21.2	Tributyl acetylcitrate	77-90-7	0.60
21.2	6-Methoxy-2-(4-cyanophenyl)-3a,4,5,6(7ah)-tetrahydropyrano[3,2-d]oxazole		0.14
22.1	Methyl dehydroabietate	1235-74-1	0.03
24.9	2-Phenyl-1,2-dihydrobenzo[g]indazol-3-one		0.02

Sample 2. Single Proof (silicone, printed)

<u>r.t. (min.)</u>	<u>Suggested compound</u>	<u>CAS#</u>	<u>mg/kg (simulant)</u>
6.4	1-(2-Methoxy-1-methylethoxy)-2-propanol	20324-32-7	0.04
7.5	Acetophenone	98-86-2	0.01
18.2-18.9	Sesquiterpenes		0.07
20.2-20.4	1-Propene-1,2,3-tricarboxylic acid, tributyl ester	7568-58-3	0.22
20.5	Butyl citrate	77-94-1	0.07
21.0-21.2	Tributyl acetylcitrate	77-90-7	0.42
22.1	Methyl dehydroabietate	1235-74-1	0.06
24.9	2-Phenyl-1,2-dihydrobenzo[g]indazol-3-one		0.04

Sample 3. PET barriär (printed)

<u>r.t. (min.)</u>	<u>Suggested compound</u>	<u>CAS#</u>	<u>mg/kg (simulant)</u>
6.4	1,2-dimethoxy-propane	7778-85-0	0.01
7.5	Acetophenone	98-86-2	0.02
12.2	2-Methyl-1,3-benzenediamine	823-40-5	0.01
12.3	2,3-Dihydro-6-aminoindole-2-one	150544-04-0	0.12
12.3-12.6	1,3-Dihydro-5-methyl-2H-benzimidazol-2-ones	5400-75-9	0.08
14.5	Dibutyl itaconate	2155-60-4	0.02
15.3	Unknown		0.15
20.2-20.5	1-Propene-1,2,3-tricarboxylic acid, tributyl ester	7568-58-3	0.97
20.6	Butyl citrate	77-94-1	0.30
20.7-21.4	Tributyl acetylcitrate	77-90-7	<10.0*
23.4	Succinic acid, 2-(2-chlorophenoxy)ethyl ethyl ester		0.02
25.6	Unknown		0.03
26.0-33.1	3,6,9,12,15-Oxabicyclo(15,3)heneicosa-1(21),17,19-triene-2,16-dione and similar compounds		0.61
29.5	Dipentadecyl ketone	502-73-8	0.05
32.2	Unknown		0.02
32.4	Heptadecyl pentadecyl ketone		0.06
37.6	Unknown		0.02

r.t.= retention time.

Detection limit = 0.01 mg/kg (simulant)

* The compound migrate in levels between 4 - 10 mg/kg. Determination is not possible in this sample due to difference in relative size of the peak compared to the internal standard.

Representative examples of Total Ion Chromatograms (TIC).

Istd = internal standard.

