

Commission: 2025-0041

Arrived: 2025-02-11

Your order no.:

No. of samples: 2

Your ref.: Gisela Nilsson

Swedbag AB

Dåntorpsvägen 17

136 50 Jordbro

Analysis of printed product

Type of sample

Printed paper product

Samples

Sample 1: Swedbag 2025, printed paper bags with handles attached

Sample 2: Swedbag 2025, printed sample including Hexa code Base yellow, base orange, Base red and Base rhodamine.

The reported results refer only to the samples received.

QC



Stockholm 2025-03-13

Sustainable materials and packaging/ Chemical analysis

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Methods

Analysis of metals

A cold-water extract was prepared according to EN 645:1994. The tested sample includes the area where the handles are attached.

Determination of metals in the cold water extract was performed according to EN ISO 17294-1:2006 and ISO 17294-2:2016 using ICP-MS (analysis of Al, Ba, Cu is accredited, other metals non-accredited).

The measurement uncertainty for specific migration of metals is $\pm 60\%$ (>0.01 mg/kg). The measurement uncertainty is expressed as expanded measurement uncertainty U using a coverage factor of $k=2$ to reach approximately 95% confidence level.

Analysis of primary aromatic amines (PAAs)

A cold-water extract was prepared according to EN 645:1994. The tested sample includes the area where the handles are attached.

Determination of individual PAAs in the water extract was performed using liquid chromatography coupled to mass spectrometry (LC-MS/MS) *.

Migration to modified polyphenylene oxide (MPPO), 10 ppb screening

The migrations was performed according to EN 14338:2004*

Simulant: modified polyphenylene oxide (MPPO)

Test conditions: 10 d, 40°C

The characterization and quantification of the migrating compounds were performed using gas chromatography-mass spectrometry (GC-MS) *. Calculation of migrating amounts were performed by semi-quantification against an internal standard and identifications utilizing the NIST20 library.

Set-off analysis by migration analysis

Set off sample: Unprinted sample stored in contact with printed side of printed sample for 10 days under 1 kg of pressure.

The migrations was performed according to EN 14338:2004*

Simulant: modified polyphenylene oxide (MPPO)

Test conditions: 10 d, 40°C

The characterization and quantification of the migrating compounds were performed using gas chromatography-mass spectrometry (GC-MS) *. Calculation of migrating amounts were performed by semi-quantification against an internal standard and identifications utilizing the NIST20 library.

* non-accredited method.

Results**Analysis of metals****Sample 1**

Compound	Abbreviation	Results (µg/kg simulant)
Aluminium	Al	< 50
Cadmium	Cd	< 0.4
Lead	Pb	< 2
Zinc	Zn	< 10

Report limits: Al: 50 µg/L, Cd: 0,4 µg/L, Pb: 2 µg/, Zn: 10 µg/L

The result was estimated using the assumption that the density of the food simulant is 1 kg/L.

Migration to MPPO, 10 ppb screening**Sample 1**

r.t. (min.)	Suggested compound	CAS No.	Results (mg/kg simulant)
11.6	Triacetin	102-76-1	0.26

Report limit: 0.01 mg/ kg simulant

Set-off analysis by migration analysis**Sample 2**

No set-off detected. I.e. no transfer of compounds from the printed sample to the un-printed sample.

Report limit: 0.01 mg/ kg simulant

Results cont.**Determination of individual PAAs by LC-MS/MS****Sample 2**

Compound	CAS No.	Results (mg/kg simulant)
2,4-Toluenediamine	95-80-7	<0.002
Aniline	62-53-3	<0.002
o-Anisidine	90-04-0	<0.002
o-Toluidine	95-53-4	<0.002
4-Chloro-aniline	106-47-8	<0.002
2,4,5-Trimethylaniline	137-17-7	<0.002
4,4'-Diaminodiphenylether	101-80-4	<0.002
4,4'-Methylenedianiline	101-77-9	<0.002
2,6-Dimethylaniline	87-62-7	<0.002
2-Methoxy-5-methylaniline	120-71-8	<0.002
2,4-Dimethylaniline	95-68-1	<0.002
4-Chloro-o-toluidine	95-69-2	<0.002
3,3'-Dimethylbenzidine	119-93-7	<0.002
4,4'-Methylenedi-o-toluidine	838-88-0	<0.002
4-Aminobiphenyl	92-67-1	<0.002
Benzidine	92-87-5	<0.002
2-Naphthylamine	91-59-8	<0.002
o-Aminoazotoluene	97-56-3	<0.002
2-Amino-4-nitrotoluene	99-55-8	<0.002
2,3-Diaminoanisole	615-05-4	<0.002
3,3-Dichlorobenzidine	91-94-1	<0.002
o-Dimethoxybenzidine	119-90-4	<0.002
4-Aminoazobenzene	60-09-3	<0.002
4,4-Thiodiamiline	139-65-1	<0.002
4,4-Methylene-bis(2-chloroaniline)	101-14-4	<0.002
4,4'-Methylen-bis-2-ethylaniline	19900-65-3	<0.002
4-phenylazo-m-phenylenediamine	495-54-5	<0.002
2,2'-Methylenedianiline	6582-52-1	<0.002
2,4'-Methylenedianiline	1208-52-2	<0.002
2-Amino-6-ethoxynaphthalene	293733-21-8	<0.002
2-Aminobiphenyl	90-41-5	<0.002
1,5-Diaminonaphthalene	2243-62-1	<0.002
4-Amino-2-nitrophenol	119-34-6	<0.002
2-Nitro-p-phenylenediamine	5307-14-2	<0.002
5-Chlor-2-methylaniline	95-79-4	<0.002
4-Amino-3-fluorophenol	399-95-1	<0.002
2,6-Diaminotoluene	823-40-5	<0.002
m-Phenylenediamine	108-45-2	<0.002
o-Phenylenediamine	95-54-5	<0.002
p-Toluidine	106-49-0	<0.002
2-methoxy-4-nitroaniline	97-52-9	<0.002
2,5-dichloroaniline	95-82-9	0.018

Report limit of 2,5-dichloroaniline: 0.01 mg/kg simulant

Report limit of other PAAs: 0.002 mg/kg simulant

The density of the food simulant is assumed to be 1 g/cm³, i.e. 1 L food simulant = 1 kg food simulant.

Verification

Transaction 09222115557541467121

Document

2025-0041

Main document

4 pages

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