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Aschaffenburg, 17 March 2016

From: Nickl
ol**REPORT**

Order No.: 4429/9 **Page 1 of 4 pages**

Client: Eastman Kodak Company
66 Eastman Avenue
Rochester, NY 14650-2157
USA

Date of order: 29 May 2015


Receipt of sample material: 21 July 2015

Origin of sample material: From the client

Purpose: Analysis of a toner series for its compliance with the demands on food contact materials



(Dr. Derra)



(Nickl)
Diplomaed
food chemist

The present report refers exclusively to the samples as laid out therein. Information and statistical data on the results can be obtained on request.

Sample Material

For analysis the following sample material was in hand:

Papers printed with CMYK toner series **NexPress HD**

Sample 1:	BLACK
Sample 2:	CYAN
Sample 3:	MAGENTA
Sample 4:	YELLOW

Carrying out of the Tests

Examination period: 12 February 2016 to 8 March 2016

1. Preparation of Extracts *

The extracts were prepared according to the "Methods for the examination of consumer goods" following the method B 80.56 of the Official Collection of Analytical Methods according to § 64 LFGB and according to the demands of the standards EN 645, EN 647 and EN 15519.

Water:	24 hours at 23 °C
95 % Ethanol:	24 hours at 20 °C

2. Specific Determination of Primary Aromatic Amines in the Water Extract *

The determination was performed according to the draft standard by means of HPLC and MS detection in the water extract. The following primary aromatic amines were taken into consideration during the determination:

Aniline	3,3'-Dimethylbenzidine
4-Aminodiphenyl	3,3'-Dimethyl-4,4'-diaminodiphenylmethane
Benzidine	p-Cresidine
4-Chloro-o-toluidine	4,4'-Methylene-bis(2-chloroaniline)
2-Naphthylamine	4,4'-Oxydianiline
o-Aminoazotoluene	4,4'-Thiodianiline
2-Amino-4-nitrotoluene	o-Toluidine
4-Chloroaniline	p-Toluidine
2,4-Diaminoanisole	2,4-Toluylenediamine
4,4'-Diaminodiphenylmethane	2,4,5-Trimethylaniline
3,3'-Dichlorobenzidine	o-Anisidine
3,3'-Dimethoxybenzidine	4-Aminoazobenzene
2,4-Dimethylaniline	2,4-Dichloraniline
1,3-Phenylene diamine	p-Aminoanisilide
5-Chloro-2-methoxyaniline	2-Methoxy-4-nitroaniline
4-Chloro-2,5-dimethoxyaniline	5-Chloro-2-methylaniline
2,6-Toluene diamine	

Result:

Sample 4: None of the above mentioned primary aromatic amines were detectable (limit of detection: 0.002 mg/kg water extract each).

3. Determination of the Extractable Bisphenol A and Bisphenol S *

The determination was performed in the 95 % ethanol extract according to SOP 162.200 by means of HPLC.

Result:

Mixed sample 1 – 3:

Bisphenol A:	not determinable	<	0.01	mg/dm ²
Bisphenol S:	not determinable	<	0.01	mg/dm ²

4. GC-MS-Screening out of the 95 % Ethanol Extract

The 95 % ethanol extract was examined gas chromatographically according to SOP 160.200 by means of mass spectrometric detection. For the specific identification of the signals in the chromatogram a commercial mass spectra library was used. A semiquantitative estimation was performed using deuterated nonadecane (C₁₉) as internal standard.

Result:

Mixed sample 1 – 4:

The following compounds could be identified:

Di-tert.butylphenol	0.05	mg/dm ²
Fatty acid, esters	0.003	mg/dm ²
Degradation product of the polymer	0.03	mg/dm ²

5. Determination of the Stability Against Saliva and Perspiration *

The determination of the stability against artificial saliva and perspiration was performed according to DIN V 53 160, part 1 and 2.

Result:

Sample 1 – 4: stable against saliva and perspiration

6. Determination of the migration of certain elements

A. Determination of Chromium (VI)

The determination of Cr(VI) was performed according to SOP 162.200 out of a buffer solution by means of ion chromatography.

Result:

Mixed sample 1 – 4: not determinable < 0.1 mg/kg

B. Determination of the standard elements

The metals were determined in a hydrochloric acid extract by means of AAS or ICP-AES, respectively, according to DIN EN 71, part 3 „Safety of toys, migration of special elements“. In the table, the limit value applicable for Cr(III) is stated. However, under the conditions of the disintegration, the overall chromium content including Cr(VI) was determined.

Result in mg/kg:

Mixed sample 1 – 4:		Limit value set in DIN EN 71, part 3 (category III)	
Aluminium	(Al): not determinable	< 1,000	70,000
Arsenic	(As): not determinable	< 5	47
Boron	(B): not determinable	< 100	15,000
Barium	(Ba): not determinable	< 100	18,750
Cadmium	(Cd): not determinable	< 5	17
Cobalt	(Co): not determinable	< 20	130
Chromium	(Cr): not determinable	< 20	460
Copper	(Cu): not determinable	< 20	7,700
Mercury	(Hg): not determinable	< 5	94
Manganese	(Mn): not determinable	< 100	15,000
Nickel	(Ni): not determinable	< 100	930
Lead	(Pb): not determinable	< 5	160
Antimony	(Sb): not determinable	< 20	560
Selenium	(Se): not determinable	< 20	460
Tin	(Sn): not determinable	< 100	180,000
Strontium	(Sr): not determinable	< 1,000	56,000
Zinc	(Zn): not determinable	< 100	46,000

C. Determination of organotin compounds

The determination of organotin compounds was performed in cooperation with the "Ostthüringische Materialprüfgesellschaft für Textil und Kunststoffe mbH" according to DIN EN 71 part 3 by means of GC-MS.

Result:

Mixed sample 1 – 4:

Monobutyltin:	not determinable	< 0.06	mg/kg
Dibutyltin:	not determinable	< 0.06	mg/kg
Tributyltin:	not determinable	< 0.06	mg/kg
Tetrabutyltin:	not determinable	< 0.06	mg/kg
Monooctyltin:	not determinable	< 0.09	mg/kg
Diocetyl tin:	not determinable	< 0.06	mg/kg
Triphenyltin:	not determinable	< 0.06	mg/kg
Tricyclohexyltin:	not determinable	< 0.06	mg/kg
Methyltin:	not determinable	< 0.06	mg/kg
Di-n-propyltin:	not determinable	< 0.06	mg/kg
Diphenyltin:	not determinable	< 0.09	mg/kg