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Rat
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Aschaffenburg, 21July 2008

From: Dr. Zechmann
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REPORT

Order No.: 4908/4 **Page 1 of 6 pages**

Client: Mondi Business Paper SCP a.s.
Bystricka cesta 13
034 17 Ruzomberok / Slovakia

Date of order: 5 March 2008

Receipt of sample material: 6 March 2008

Origin of sample material: From the client

Purpose: Analysis of two paper grades for their conformity with the demands on food contact materials

(Dr. Derra)

(Dr. Zechmann)
Officially certified
and authorized food
chemist

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Sample Material

For analysis the following sample material was in hand:

Sample 1:	Offset paper
Sample 2:	Copy paper

Carrying out of the Tests

Examination period: 28 May 2008 to 25 June 2008

1. Determination of the Grammage *

The determination was performed by analogy with DIN EN ISO 536 after conditioning of the sample at 23 °C / 50 % atmospheric humidity which is prescribed as norm climate.

Result:

Sample 1:	80.4	g/m²	≙	75.7	g dry matter/m²
Sample 2:	83.1	g/m²	≙	78.2	g dry matter/m²

2. Determination of the Moisture Content *

The determination was performed according to prDIN EN ISO 638 directly after unpacking the sample.

Result:

Sample 1:	5.4	%
Sample 2:	4.8	%

3. 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
Isooctane:	24 hours at 20 °C

4. Determination of the Dry Matter in the Water Extract *

The dry matter was determined according to DIN EN 920 after drying at 105 °C.

Result:

Sample 1:	22	mg/dm²	≙	29	mg/g dry matter
Sample 2:	13	mg/dm²	≙	17	mg/g dry matter

5. Determination of Methanal (Formaldehyde) in the Water Extract *

The determination was performed photometrically according to the acetylacetone method in conformity with DIN EN 1541. The requirements of the method B 82.02-1 indicated in the Official Collection of Analytical Methods according to § 64 of the LFGB for consumer goods were observed.

Result:

Sample 1 + 2:	not determinable	<	0.004	mg/g dry matter

6. Determination of Glyoxal in the Water Extract *

The determination was performed according to the E DIN 54603. The demands of the method no. 4.3.2.2. of the loose-sheet collection "Examination of papers and boards intended for food packaging according to the German Recommendation XXXVI" are taken into consideration.

Result:

Sample 1 + 2:	not determinable	<	0.003	mg/g dry matter

7. Specific Determination of Primary Aromatic Amines

The water extract was cleaned and concentrated on solid-phase columns. The determination was performed by means of HPLC and UV detection.

Result in mg/kg water extract:

Sample 1 + 2:

Aniline	not determinable	<	0.001
4-Aminodiphenyl	not determinable	<	0.001
Benzidine	not determinable	<	0.001
4-Chloro-o-toluidine	not determinable	<	0.001
2-Naphthylamine	not determinable	<	0.001
o-Aminoazotoluene	not determinable	<	0.001
2-Amino-4-nitrotoluene	not determinable	<	0.001
4-Chloroaniline	not determinable	<	0.001
2,4-Diaminoanisole	not determinable	<	0.001
4,4`-Diaminodiphenylmethane	not determinable	<	0.001
3,3`-Dichlorobenzidine	not determinable	<	0.001
3,3`-Dimethoxybenzidine	not determinable	<	0.001
3,3`-Dimethylbenzidine	not determinable	<	0.001
3,3`-Dimethyl-4,4`-diaminodiphenylmethane	not determinable	<	0.001
p-Cresidine	not determinable	<	0.001
4,4`-Methylene-bis(2-chloroaniline)	not determinable	<	0.001
4,4`-Oxydianiline	not determinable	<	0.001
4,4`-Thiodianiline	not determinable	<	0.001
o-Toluidine	not determinable	<	0.001
2,4-Toluylenediamine	not determinable	<	0.001
2,4,5-Trimethylaniline	not determinable	<	0.001
o-Anisidine	not determinable	<	0.001
4-Aminoazobenzene	not determinable	<	0.001
2,4-Dimethylaniline	not determinable	<	0.001
2,4-Dichloraniline	not determinable	<	0.001

8. Determination of Pentachlorophenol (PCP) *

The analysis was made according to DIN EN ISO 15320 by means of gas chromatography in the water extract after concentration at a column and esterification. The detection was performed by means of ECD.

Result:

Sample 1 + 2:	not determinable	<	0.005	mg/kg dry matter

9. Determination of the Heavy Metals Contents in the Water Extract *

The determination was performed according to DIN EN 12497 and DIN EN 12498.

Result in mg/kg dry matter:

Sample 1 + 2:

Cadmium	(Cd):	not determinable	<	0.05
Mercury	(Hg):	not determinable	<	0.025
Lead	(Pb):	not determinable	<	0.5
Chromium	(Cr):	not determinable	<	0.1

10. Determination of the Dry Matter in the Organic Solvent Extract *

The dry matter was determined according to DIN EN 1186 after drying at 105 °C.

Result:

Sample 1:	0.5	mg/dm^2	≙	0.6	mg/g dry matter
Sample 2:	0.7	mg/dm^2	≙	0.9	mg/g dry matter

11. IR-Spectroscopic Testing of the Dry Matters from the Water and the Organic Solvent Extract *

The dry matters were ground up with KBr and examined by IR-spectroscopy.

Result:

Sample 1 + 2: Substances which might endanger health as well as deviations from the composition stated, which are detectable by this method, were not found.

12. Determination of Polychlorinated Biphenyls (PCB) *

The determination was performed according to DIN EN ISO 15318 by means of gas chromatography. The demands of the method B 80.56-1 within the Official Collection of Analytical Methods according to § 64 LFGB for consumer goods are considered. The numbers refer to the Ballschmiter nomenclature.

Result in mg/kg dry matter:

Sample 1 + 2:

18	2,2′,5-Trichlorobiphenyl	not determinable	< 0.01
28	2,4,4′-Trichlorobiphenyl	not determinable	< 0.01
52	2,2′,5,5′-Tetrachlorobiphenyl	not determinable	< 0.01
101	2,2′,4,5,5′-Pentachlorobiphenyl	not determinable	< 0.01
138	2,2′,3,4,4′,5′-Hexachlorobiphenyl	not determinable	< 0.01
153	2,2′,4,4′,5,5′-Hexachlorobiphenyl	not determinable	< 0.01
180	2,2′,3,4,4′,5,5′-Heptachlorobiphenyl	not determinable	< 0.01

13. Determination of the Transfer of Antimicrobial Constituents *

The determination was made according to DIN EN 1104. Test specimen of a diameter of 10 mm were placed onto an inoculated nutrient medium and then incubated. The inhibition zone is indicated as total diameter (including the test specimen).

Result:

Sample 1 + 2:

with Aspergillus niger: no inhibition zone
with Bacillus subtilis: no inhibition zone

i.e.: a transfer of antimicrobial constituents was not detected.

14. Test for Fluorescent Substances *

The test was made by UV irradiation.

Result:

Sample 1 + 2: The sample contained optically brightened fibres.

15. Determination of the Fastness of Fluorescent Whitened Paper and Board *

The determination was performed corresponding to the DIN EN 648 with procedure A (long-term contact).

Result:

Sample 1:	water	saliva solution	acetic acid solution	olive oil
Upper side:	4	5	4	5
Wireside:	4	5	4	5

Sample 2:	water	saliva solution	acetic acid solution	olive oil
Upper side:	5	5	5	5
Wireside:	5	5	5	5

A range of 1-5 points is given, whereby 5 means complete and 1 no fastness of optical brighteners.

16. Determination of the Heavy Metals in Packagings *

The determination applies to those metals which are restricted according to the European directive 94/62/EEC (Packaging Directive), last amendment by the Directive 2005/20/EC, as well as to the American CONEG directive. The determinations were performed after microwave disintegration by means of AAS/hydride technique or ICP-AES, respectively.

Result:

Sample 1 + 2:

Cadmium	(Cd):	not determinable	<	0.5	mg/kg
Mercury	(Hg):	not determinable	<	0.25	mg/kg
Lead	(Pb):	not determinable	<	5	mg/kg
Chromium	(Cr):	not determinable	<	1	mg/kg

17. Determination of Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)

The determination was performed in a methanol extract by means of LC-MS.

Result:

Sample 1 + 2:

PFOA:	not determinable	<	0.25	mg/kg
PFOS:	not determinable	<	0.25	mg/kg

The accreditation applies to the methods marked with * in the test report (Register no. DAC-P-0035-97-20). End of report