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Aschaffenburg, 23 February 2018

From: Ils-kr
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REPORT

Order No.: 11788/138 **Page 1 of 6 pages**

Client: MD Papéis Ltda.
Rodovia Presidente Tancredo de Almeida Neves,
Km. 34 - C.P. 21
07705-000 Caieiras - Sao Paulo
Brazil

Date of order: 16 January 2018

Receipt of sample material: 22 January 2018

Origin of sample material: From the client

Purpose: Analysis of a paper grade for its compliance with the demands on food contact materials

(Dr. Derra)
Managing Director

(Ils)
Officially certified
food chemist
Project manager

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

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-14160-01-01
D-PL-14160-01-02

Sample Material

For analysis the following sample material was at hand:

CROMOPEL, Lot: 0781337202,
Production date: January/2018

Carrying out of the Tests

Examination period: 23 January 2018 to 22 February 2018

1. Determination of the Grammage *

The determination was performed according to DIN EN ISO 536 after conditioning of the sample at 23 °C/50 % atmospheric humidity which is prescribed as norm climate with a reduced amount of test specimens.

Result: 41.1 g/m² ≙ 38.8 g dry matter/m²

2. Determination of the Moisture Content *

The determination was performed as single determination according to DIN EN ISO 638 in the condition as received.

Result: 5.6 %

3. Preparation of Extracts *

The extracts were prepared according to the "Methodensammlung zur Untersuchung von Papier, Karton und Pappe für den Lebensmittelkontakt" (collection of methods for the examination of paper and board for food contact) of the BfR as well as according to DIN EN 645, 647 and 15519. The selection of suitable procedures for simulating the transfer of substances was performed according to the corresponding BfR guideline ("Leitfaden zur Überprüfung der Stoffübergänge von Bedarfsgegenständen aus Papier, Karton und Pappe").

Water: 24 hours at 23 °C

Isooctane: 24 hours at 20 °C

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

The determination was performed according to DIN EN 920 gravimetrically after drying at 105 °C:

Result: 0.7 mg/dm² ≙ 1.7 mg/g dry matter

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

The determination was performed according to DIN EN 1541 photometrically in line with the acetylacetone method.

Result: not determinable < 0.004 mg/g dry matter

6. Determination of Glyoxal in the Water Extract *

The determination was performed according to DIN 54603.

Result: not determinable < 0.005 mg/g dry matter

7. Determination of Pentachlorophenol (PCP) in the Water Extract *

The determination was performed according to DIN EN ISO 15320 by means of GC-ECD after concentration at a column and esterification.

Result: not determinable < 0.01 mg/kg dry matter

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

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

Result:

Mercury	(Hg):	not determinable	<	0.001	mg/l water extract
Cadmium	(Cd):	not determinable	<	0.001	mg/l water extract
Lead	(Pb):	not determinable	<	0.001	mg/l water extract
Chromium	(Cr):	not determinable	<	0.004	mg/l water extract

9. 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: not determinable < 0.5 mg/g dry matter

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

11. Gaschromatographic Analysis of the Organic Solvent Extract*

The determination was performed according to SOP 160.200 by means of GC-FID. All compounds which elute between tetradecane (C_{14}) and tetracontane (C_{40}) were summed up semi-quantitatively against the internal standard tridecane (C_{13}).

Result:

Sum C_{14} - C_{40}	0.2	mg/dm²	≙ 0.4	mg/g dry matter

12. Determination of Polychlorinated Biphenyls (PCB) *

The determination was performed according to DIN EN ISO 15318 by means of GC-ECD. The numbers refer to the Ballschmiter nomenclature.

Result:

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

13. Determination of the Transfer of Antimicrobial Constituents *

The determination was made according to DIN EN 1104. Test specimens 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:

with *Aspergillus niger*: Microbial growth up to the edges of the test specimens.

with *Bacillus subtilis*: Microbial growth up to the edges of the test specimens.

Comment:

According to the current state of standardization, proof of the presence of an inhibition zone is provided by the absence of test microorganism growth in a minimum diameter of 14 mm. Therefore, a transfer of antimicrobial constituents is considered as not detected.

14. Test for Fluorescent Substances *

The test was made by UV irradiation.

Result: The sample did not contain optically brightened fibres.

15. Determination of Anthraquinone [84-65-1] *

The determination was performed according to SOP 160.200 by means of GCMS after extraction with 95 % ethanol (v/v) at 60 °C.

Result:	not determinable	<	0.13	mg/kg dry matter

16. Determination of the Epichlorohydrin Hydrolysis Products *

The determination was performed after solid phase extraction by means of gas chromatography in accordance with the Official Collection of Analytical Methods according to § 64 of the LFGB, method B 80.56-2 with mass spectrometric detection.

The water extract was prepared according to DIN EN 645.

Result:

1,3-Dichloro-2-propanol:	not detected	<	2	µg/l water extract
3-Monochloro-1,2-propanediol:	not detected	<	2	µg/l water extract

17. Determination of Biocides in the Water Extract *

The determination was performed according to SOP 162.200 by means of LCMS. The following compounds were considered:

2-Bromo-2-nitropropane-1,3-diol	[52-51-7]
5-Chloro-2-methyl-4-isothiazolin-3-one	[26172-55-4]
2-Methyl-4-isothiazolin-3-one	[2682-20-4]
1,2-Benzisothiazolin-3-one	[2634-33-5]
2-Octyl-4-isothiazolin-3-one	[26530-20-1]
Dichloro-2-n-octyl-4-isothiazolin-3-one	[64359-81-5]

Limit of quantification: 0.002 mg/l water extract ≙ 0.02 µg/dm² paper

Result:

None of the compounds mentioned above were quantifiable.

18. Determination of the Heavy Metals Contents *

The determination was performed after microwave disintegration by AAS or ICP-AES, respectively.

Result:

Arsenic	(As):	not determinable	<	0.2	mg/kg dry matter
Cadmium	(Cd):	not determinable	<	0.5	mg/kg dry matter
Chromium	(Cr):			3.5	mg/kg dry matter
Mercury	(Hg):	not determinable	<	0.25	mg/kg dry matter
Lead	(Pb):			5.8	mg/kg dry matter

19. Extraction Tests According to the FDA Regulations *

The determination was performed according to 21 CFR 176.170 in triplicate.

a) Solvent: Water

Condition: 24 hours at 49 °C (condition of use E)

Result:	0.07	mg/sq inch
chloroform soluble portion:	The determination is not necessary as test results are already in conformity with the limit value.	

Comment: Limit Value (chloroform soluble portions): 0.5 mg/ sg inch

b) Solvent: n-Heptane

Condition: 30 minutes at 21 °C (condition of use E)

Result:	0.03	mg/sq inch
chloroform soluble portion:	The determination is not necessary as test results are already in conformity with the limit value.	

Comment: Limit Value (chloroform soluble portions): 0.5 mg/ sg inch

The accreditation applies to the methods marked with * in the test report (Register no. D-PL-14160-01-01 and D-PL-14160-01-02).

End of report