



INSTITUT PRO TESTOVÁNÍ A CERTIFIKACI, a. s.
třída Tomáše Bati 299, Louky, 763 02 Zlín, Czech Republic
TESTING LABORATORY - TESTING DIVISION

issues

ATTEST
No. 472115961-01

On sample:

LUKAPACK paper

Client:

Balsac papermill s.r.o.,
Lukavice 21, 789 01 Zábřeh, Czech Republic, ID: 01610368

Evaluation of the measured parameters:

The evaluated parameters mentioned on the pages 3 – 7 of the Attest meet hygienic requirements for **the products made of paper** given by Health Ministry Decree No. 38/2001 Coll., "Hygienic requirements for materials intended to come into contact with foodstuffs", as amended and German Recommendation BfR (Bundesinstitut für Risikobewertung - Federal Institute for Risk Assessment) XXXVI Paper and cardboard for food contact.

The evaluated sample does not cause a deterioration in organoleptic characteristics of food.

The evaluated sample meets requirements of the article 3 of Regulation (EC) No. 1935/2004 of the European Parliament and of the Council on materials and articles intended to come into contact with food.

This Attest was issued on the basis of the accredited test report Ref. No. 472115961-01 and the test report Ref. No. 472115961-02 issued on January 26, 2023.

Issued on: January 26, 2023
Valid till: January 31, 2026



Dipl. Ing. Jiří Samsoněk, Ph.D.
Head of the testing laboratory

Conditions for use of the Attest and associated information:

- 1. The Attest applies only to the sample tested by our laboratory.*
- 2. The Attest remains in effect until production technology, initial materials and standards or corresponding regulations are changed; however, its validity will extend beyond the period of its effect.*
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Submitted sample:

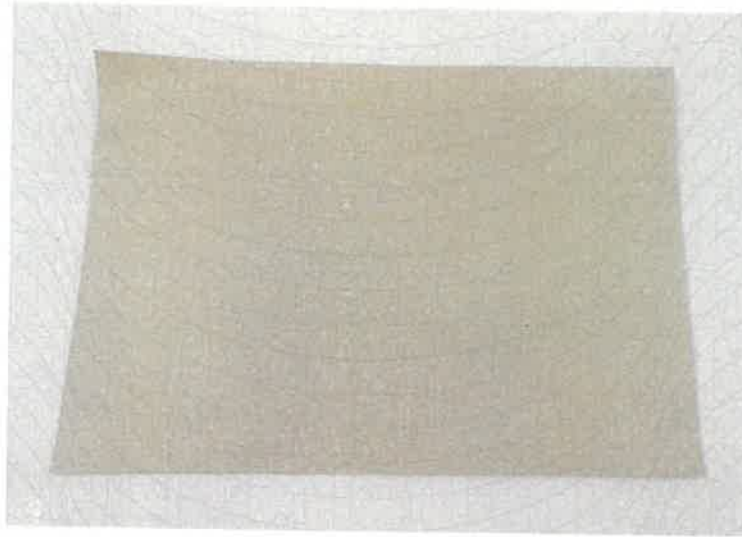


Fig. No. 1: LUKAPACK paper



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Values obtained

Test results taken from the test report Ref. No. 472115961-01

Assessment of organoleptic properties

Food simulant		ČSN EN 1230-2 biscuits		ČSN EN 1230-1 without food simulant
Assessor No.	Unit	Odour	Flavour	Odour
1	level	0	0	2 (chemical)
2	level	0	0	1.5
3	level	0	0	2 (chemical)
4	level	0	0	1.5
5	level	0	0	1
6	level	0	0	1
Mean	level	0	0	1.5

Off-odour and off-taste scale:

0 = No perceptible off-odour or off-taste

1 = Just perceptible off-odour or off-taste (off-odour and off-taste determination is very difficult)

2 = Slightly perceptible off-odour or off-taste

3 = Clearly perceptible off-odour or off-taste

4 = Strong off-odour or off-taste

According to Regulation (EC) No. 1935/2004 of the European Parliament and of the Council the articles shall not cause deterioration in the organoleptic characteristics of food.



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Test results according to the requirements of Suppl. No. 12 to Decree No. 38/2001 Coll.

Parameter	Unit	Value obtained ¹⁾	Limit ²⁾
Assessment of the paper material			
Moisture	% w/w	6.50±0.04	max. 8.0
PCB ³⁾	mg/kg of dry matter	< 0.12	max. 2.0
Polychlorinated phenols ⁴⁾	mg/kg of dry matter	< 0.05	max. 0.05
PAH ⁵⁾	mg/kg of dry matter	0.016±0.002	max. 0.05
Content of the substances in the leachate (20 dm² / 1000 ml of distilled water, (20±2) °C / 24 hrs)			
Formaldehyde	mg of CH ₂ O / dm ²	< 0.02	max. 0.10 max. 1.0 ⁷⁾
Total nitrogen	mg of N / dm ²	< 0.03	max. 0.2
Phthalates ⁶⁾	mg/dm ²	< 0.02	max. 0.20
Primary aromatic amines	mg /dm ²	- ⁸⁾	max. 0.002
Phenolic compound	mg of phenol /dm ²	< 0.01	max. 0.05
Fluorescence (365 nm)	-	- ⁸⁾	No fluorescence
Mercury	mg/kg of dry matter	< 0.12	max. 0.3
Cadmium	mg/kg of dry matter	< 0.012	max. 0.5
Chromium	mg/kg of dry matter	< 0.05	max. 0.1
Lead	mg/kg of dry matter	< 0.06	max. 3.0
Arsenic	mg/kg of dry matter	< 0.06	max. 3.0

Notes to the table:

- 1) Symbol „<“ means less than LOQ (limit of quantification) of the analytical method. The test results are expressed including the reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%
- 2) Limit values according to the Ministry of Health Decree No. 38/2001 Coll., as amended
- 3) PCB – polychlorinated biphenyls, sum of congeners 28, 52, 101, 118, 138, 153 and 180
- 4) Polychlorinated phenols expressed as pentachlorophenol
- 5) PAH - polycyclic aromatic hydrocarbons; sum of: benzo/b/fluoranthene, benzo/k/fluoranthene, benzo/a/pyrene, dibenzo/a,h/anthracene, benzo/g,h,i/perylene, indeno/1,2,3-c,d/pyrene expressed as benzo/a/pyrene
- 6) Sum of dibutyl phthalate (DBP), di-(2-ethylhexyl) phthalate (DEHP), diisodecyl phthalate (DIDP), benzylbutyl phthalate (BBP), diisononyl phthalate (DINP), di-n-octyl phthalate (DNOP)
- 7) Limit value according to German Recommendation BfR XXXVI Paper and cardboard for contact with foodstuffs.
- 8) The alternative test was performed – see the tables on the pages 6 (primary aromatic amines) and 7 (fastness of fluorescent brighteners)



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Test results according to the requirements of German Recommendation BfR XXXVI

Determination of metals in the leachate (acc. to ČSN EN 645)

Parameter	Unit	Value obtained ¹⁾	Limit ²⁾
Cd - Cadmium	mg/l of extract	< 0.001	max. 0.005
Cr ^{VI} - Chromium hexavalent	mg/l of extract	< 0.005 ⁴⁾	not-detectable
Cr ^{III} - Chromium trivalent	mg/dm ²	< 0.00005 ^{4),5)}	max. 0.004
Pb - Lead	mg/l of extract	< 0.005	max. 0.01
Al - Aluminium	mg/l of extract	0.24±0.11	max. 1.0

Notes to the tables:

- 1) Symbol „<“ means less than LOQ (limit of quantification) of the analytical method. The test results are expressed including the reported expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%
- 2) Limit value according to BfR XXXVI Paper and cardboard for contact with foodstuffs
- 3) Contents of Cr^{III} and Cr^{VI} were calculated from the test result value for total chromium
- 4) The test result is expressed for the product of basis weight 75 g/m²

Overall migration determination

Food simulant	Unit	Value obtained ¹⁾		Analytical tolerance ²⁾	Limit ³⁾
		Single results	Average		
MPPO ⁴⁾ , (40±2) °C/10 days	mg/dm ²	<2; <2; <2	<2	3	max. 10

Notes to the tables:

- 1) Symbol „<“ means less than LOQ (limit of quantification) of the analytical method.
- 2) Analytical tolerance according to ČSN EN 1186-1, article 12.3
- 3) Limit values according to Commission Regulation (EU) No 10/2011, as amended
- 4) Modified polyphenyleneoxide

Determination of glyoxal according to DIN 54603 in the leachate (acc. to ČSN EN 645)

Parameter	Unit	Value obtained	Uncertainty ¹⁾	Limit ²⁾
Glyoxal content	mg/dm ²	0.0030	0.0002	max. 1.5
	mg/kg of dry matter	3.90	0.34	-

Notes to the table:

- 1) Limit value according to BfR XXXVI Paper and cardboard for contact with foodstuffs
- 2) The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%

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Determination of primary aromatic amines (PAAs) in leachate

leachate: distilled water, (20±2) °C / 24 h; 10 g / 250 ml

Primary aromatic amine (PAA)	CAS No.	Unit ¹⁾	Test result ²⁾	Limit ³⁾
PAAs classified as carcinogens in classes 1A and 1B of the CLP Regulation (EC) 1272/2008				
4-Amino-biphenyle	92-67-1	mg/kg	< 0.002	N.D.
Benzidine	92-87-5	mg/kg	< 0.002	N.D.
4-Chlor-o-toluidine	95-69-2	mg/kg	< 0.002	N.D.
2-Naphthylamine	91-59-8	mg/kg	< 0.002	N.D.
o-Aminoazotoluene	97-56-3	mg/kg	< 0.002	N.D.
p-Chlor -aniline	106-47-8	mg/kg	< 0.002	N.D.
2,4-Diamino-anisole	615-05-4	mg/kg	< 0.002	N.D.
4,4'-Diamino-diphenylmethane	101-77-9	mg/kg	< 0.002	N.D.
3,3'-Dichlor-benzidine	91-94-1	mg/kg	< 0.002	N.D.
3,3'-Dimethoxy-benzidine	119-90-4	mg/kg	< 0.002	N.D.
3,3'-Dimethyl-benzidine	119-93-7	mg/kg	< 0.002	N.D.
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	mg/kg	< 0.002	N.D.
p-Keresidine	120-71-8	mg/kg	< 0.002	N.D.
4,4'-Methylen-bis(2-chloraniline)	101-14-4	mg/kg	< 0.002	N.D.
4,4'-Oxy-dianiline	101-80-4	mg/kg	< 0.002	N.D.
4,4'-Thio-dianiline	139-65-1	mg/kg	< 0.002	N.D.
o-Toluidine	95-53-4	mg/kg	< 0.002	N.D.
2,4-Toluediamine	95-80-7	mg/kg	< 0.002	N.D.
2,4,5-Trimethyl-aniline	137-17-7	mg/kg	< 0.002	N.D.
o-Anisidine	90-04-0	mg/kg	< 0.002	N.D.
o-Aminoazobenzene	60-09-3	mg/kg	< 0.002	N.D.
Screening for others	4)	-	No PAA detected ⁵⁾	-
Sum of detected PAAs	-	mg/kg	-	max. 0.01

Notes to the table:

- 1) Expressed as mg of the substance per kg of food simulant
- 2) Symbol „<“ means less than limit of detection of the analytical method
- 3) Limit values according to Commission Regulation EU 10/2011 as amended
- 4) These PAAs were screened – CAS No. 95-68-1, CAS No. 87-62-7, CAS No. 2243-62-1, CAS No. 62-53-3, CAS No. 95-51-2, CAS No. 108-42-9, CAS No. 106-49-0, CAS No. 106-50-3, CAS No. 823-40-5, CAS No. 121-69-7, CAS No. 6582-52-1, CAS No. 1208-52-2, CAS No. 6358-64-1, CAS No. 95-82-9, CAS No. 94-70-2, CAS No. 2835-68-9, CAS No. 81-16-3, CAS No. 88-44-8, CAS No. 49564-57-0, CAS No. 95-23-8, CAS No. 132-32-1, CAS No. 95-54-5, CAS No. 67014-36-2, CAS No. 156-43-4, CAS No. 90-41-5, CAS No. 99-55-8
- 5) LOD (limit of detection) of individual PAA is 0,005 mg/kg
N.D. = not detectable; limit of detection 0,002 mg/kg

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Determination of fastness of fluorescent whitened paper according to ČSN EN 648 procedure A – long-term contact

Simulant	Unit	Value obtained ¹⁾
Distilled water	level	5
3% acetic acid	level	5
Alkaline salt solution (pH 8.6)	level	5
Olive oil	level	5
Limit ²⁾	level	Min. 5

Notes to the table:

- 1) 5 level correspond to the zero content of fluorescent brighteners that migrate into filter paper = good fastness
- 2) Limit value according to BfR XXXVI Paper and cardboard for contact with foodstuffs

Determination of substance Kathon, CAS 55965-84-9 in water extract

extract: distilled water, (20±2) °C / 24 h; 20 g / 250 ml

Substance	Unit	Test result ¹⁾	Limit
5-Chloro-2-methyl-3(2H)-isothiazolone with 2-methyl-3(2H)-isothiazolone (Kathon 886), CAS 55965-84-9	µg/dm ²	< 0.1 ³⁾	max. 0.5 ²⁾

Notes to the table:

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- 2) Limit value according to German recommendation BfR XXXVI Paper and board for food contact
- 3) The test result is expressed for the product of basis weight 75 g/m²

Test results taken from the test report Ref. No. 472115961-02

Test results of the transfer of antimicrobial constituents according to ČSN EN 1104

Bacillus subtilis (BGA) spore suspension	Test microorganisms Aspergillus niger, CCM 8155
No inhibition zone - no transfer of water-soluble antimicrobial constituents	No inhibition zone - no transfer of water-soluble antimicrobial constituents

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třída Tomáše Bati 299, Louky, 763 02 Zlín, Czech Republic
Testing Laboratory - D2

Attest No. 472115961-01

Sample description and identification:

ITC's number	Sample identification by client	Description of submitted sample
15961/1	LUKAPACK paper	Brown paper in A4 dimension – see the figure No. 1 on the page 2 of this attest

Work requested:

1. Evaluation of hygienic properties of the sample according to Decree of Health Ministry No. 38/2001 Coll. *for articles intended into a contact with foodstuffs*, as amended, in compliance with Law of Czech Republic No. 258/2000 Coll. *about protection of the public health*, as amended
2. Evaluation of the selected hygienic properties of the sample according to German Recommendation BfR XXXVI *Paper and cardboard for foodstuffs*.

The evaluation of hygienic properties of the sample is based on European legislation in the sense of Regulation (EC) No. 1935/2004 of the European Parliament and of the Council *on materials and articles intended to come into contact with food*.

Opinions and interpretations:

The evaluated product “**LUKAPACK paper**” is intended to contact with food.

The requirements for products intended to come into direct contact with foodstuffs are given by Decree of the Health Ministry No. 38/2001 Coll., as amended (hereinafter referred to as Decree 38/2001) and by European Parliament and Council Regulation No. 1935/2004 (hereinafter referred to as Regulation 1935). The client required also the assessment according to the requirements of German Recommendation BfR XXXVI Paper and cardboard for foodstuffs (hereinafter referred to as BfR XXXVI).

General requirements - Decree 38, Regulation 1935, BfR XXXVI

The products intended to come into contact with foodstuffs shall be manufactured so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could endanger human health or bring about an unacceptable change in the composition of the food or bring about a deterioration in the organoleptic characteristics thereof. The performed tests verified that the evaluated sample does not cause a deterioration in the organoleptic properties of the food (see the table on the page 3 of this attest). The constituent transferring is discussed further.

Requirements for paper products – Decree 38

- Assessment of base materials, additives, adjuvants and the other substances (§ 21, paragraph 1, § 22, paragraph 2) is not a part of this Attest.
- The moisture of products made of paper packaging shall be up to the limit of 8 % w/w. The conformity was proved by the test – see the table on the page 4 of this Attest.
- Paper packaging for direct contact with foodstuffs shall not be used repeatedly – it is not supposed that the products will be repeatedly used.
- The products made of paper, cartons and cardboard shall meet hygienic requirements given by the part 4 of the supplement No. 12. The conformity was proved by the tests and the product meets all limit values except the parameter “fluorescence in leachate”. The migration of optical brighteners into food simulants according to ČSN EN 648 was also verified alternatively. The optical brighteners do not migrate into all simulants at long time contact. The test results are listed in the table on the pages 4 and 7 of this Attest. The determination of primary aromatic amines in the water extract for individual substances was performed by LC-MS/MS method. The test results of this test are listed in the table on the page 6 of this attest.

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Requirements for paper products – BfR XXXVI

- Following requirements are valid for the cold water extract of the final products: maximum of 0.005 mg/kg of cadmium, 0.01 mg/kg of lead, 0.004 mg/dm² of chromium(III) and 1.0 mg/l of aluminium. Hexavalent chromium shall not be detectable. The conformity was proved by the test – see the table on the page 5 of this Attest.
- The final product shall not have preservative effects during foodstuffs contact (See requirements of DIN EN 1104: Determination of the transfer of antimicrobial constituents) – the conformity was proved by the test – see the results mentioned on the page 7.
- Contents of formaldehyde and glyoxal in the cold water extract of the final product are limited – the conformity was proved by the tests – see the test results in the tables on the pages 4 and 5
- Requirements for optical brighteners: The brighteners shall not migrate into foodstuffs - the conformity was proved by the test according to ČSN EN 648 – see the test results in the table on the page 7.
- Primary aromatic amines may not be released from the finished food contact material in a detectable amount. The detection limit is 0.01 mg/kg food or food simulant and applies to the sum of the released primary aromatic amines. Additionally, primary aromatic amines classified as carcinogens in classes 1A and 1B of the CLP Regulation (EC) 1272/2008 may not be released referred to the single substance with a detection limit of 0.002 mg/kg food or food simulant – the conformity was proved by the test; see the test results in the table on the page 6.
- Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one (approx. 3 parts) and 2-methyl-4-isothiazolin-3-one (approx. 1 part) can be used during the manufacture of paper and no more than 0.5 µg/dm² of the mentioned isothiazolinones in total must be detectable in the extract of the finished product – the conformity was proved by the test; see the results mentioned on the page 7.

The opinion expressed and interpretation made by:

Dipl. Ing. Šárka Kopečková, January 26, 2023

Conclusion:

The comparison of the obtained results with the limits of Decree No. 38/2001 Coll., as amended, of German Recommendation XXXVI and of the article 3 of European Parliament and Council Regulation No. 1935/2004 and evaluation of the conformity with these regulations are mentioned on the page 1 of this attest.

Dipl. Ing. Daniel Vít
Head of the laboratory of analytical
chemistry and microbiology

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