

## Product in accordance

with Recommendation XXXVI of german BfR about paper and board  
designed for foodstuffs contact

The sample composition of EXTRA PAPER manufactured by PAPRESA **is in accordance** with the Recommendation XXXVI of German regulation BfR and passed the suitability tests related to DIPN, migration of phtalates, benzophenone, 4,4'bis(dimethylamino) benzophenone and bisphenol A, antimicrobial constituents, metallic elements (cadmium and lead), colourings and brightening analysis and formaldehyde analysis to come into contact with foodstuffs as described in actual fabrication.

Correspondence number: 17\_SCA\_005 CP3

Issued on: April 25<sup>th</sup>, 2017

Service responsible

A blue ink signature of Josep Puig Serramitja, consisting of several overlapping loops and lines.

Josep Puig Serramitja  
Dr. Industrial Engineer

Laboratory responsible

A blue ink signature of Israel González, written in a cursive style.

Israel González  
Dr. Biology Science Degree

## ANALYSIS DESCRIPTION AND RESULTS

Sample: EXTRA PAPER

Experimental analysis and standard methods related:

<b>Analysis</b>	<b>Standard Method</b>
Determination of Diisopropylnaphthalene (DIPN) contents by solvent extraction	UNE-EN 14719
Determination of migration of phtalates, benzophenone, 4,4'bis(dimethylamino) benzophenone and bisphenol A	UNE-EN 14338
Determination of transfer of antimicrobial constituents	UNE-EN 1104
Determination of colour fastness of dyed paper and board	UNE-EN 646
Determination of the fastness of fluorescent whitened paper and board	UNE-EN 648
Determination of cadmium and lead in an aqueous extract	UNE-EN 12498
Determination of formaldehyde in an aqueous extract	UNE-EN 1541

**DETERMINATION OF DIISOPROPYLNAPHTHALENE (DIPN) CONTENT by  
SOLVENT EXTRACTION, according to UNE-EN 14719:2006**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPERESA

3.- DATE AND PLACE OF TESTING:

- April 4<sup>th</sup>, 2017
- CROMLAB S.L. Acer 30-32 pl.2 mód. 3  
08038 BARCELONA

4.- SAMPLE TREATMENT:

The content of total diisopropylnaphthalene (DIPN) has been determined by solvent extraction of the 5g of sample and analysed by gas chromatography with mass selective detection (GC-MS), using diethylnaphthalene as an internal standard.

5.- RESULTS:

Results obtained by means of GC-MS:

	Concentración (ppm)	Límite de detección (ppm)
diisopropylnaphthalene (DIPN)	4,3	0,1

**DETERMINATION OF MIGRATION OF PHTHALATES, BENZOPHENONE,  
4,4'-BIS(DIMETHYLAMINO)BENZOPHENONE AND BISPHENOL A,  
according to UNE-EN 14338**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPRESA

3.- DATE AND PLACE OF TESTING:

– April 4<sup>th</sup>, 2017

Grupo LEPAMAP. Universitat de Girona.

Av. Lluís Santaló s/n. 17071 GIRONA

– CROMLAB S.L. Acer 30-32 pl.2 mód. 3  
08038 BARCELONA

4.- SAMPLE TREATMENT:

The preparation and extraction of sample has been made according to UNE-EN 14338 with MPPO (Modified Polyphenylene Oxide) as a food simulant in contact with 1 dm<sup>2</sup> of sample, at 40°C during 10 days, after that, the simulant has been extracted by a solvent.

The substances have been determined by gas chromatography with mass selective detection (GC-MS). Results expressed in mg/kg of food. 1 kg of food in contact with 6 dm<sup>2</sup> according to resolution ResAP (2002) 1, adopted by the Committee of Ministers of the Council of Europe on 18/09/2002

## 5.- RESULTS:

	<u>Results</u> (mg/kg of food)	<u>maximum value*</u> (mg/kg of food)
Diethylhexyl phthalate	0,012	1,5
Di-n-butyl phthalate	<0,006	0,3
Diisobutyl phthalate	<0,006	0,3
Benzophenone	<0,006	0,6
Bisphenol A	<0,006	0,24
4,4'-Bis(dimethylamino)-benzophenone	<0,006	0,01
Di-n-butyl phthalate + Diisobutyl phthalate	<0,012	0,3

Detection limit 0,001 mg/dm<sup>2</sup> (=0,006 mg/kg of food)

\* Recommendation XXXVI . Paper and board for food contact.- July 2016

**DETERMINATION OF TRANSFER OF ANTIMICROBIC CONSTITUENTS**  
**according to UNE-EN 1104:2006**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPRESA

3.- DATE AND PLACE OF TESTING:

– April 4<sup>th</sup>, 2017

Grupo LEPAMAP. Universitat de Girona.

Av. Lluís Santaló s/n. 17071 GIRONA

4.- SAMPLE TREATMENT:

The preparation of culture means is made following the indications given in mentioned method.

Plates of Petri prepared with *Bacillus subtilis* and *Aspergillus niger* are incubated during 3 days to 30°C and 5 days to 25°C respectively. It is observed a growth of flora in all the surface and therefore evidence of zone of inhibition is not appreciated. So, the sample does not contain antimicrobial components that are water soluble.

The figures 1, 2 and 3 shows the results of analysis with *Bacillus subtilis* and the figures 4, 5 and 6 shows the results of analysis with *Aspergillus niger*. In both cases can be observed that there aren't zone of inhibition.

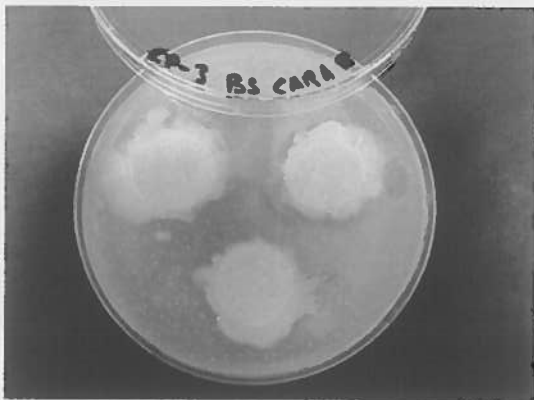


Figure 1

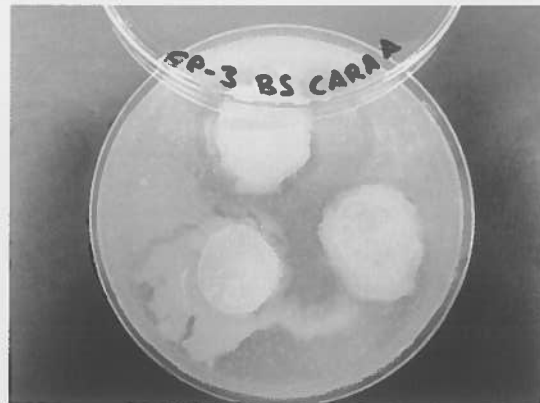


Figure 2

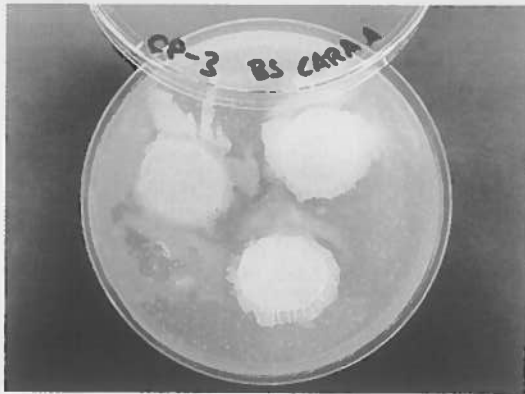


Figure 3

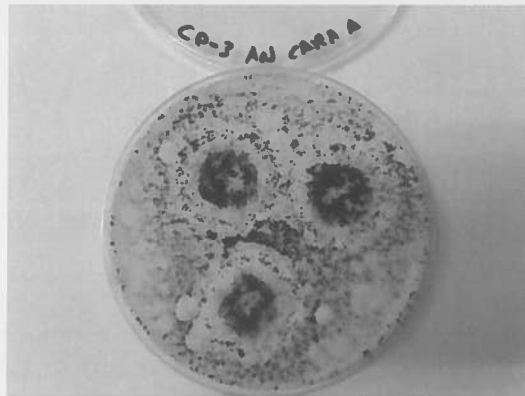


Figure 4

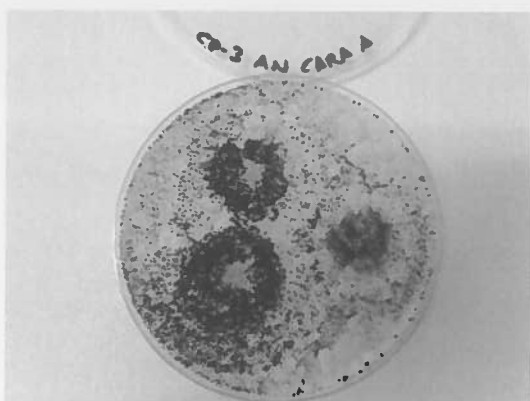


Figure 5

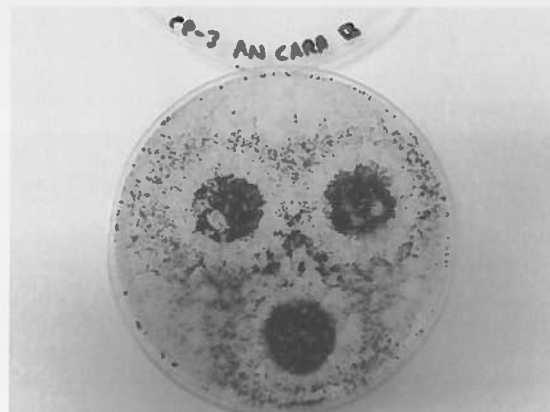


Figure 6

**DETERMINATION OF COLOUR FASTNESS OF DYED PAPERS AND  
BOARDS according to UNE-EN 646:2006**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPRESA

3.- DATE AND PLACE OF TESTING:

– April 4<sup>th</sup>, 2017

Grupo LEPAMAP. Universitat de Girona.

Av. Lluís Santaló s/n. 17071 GIRONA

4.- SAMPLE TREATMENT AND RESULTS

Both faces of paper sample have been tried according to procedure A (long time contact) of UNE-EN 646 methodology with assayed fluids (water, acetic acid, saliva, isooctane and olive oil). Evaluation is made in accordance with EN 20105-A03 standard. Next values of colour fastness are obtained:

	Face A (inside)				Face B (outside)			
	H <sub>2</sub> O	AcOH	Saliva	Isooctane	H <sub>2</sub> O	AcOH	Saliva	Isooctane
White	93,98	93,90	94,05	94,01	93,98	93,95	94,06	94,01
<i>Y trist.</i>	93,73	93,91	93,88	93,78	93,82	93,81	93,84	93,73
Dif. CIELAB	0,25	-0,01	0,17	0,23	0,16	0,14	0,22	0,28
<b>DEGREE</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>

Degree 1 means bad colour fastness and degree 5 means good colour fastness.



**DETERMINATION OF THE FASTNESS OF FLUORESCENT WHITENED  
PAPERS AND BOARDS, according to UNE-EN 648:2003**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPRESA

3.- DATE AND PLACE OF TESTING:

– April 4<sup>th</sup>, 2017

Grupo LEPAMAP. Universitat de Girona.

Av. Lluís Santaló s/n. 17071 GIRONA

4.- SAMPLE TREATMENT AND RESULTS

Both faces of paper sample have been tried according to procedure A (long time contact) of UNE-EN 648 methodology, with specified fluids. Results have been evaluated by means of ultraviolet lamp with UV-A (365 nm) filters. According to procedure A, results obtained are:

<b>Fluid</b>	<b>Face A (inside)</b>	<b>Face B (outside)</b>
Water	4-5	4-5
Acetic acid	5	5
Saliva	5	5
Oil	5	5

The evaluation is made by comparison with papers witness prepared and treated with optical brightening FWAS, constitution number 40622. Class 1 means bad solidity and class 5 means good solidity.

**DETERMINATION OF CADMIUM AND LEAD IN AN AQUEOUS EXTRACT,  
according to UNE-EN 12498:2006**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPRESA

3.- DATE AND PLACE OF TESTING:

– April 4<sup>th</sup>, 2017

4.- SAMPLE TREATMENT

Sample preparation and cadmium and lead extraction have been carried out according to UNE-EN 645 and UNE-EN 12498 regulations

5.- RESULTS.

	Results (ppm)	Maximum allowed value (ppm)
Cadmium	<0,025	0,5
Lead	<0,025	3

These results are expressed in µg/g.

Maximum value is those allowed in Recommendation XXXVI of BfR for these specific metals referred to soluble part.

**DETERMINATION OF FORMALDEHYDE IN AQUEOUS EXTRACT,  
according to UNE-EN 1541:2002**

1.- SAMPLE DESCRIPTION:

- Sample: EXTRA PAPER

2.- MANUFACTURER:

- PAPRESA

3.- DATE AND PLACE OF TESTING:

- April 4<sup>th</sup>, 2017
- Universitat de Girona. Chemical Engineering Department  
Av. Lluís Santaló s/n. 17071 GIRONA

4.- SAMPLE TREATMENT AND RESULTS

Sample has extracted with cold water according to UNE-EN 645. Formaldehyde content was analysed as it is determined in UNE-EN 1541 standard.

Formaldehyde content is:

	<u>Content</u>	<u>Maximum value allowed</u>
<b>Formaldehyde</b>		
<b>Cold water extract.</b>	0,002 mg/dm <sup>2</sup>	1 mg/dm <sup>2</sup>

Formaldehyde level in sample EXTRA PAPER is lower than maximum value allowed by Recommendation XXXVI of German BfR Reglamentation.