

Certification
Technological Center

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Bellaterra : October 19th, 2005
Dossier number : 5037574
Petitioner reference : DRIZORO
Primavera, 50-52
28850 TORREJÓN DE ARDOZ
Mr. Piña

Reception date of material to be tested : 12/01/04
Test date : Start date: 15/01/04
End date: 26/04/04
Date of report petition: 19/10/2005

SAMPLES PRESENTED FOR TESTS

Petitioner reference: A sample of product is supplied by the petitioner in order to determine its suitability to come into contact with drinking water.

According to petitioner directions, the sample has been applied over 10 x 5 cm glass plates, which have been coated with the product "MAXURETHANE 2C" (polyurethane-based coating), in similar conditions which will be expected for final use of the product.

REQUEST SUBJECT

Global migration in water: Global Migration Tests according to CEE 2002/72/CE, for materials and plastic products which are used in direct contact with foods.
Determination of Trihalomethane
Determination of pH
Test of taste, smell and turbidity
Determination of presence of metals according to Real Decreto 140/2003.
Chemical reaction for the product in a 20 ppm chlorine solution.

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TEST METHOD

Global Migration in water:

Test conditions

1. Simulated foods. Type A and B.

Period:

Test period is 10 days at 40 °C

Result calculation

Migration global area in milligrams per square decimeter (mg/dm²)

Using the formula:

$Ma = m/s$

Ma: Global migration (mg/dm²)

m: mass of dry global residual (mg)

s: sample area in contact with the test liquid (dm²)

Migration for the rest of the tests

- Extraction media: water with 1 ppm of chlorine.
- Migration temperature: 40 °C
- Contact time:
 - According to EN-12783 method standard, rinses on the sample are carried out prior to tests.
 - Finally, samples are subjected to 3 cycles of 72 hours, providing 3 different samples of test.
- Sample volume: 1 liter per cycle of 72 hours.
- Contact surface area: 10 specimens of 10 x 5 cm².
- Area/volume ratio: 500 cm²/l.

Determination of Trihalomethanes: According to EN-12873 method standard. Migration temperature: 40 °C. PE-BV/0012 HRGC-MS Method.

Determination of pH: According to EN-12873 method standard. Migration temperature: 40 °C. PE-A/0010 Electro-metric Method.

Test of Turbidity: According to EN-12873 method standard. Migration temperature: 40 °C. PE-A/0021 Nephel-metric Method.

Determination of metals: According to EN-12873 method standard. Migration temperature: 40 °C. PE-D/0026 ICP-MS Method.

Chemical reaction of the product in a 20 ppm chlorine solution:

Test conditions: 8 hours at 40 °C and then, visual evaluation.

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RESULTS

Analytic parameter	MAXURETHANE 2C	LIMIT LEVELS 2002/72/CE
Global migration	9,8 mg/dm ²	12 mg/dm ²

Analytic parameter	MAXURETHANE 2C 1 st MIGRATION	MAXURETHANE 2C 2 nd MIGRATION
Trihalomethanes	Below to 100 µg/l	Below to 100 µg/l
pH	Increase of 0,05 pH units. For an initial pH value of 7 in the distribution network of water, it provides a final value of 7,05	Increase of 0,25 pH units. For an initial pH value of 7 in the distribution network of water, it provides a final value of 7,25
Turbidity	Below to 1 UNF	Below to 1 UNF
Antimony	Below to 5,0 µg/l	Below to 5,0 µg/l
Aluminium	Below to 200 µg/l	Below to 200 µg/l
Arsenic	Below to 10 µg/l	Below to 10 µg/l
Boron	Below to 1,0 mg/l	Below to 1,0 mg/l
Cadmium	Below to 5,0 µg/l	Below to 5,0 µg/l
Copper	Below to 2,0 µg/l	Below to 2,0 µg/l
Chrome	Below to 50 µg/l	Below to 50 µg/l
Iron	Below to 200 µg/l	Below to 200 µg/l
Manganese	Below to 50 µg/l	Below to 50 µg/l
Mercury	Below to 1,0 µg/l	Below to 1,0 µg/l
Nickel	Below to 20 µg/l	Below to 20 µg/l
Lead	Below to 10 µg/l	Below to 10 µg/l
Selenium	Below to 10 µg/l	Below to 10 µg/l
Sodium	Below to 200 µg/l	Below to 200 µg/l
Chemical reaction in a 20 ppm chlorine solution	No chemical reaction is observed	No chemical reaction is observed

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RESULTS

Analytic parameter	MAXURETHANE 2C 3 rd MIGRATION	LIMIT LEVELS RD 140/2003
Trihalomethanes	Below to 100 µg/l	Below to 100 µg/l
pH	Increase of 0,38 pH units. For an initial pH value of 7 in the distribution network of water, it provides a final value of 7,38	6,5-9,5
Turbidity	Below to 1 UNF	Below to 1 UNF
Antimony	Below to 5,0 µg/l	Below to 5,0 µg/l
Aluminium	Below to 200 µg/l	Below to 200 µg/l
Arsenic	Below to 10 µg/l	Below to 10 µg/l
Boron	Below to 1,0 mg/l	Below to 1,0 mg/l
Cadmium	Below to 5,0 µg/l	Below to 5,0 µg/l
Copper	Below to 2,0 µg/l	Below to 2,0 µg/l
Chrome	Below to 50 µg/l	Below to 50 µg/l
Iron	Below to 200 µg/l	Below to 200 µg/l
Manganese	Below to 50 µg/l	Below to 50 µg/l
Mercury	Below to 1,0 µg/l	Below to 1,0 µg/l
Nickel	Below to 20 µg/l	Below to 20 µg/l
Lead	Below to 10 µg/l	Below to 10 µg/l
Selenium	Below to 10 µg/l	Below to 10 µg/l
Sodium	Below to 200 µg/l	Below to 200 µg/l
Chemical reaction in a 20 ppm chlorine solution	No chemical reaction is observed	No chemical reaction is observed

CONCLUSION

The obtained data for the global migration test in distilled water are lower than the maximum levels of global migration established in 12 mg/dm², according to the Annex I, apart 7 of the European Regulation 2002/72/CE, for materials and plastic products which are coming into direct contact with foods. For this reason, the tested product accomplishes with the requirements established in the European Regulation 2002/72/CE.

The obtained data for the pH value are between the range established in the Spanish Regulation RD 140/2003. For this reason, the tested product accomplishes, according to this parameter tested, with the requirements established in the Regulation RD 140/2003.

The obtained data for the other parameters are lower than the maximum levels established in the Spanish Regulation RD 140/2003, for sanitary conditions of drinking water quality which aside for human consumption. For this reason, the tested product accomplishes, according to the parameters tested, with the requirements established in the Spanish Regulation RD 140/2003.

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The above results refer exclusively to the product sample or material surrendered to the Laboratory, according to the section of received materials, and that have been tested under the conditions according to standards or procedures mentioned in the present document.
