LGAI TECHNOLOGICAL CENTER, S.A.
Campus UAB
Crta. de Acceso a la Universidad de Medicina, s/n
08193 Bellaterra (Barcelona)
Tlf.: 93 5672000 Fax: 93 5672001

REPORT Nº: 2232/09/8849

RECORD Nº: 5421

TEST REPORT ISSUED BY LGAI TECHNOLOGICAL CENTER, S.A.

CLIENT IDENTIFICATION INFORMATION

NAME: TECNOPOL SISTEMAS, S.L
CENTRE: TECNOPOL SISTEMAS, S.L
ADDRESS: PRENSA, 5
CITY: PARETS DEL VALLES
PROVINCE: 08150 BARCELONA
COUNTRY: SPAIN

SAMPLE IDENTIFICATION INFORMATION:

PRODUCT: P-2049-1 (100% PURE POLYUREA)
SUPPLIER:
BRAND:
BATCH:
CATEGORY:
REMARKS: Submitted by the client.
SHIPMENT DATE:
EXP. DATE:
T. M. PRODUCT Tº:
Y/ REF:
SAMPLE TAKING DATE:
RECEPTION DATE: 09/12/09
BAR CODE:
SECTION:

CHEMICAL AND PHYSICAL TESTING LAB

Start 09/12/09 **End 25/01/10**

Characteristics of the materials

	Parameter	Result	Legislative Rule
1	Migration of materials in contact with drinking water	Performed	

Product Characteristics

	Parameter		Result	Legislative Rule
2	Reaction at 20 ppm chlorine		No changes	No anomalous change
3	Conductivity	(µS/cm)	<20.0	<=2500
4	Colour	(mg/Pt/Co)	<1.0	<=15
5	Odour: Dilution rate		1	<=3
6	Flavour: Dilution rate		1	<=3

Content control

	Parameter		Result	Legislative Rule
7	Turbidity	(UNF)	0.48	<=5
8	Ammonia	(mg/l)	<0.5	<=0.5
9	Total Organic Carbon (TOC)	(mg/l)	13.0	No changes
1	Cyanides (CN)	(µg/l)	<5.0	<=50
1	Combined residual chlorine	(mg/l)	<0.5	<=2
1	Residual free chlorine	(mg/l)	<0.5	<=1
1	pH	(upH)	6.5	>=6.5 <=9.5
1	Nitrites	(mg/l)	<0.5	<=0.5
1	Oxidizability	(mg O2/l)	1.7	<=5
1	Sodium (Na)	(mg/l)	1.7	<=200
1	Chlorides	(mg/l)	3.3	<=250

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CHEMICAL AND PHYSICAL TESTING LAB

Start 09/12/09 **End** 25/01/10

1	Fluorides (F)	(mg/l)	<0.1	<=1.5
1	Nitrates	(mg/l)	<0.5	<=50
2	Sulphates	(mg/l)	<1.0	<=250
2	Aluminium (Al)			<=200
	First migration	(µg/l)	3.0	
2	Antimony (Sb)	(µg/l)	<2.0	<=5
2	Arsenic (As)	(µg/l)	<2.0	<=10
2	Boron (B)	(mg/l)	<0.1	<=1
2	Cadmium (Cd)	(µg/l)	<1.0	<=5
2	Copper (Cu)	(mg/l)	<0.2	<=2
2	Chromium (Cr)	(mg/l)	<2.0	<=50
2	Iron (Fe)	(µg/l)	<10.0	<=200
2	Manganese (Mn)	(µg/l)	<2.0	<=50
3	Mercury (hg)	(µg/l)	<0.2	<=1
3	Nickel (Ni)	(µg/l)	<2.0	<=20
3	Lead (Pb)	(µg/l)	<2.0	<=25
3	Selenium (Se)	(µg/l)	<2.0	<=10
3	Volatile organic compounds			
	1,2 Dichloroethane	(µg/l)	<0.5	<=3
	Trichloroethane + Tetrachloroethane	(µg/l)	<1.0	<=10
3	Trihalomethanes	(µg/l)	2.9	<=100
3	Benzene	(µg/l)	<0.5	<=1
3	Polycyclic Aromatic Hydrocarbons			
	Benzopyrene	(µg/l)	<0.01	<=0.01
	Sum of Polycyclic Aromatic Hydrocarbons	(µg/l)	<0.01	<=0.1
3	Pesticides			
	Aldrin	(µg/l)	<0.01	<=0.03
	Dieldrin	(µg/l)	<0.01	<=0.03
	Heptachlorine	(µg/l)	<0.01	<=0.03
	Heptachlorine epoxide	(µg/l)	<0.01	<=0.03
	Individual pesticide	(µg/l)	<0.01	
	Total pesticides	(µg/l)	<0.50	<=0.5
3	Acrylamide			<=0.1
	First migration	(µg/l)	<0.1	<=0.1
4	Epichloridrine	(µg/l)	<1.0	<0.1

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CHEMISTRY DEPARTMENT

Note: N. D. = Not Detected. The detection limit for the technique used is 1µg/l

According to Annex I of Royal Decree 140/2003, the maximum limit set for Epichlorohydrin is 0.1µg/l. Mass Gas Chromatography is the technique used to determine this parameter. Even with the best possible optimization, this technique does not enable reaching a detection limit lower than 1 µg/l.

The parameter determination, except for the migration at the reaction at 20 ppm of chlorine, has been carried out at a collaborating Laboratory, under record number 702790.

Migration for polymeric materials:

-Extraction means: Chlorinated water containing 1 ppm chlorine.
-Migration Temperature: 40ºC.
-Contact time: The sample is washed several times, as instructed in Standard EN-12873.
Next, three 72-hour cycles are performed, thereby obtaining three testing samples.
Parameters are analysed during the initial 72-hour cycle; only the parameters that are beyond the limits of RD 140/2003 in the first cycle are repeated in the second and third cycle.

-Volume of the sample: 1 litre for each of the 72-hour cycles.
-Contact surface: 500 cm2.
-Surface/volume ratio: 500 cm2/l.

CONCLUSION

Regarding the analysed parameters, the material complies with the requirements established in Royal Decree 140/2003. Although no epichlorohydrin has been detected, it should be mentioned that its detection limit is higher than the one stated, since the technique used does not allow reaching a detection limit lower than 1 µg/l.

METHODOLOGY USED

Q	1	EN 12873	Q	2	Internal method
Q	3	Internal method	Q	4	Internal method
Q	5	Internal method	Q	6	Internal method
Q	7	Internal method	Q	8	Internal method
Q	9	Internal method	Q	1	Internal method
Q	1	Internal method	Q	1	Internal method
Q	1	Internal method	Q	1	Internal method
Q	1	Internal method	Q	1	Internal method
Q	1	Internal method	Q	1	Internal method
Q	1	Internal method	Q	2	Internal method
Q	2	Internal method	Q	2	Internal method
Q	2	Internal method	Q	2	Internal method
Q	2	Internal method	Q	2	Internal method
Q	2	Internal method	Q	2	Internal method
Q	2	Internal method	Q	3	Internal method
Q	3	Internal method	Q	3	Internal method
Q	3	Internal method	Q	3	Internal method
Q	3	Internal method	Q	3	Internal method
Q	3	Internal method	Q	3	Internal method
Q	3	Internal method	Q	4	Internal method

Consumer Goods

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LGAI Technological Center, S.A.

Isabel Garmendia Arnau
Chief of the Inorganic Chemistry Department
LGAI Technological Centes S.A.

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