

DIVISIONE: **PHYSICAL-CHEMISTRY**
 DIVISION:

 LABORATORIO: **PACKAGING**
 LABORATORY:

RAPPORTO DI PROVA <i>(Test Report)</i>	Pag. 1 di/of pag. 7
N°344a/LCF/PKG/04	Data: 30/06/04 Date:

 IDENTIFICAZIONE E DESCRIZIONE DEL CAMPIONE:
 SPECIMEN DESCRIPTION:

**COLORIT 34997 SILK-SCREEN PRINTED CORKS,
 SEAL H37 D.21.6, LIGHT BROWN**
 (This is an English translation of report nr 254a/LCF/PKG/04)

 DATI IDENTIFICATIVI DEL CLIENTE:
 CLIENT:

OREMPLAST S.R.L.
 Via Martiri della Libertà, 60
 48024 MASSA LOMBARDA (RA)

 NORMA DI RIFERIMENTO:
 REFERENCE STANDARD:

**EN 1186-3, ENV 13130-7; DM n° 104 del 21.3.73 dated
 and subsequent updatings, determination of the amount of isocyanate according to UNI
 ENV13130-8.**

 DISTRIBUZIONE ESTERNA:
 OUTSIDE DISTRIBUTION:

OREMPLAST S.R.L.
To Mr.Filippo Casadei Elli

 DISTRIBUZIONE INTERNA:
 INSIDE DISTRIBUTION:

copy to: Division Head

 ENTE DI ACCREDITAMENTO:
 ACCREDITATION BODY:



GENERALITIES:

Date sample receipt: 07.05.04

Date Analysis beginning : 11.05.04

Date Analysis end: 28.05.04

Deviation from test methods: **NO**

SAMPLES DESCRIPTION :

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN

SAMPLING

The initial sampling has been done by the customer.

The test sampling has been done drawing casually corks from the samples in our possession.

DECLARATION:

The test results of the present report are related exclusively to the tested sample.

The present test report cannot be partially reproduced without the authorization of CSI Managing Director.

PERFORMED DETERMINATIONS:

1) Verification of the suitability of materials to be employed in contact with acid, oily and fatty foodstuffs, according to DM n°104 dated 21/03/73 and subsequent updatings and according to DM n° 220 dated 21/04/93, reception of European Regulations 82/711/CEE, 85/572/CEE, 93/8/CEE, 97/48/CE, 2002/16/CE e 2002/72/CE.

Standard: EN 1186-3.

Food simulants and test conditions:

Ethanol 10% v/v : **10 days at 40°C** (C food simulant)

Migration test was performed by **TOTAL IMMERSION.**



2) Determination of migration of the colouring agents from the tested material into the food simulant (distilled water) by spectrophotometric analysis in the spectral range 400 ÷ 750 nm with a 10 cm optical path cell.

3) Determination of **VINYL ACETATE (VA)** migration in the liquid simulant through HEAD SPACE / GC-MS analysis (HP 19395 /HP6890-HP 5973) at 95°C for 2 hours.
The analysis has been performed by SIM acquisition technique for the most significant ions.

The quantification has been carried through an external calibration of VA in the liquid simulant.

4) Determination of **VINYL CHLORIDE MONOMER (CVM)** migration in the liquid simulant through HEAD SPACE / GC-MS analysis (HP 19395 /HP6890-HP 5973).

The quantification has been carried through an external calibration of CVM in the liquid simulant.

5) ENV 13130-7-2001-Determination of the specific migration of **ETHYLENE GLYCOL (EG)** and **DIETHYLENE GLYCOL (DEG)**, from the tested material into the simulant, by GC-MS analysis (HP 6890+5973) with on-column injection and SIM acquisition (selected ion monitoring).

The analysis has been performed by SIM acquisition technique for the most significant ions.

The quantitative evaluation was carried out by external calibration of EG and DEG in the same liquid simulant.

6) Determination of the amount of **ISOCYANATE (-NCO)** according to UNI ENV13130-8.

The determination of the amount of isocyanate is carried out by conditioning 1 g of material in 10 ml of dichloromethane, with the internal standard and the derivative agent.

The sample is analysed after 12+12 hours of agitation through HPLC Agilent 1100, fluorometer detector, column Discovery HSC18.

Sensitivity : 0.05 ppm

RESULTS:

- 1) The values of migrations, obtained the alcoholic simulant, expressed as ppm (mg/Kg), are reported in the following table.

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN Simulant: Ethanol 10% V/V Test conditions: 10 days at 40°C			
Overall migration	Measured value	Mean value (SD)	Limit value (according to 2002/72/CE)
ppm	< 10	< 10 ppm	60 ± 12 ppm
	< 10		
	< 10		

- 2) The results of the migration of the **colouring agents** from the tested material into the food simulant (ethanol) are reported in the following table:

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN Simulant: Ethanol 10% V/V Test conditions: 10 days at 40°C			
Trasmittance	Measured value	Mean value (SD)	Limit value
% T	> 99.0	> 99.0%	> 95 %
	> 99.0		
	> 99.0		



3) The values of the migration of **VINYL ACETATE (VA)**, expressed in ppm (mg/Kg), from the tested material into the food simulant are reported in the following table.

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN			
Simulant: Ethanol 10% V/V			
Test conditions: 10 days at 40°C			
Specific migration	Measured value	Mean value (SD)	Limit value (LMS)
VA			
ppm	< 10	< 10 ppm	12 ppm
	< 10		
	< 10		

4) The values of the migration of **VINYL CHLORIDE MONOMER (CVM)**, expressed in ppb (ug/l), from the tested material into the food simulant are reported in the following table.

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN			
Simulant: Ethanol 10% V/V			
Test conditions: 10 days at 40°C			
Specific migration	Measured value	Mean value (SD)	Limit value (LMS)
CVM			
ppb	< 10	< 10 ppb	10 ppb
	< 10		
	< 10		

5) The values of the migration of **ETHYLENE GLYCOL (EG)** and **DIETHYLENE GLYCOL (DEG)**, expressed in ppm (mg/Kg), from the tested material into the food simulant are reported in the following table.

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN Simulant: Ethanol 10% V/V Test conditions: 10 days at 40°C			
Specific migration EG+DEG	Measured value	Mean value (SD)	Limit value (LMS)
ppm	< 5	< 5 ppm	30 ppm
	< 5		
	< 5		

6) The values of the isocyanate, determined according to UNI ENV 13130-8 and expressed in ppm, are reported in the following table:

COLORIT 34997 SILK-SCREEN PRINTED CORKS, SEAL H37 D.21.6, LIGHT BROWN Simulant: Ethanol 10% V/V Test conditions: 10 days at 40°C			
Isocyanate	Measured value	Mean value (SD)	Limit value (according to 2004/18/CE)
ppm	< 0.2	< 0.2 ppm	1 ppm
	< 0.2		
	< 0.2		



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CONCLUSIONS:

In the adopted test conditions, the overall migration, the migration of the colouring agents the specific and isocyanate migrations are lower than the maximum limits stated by the existing norms with alcoholic foods (C food simulant).

The sample tested by this Laboratory are therefore suitable to come in contact with acid food, on the conditions that they have been produced employing the resins, the monomers and the additives reported in the positive lists of DM, they do not induce any organoleptic modification of foodstuff and, in any case, they do not release noxious substances.

RESP. DIV. CHIMICA-FISICA

Division Head

Dr. Gianluigi VESTRUCCI

RESP. CENTRO

Managing Director

Ing. Pasqualino CAU