AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamín Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

TEST REPORT

Report number: **le134173**

Issue date: September 9th, 2013

APPLICANT	DECOPROYEC SUBERTRES S.L.U. Pol. Ind. Camporrosso C/Guadalajara, 12 02520 Chinchilla de Montearagón (Albacete) decoproyec@decoproyec.com

SAMPLE FOR TESTING	Material: Sprayed cork Client identification: SPRAYED CORK DECOPROYEC Date received: 07/26/13 Warehouse number: 71180

TESTS	Aging test according to UNE-EN 1542 Water absorption and water permeability test according to UNE-EN 1062-3 Exposure to fluorescent ultraviolet radiation and water (1000 hours) according to UNE-EN ISO 11507 Colorimetric analysis before and after accelerated aging Determination of thermal resistance according to UNE-EN 12667 (Annex 1)

Responsable Laboratorio Pinturas:

María José
Rodríguez
Guanter

AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamín Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

1. ADHESION BY TEAR TEST

The test was conducted following the procedure of the standard "UNE-EN 1542:2000. Products and systems for the protection and repair of concrete structures. Test methods. Determination of adhesion by direct tension".

Preparation of the test samples for the test

The coating system was applied over a normalized mortar test sample classified as MC (0,40) according to the norm EN 1766, with dimensions of 300 mm x 300 mm x 100 mm, the surface being prepared with coarse granules. The application of the sprayed cork was carried out by the applicant company.

Start date of the test: 07/05/2013
End date of the test: 07/05/2013

RESULTS

Identification	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Detachment Load (N)	1260	1309	1358	1211	1197
Adhesion (MPa)	0.64	0.67	0.69	0.62	0.61
Type of Detachment	50% A/B	50% A/B	B	B	50% A/B
	50% B	50% B			50% B
Average Adhesion = 0.65 ± 0.03 N/mm²					

Types of detachment:

A: cohesive detachment within the support of the concrete
B: rupture adhesive between support and sprayed cork coating
A/B: cohesive failure within the sprayed cork
B/A: rupture adhesive within the sprayed cork
Y: cohesive detachment in the epoxy resin
Y/Z: adhesive rupture between the epoxy resin and the sulfur

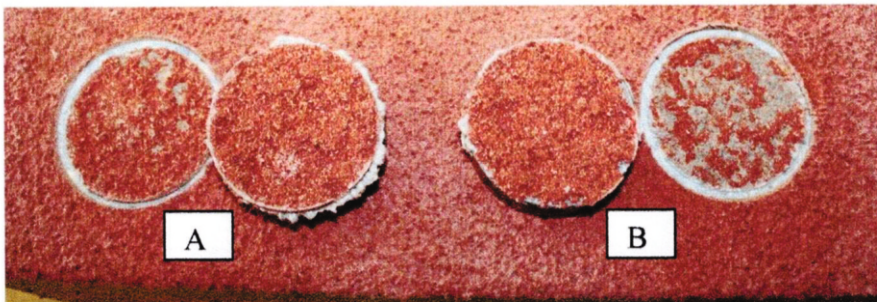

Figure 1. Surfaces separated after the adhesion test. A: 100% Cohesive failure in the sprayed cork and support B: 50% Mix failure 50% A/B – 50% B: 50% adhesive failure between the sprayed cork and the concrete support and 50% cohesive failure of the sprayed cork

AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamin Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

2. CAPILLARY ABSORPTION AND WATER PERMEABILITY TEST

Test carried out following the procedure of the standard "UNE-EN 1062-3. Materials for the coating and systems of waterproofing for exterior masonry and concrete. Part 3: Determination of water permeability".

Preparation of the test samples for the test

The coating system was applied on three test samples of mortar with dimensions of 220 mm x 110 mm and water permeability greater than 1 kg/(m²·h), in accordance with the liquid water permeability test. The application of the sprayed cork was performed by the applicant company.

Start date of the test: 17/07/2013

End date of the test: 18/07/2013

Water Permeability, w (kg/(m²·h))	Sample 1	Sample 2	Sample 3
	0,21	0,21	0,21
Average Permeability, w = 0.21 ± 0.002 kg/(m²·h)			

AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamín Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

3. ACCELERATED AGING TEST

Description of the test

The test consists of evaluating the degradation of a sprayed cork sample from DECOPROYEC when subjected to artificial aging in a radiation chamber equipped with UV radiation and condensation exposure.

The test is carried out according to the procedure described in the standard "UNE-EN 11507. Paints and varnishes. Exposure of coatings to artificial weathering. Exposure to fluorescent UV lamps and water".

The samples are aged in the laboratory with the purpose of simulating the aging processes that occur during natural weathering. Generally, one cannot expect correlation values between artificial and natural aging due to the large number of influential factors.

Description of the equipment and cycles used
Equipment used: QUV-Spray de Q-PANEL LAB PRODUCTS
Lamps: UVA-340 (emission peak at 340 nm)
Employed cycle: 5 hours of UV at 50 °C followed by 1 hour of water spray
Total exposure time: 1000 hours
Exposure area: 95 x 60 mm

Test start date: 28/06/13
Test end date: 08/08/13

RESULTS

The classification of the observed changes has been made according to the standard "UNE-EN ISO 4628-1. Paints and varnishes. Evaluation of degradation of coatings. Designation of quantity and size of the most common types of defects. Part 1".

AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamin Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

Table 1. Classification of the aspect changes observed in the DECOPROYEC sprayed cork coating after 1000 hours of exposure to UV radiation and water

Sample	Modification of aspect: color change
1	1
2	1

Scheme for the designation of the intensity of the changes according to UNE-EN ISO 4628-1

Grade	Intensity of the change
0	Unaltered, that is, no change
1	Very light, barely perceptible change
2	Light, clearly perceptible change
3	Moderate, very clearly perceptible change
4	Considerable, pronounced change
5	Very intense change

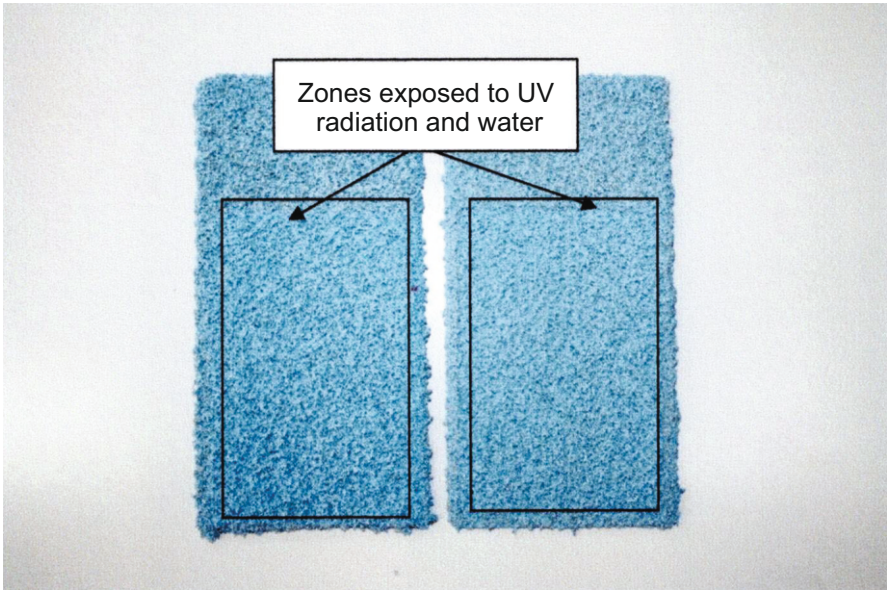

Figure 2. DECOPROYEC sprayed cork coating after 1000 hours of exposure to UV radiation and water

AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamin Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

4. COLORIMETRIC ANALYSIS BEFORE AND AFTER AGING

The test was carried out according to the procedure described in the standard "UNE 48372-2. Paints and varnishes. Colorimetry. Part 2: Color measurement".

Description of equipment and cycle used

Equipment used: AVASPEC-2048 spectrophotometer from AVANTES
Illuminant: D65
Observer: CIE 2°
Measurement geometry: integrating sphere (d/0)

Test start date: 08/08/13
Test end date: 08/08/13

RESULTS

Colorimetric coordinates L*, a*, b* of the sprayed cork sample, before and after 1000 hours of exposure to UV radiation and water and the color difference between both (ΔE).

Measurement	Not exposed			Exposed to UV radiation and water			dE
	L*	a*	b*	L*	a*	b*	
1	41,46	-7,43	-15,09	40,64	-7,42	-18,15	4,46
2	40,50	-7,42	-13,47	41,21	-7,55	-18,50	4,75
3	40,81	-7,48	-15,11	40,42	-7,35	-18,32	4,66
4	40,39	-7,38	-13,93	40,27	-7,27	-18,40	4,78
5	40,56	-7,36	-14,3	40,04	-7,13	-18,19	4,65
AVERAGE	41,48	-7,18	-15,26	40,52	-7,34	-18,31	4,66
std deviation	40,87	-7,38	-14,53	0,45	0,16	0,15	0,12

AIDICO
INSTITUTO TECNOLÓGICO
DE LA CONSTRUCCIÓN
Avda. Benjamin Franklin, 17
46980 - Paterna – Valencia
+34 96 131 82 78
+34 96 131 80 33

ANNEX 1. DETERMINATION OF THERMAL RESISTANCE ACCORDING TO UNE-EN 12667

INFORME DE ENSAYO / *TEST REPORT*

Nº 2013AN1713

FECHA RECEPCIÓN / *DATE OF RECEPTION*: 11/07/2013

FECHA ENSAYOS / *DATE TEST*: Inicio / *Starting*: 18/07/2013
Finalización / *Ending*: 22/07/2013

SOLICITANTE / *APPLICANT*

AIDICO (INS. TECNOLOGICO CONSTRUCCION)
Parc Tecnologic, s/n - Apdo.98
ES-46980 PATERNA
VALENCIA

Att. JUAN VICENTE SABATER

DESCRIPCIÓN E IDENTIFICACIÓN DE LAS MUESTRAS / *DESCRIPTION AND IDENTIFICATION OF SAMPLES*

MUESTRAS REFERENCIADAS / *SAMPLES REFERENCED*:

-"CORCHO PROYECTADO DECOPROYEC".

ENSAYOS REALIZADOS / *TESTS CARRIED OUT*

- DETERMINACIÓN DE LA RESISTENCIA Y CONDUCTIVIDAD TÉRMICA
DETERMINATION OF THE THERMAL RESISTANCE AND CONDUCTIVITY.

SE ADJUNTAN / *ATTACHED*: --- MUESTRA(S) / *SAMPLE(S)* LACRADA(S) / *SEALED*

PÁG. / *PAGE* 1 DE / *OF* 5

Central: Plaza Emilio Sala, 1
E-03801 ALCOY (Alicante) SPAIN
Tel.:+34 96 554 22 00
Fax: +34 96 554 34 94

Unidades Técnicas: Paterna: Tel. 96 131 81 93 Fax: 96 131 81 83
Ontinyent: Tel. 96 291 22 62 Fax: 96 291 20 81
Alcoy: Calle Sant Jordi, 13 Tel.:+34 96 554 22 00

www.aitex.es
www.textil.org
www.observatoriotextil.com
info@aitex.es

RESULTADOS / *RESULTS*

DETERMINACIÓN DE LA RESISTENCIA Y CONDUCTIVIDAD TÉRMICA
DETERMINATION OF THE THERMAL RESISTANCE AND CONDUCTIVITY

Norma
Standard

UNE-EN 12667:2002, equivalente a EN 12667:2001
UNE-EN 12667:2002, equivalent to EN 12667:2001

Método de ensayo utilizado
Test method carried out

Medidor de flujo de calor acorde con la norma ISO 8301:1991
Heat flow meter according to standard ISO 8301:1991

Equipo
Equipment

Medidor de flujo de calor de muestra única, en posición horizontal y plato caliente en parte superior
Single specimen heat flow meter of horizontal orientation and hot plate in top level

Identificación de equipo
Apparatus identification

04129 I 12

Método para reducir las pérdidas de calor en los extremos
Method to reduce the heat losse in the edges

El propio material ensayado hace de aislante
Material itself reacts as an isolator

Norma del producto aplicada
Harmonised standard product applied

Procedimiento de muestreo aplicado
Sampling procedure applied

MATERIAL A ENSAYAR
TEST MATERIAL

Características *Characteristics*	**Información del cliente** *Customer information*	**Dato medio** *Determined data*
Referencia *Reference*	CORCHO PROYECTADO DECOPROYEC	---
Especificaciones (composición) *Product specifications (composition)*	Corcho, resinas y pigmentos, según cliente *Cork, resin and pigment, according to client*	---
Aplicación (uso final) *Application (final use)*	No facilitado por el cliente *Not provided by client*	---
Densidad (kg/m^3) *Density*	0,5 – 0,7 g/cm^3, según cliente *0,5 – 0,7 g/cm^3, according to client*	---
Masa superficial (kg/m^2) *Surface mass*	No facilitado por el cliente *Not provided by client*	---
Espesor total (mm) *Total thickness*	3, según cliente *3, according to client*	---

>>>

RESULTADOS / *RESULTS*

Acondicionamiento de la muestra
Sample conditioning

Las probetas se acondicionan según punto 7.2.2 de la norma.
Specimens are conditioned according standard point 7.2.2

Determinación de la resistencia y conductividad térmica
Determination of the thermal resistanse and conductivity

Media de la diferencia de temperatura a través de la muestra durante el ensayo /
Average of the temperature diference through the specimen during test: (ºC)

Probeta / *Specimen* 1	15.04
Probeta / *Specimen* 2	15.01
Probeta / *Specimen* 3	15.00

Temperatura de consigna de ensayo / ***State temperature test*** (ºC)

Probeta / *Specimen* 1	10.94
Probeta / *Specimen* 2	10.97
Probeta / *Specimen* 3	11.00

Densidad de la relación del flujo de calor a través de la muestra durante el ensayo /
Density of the relationship of the heat flow through the specimen during test **($q = f\, e_h$):**

Probeta / *Specimen* 1	111.16
Probeta / *Specimen* 2	107.44
Probeta / *Specimen* 3	103.16

Resistencia térmica / ***Thermal resistance*** ($m^2 \cdot ºK/W$) :

Probeta / *Specimen* 1	0.1353
Probeta / *Specimen* 2	0.1397
Probeta / *Specimen* 3	0.1454

Conductividad térmica / ***Thermal conductivity*** ($W/m \cdot ºK$)

Probeta / *Specimen* 1	0.0589
Probeta / *Specimen* 2	0.0555
Probeta / *Specimen* 3	0.0620

CONDUCTIVIDAD TÉRMICA MEDIA ***Thermal conductivity***	RESISTENCIA TÉRMICA MEDIA ***Thermal resistance***
0.0588 W/m ºK	0.1401m^2ºK/W

///

RESULTADOS / *RESULTS*

Rango de espesores para los estos valores han sido medidos / ***Thicness range to apply this measured values*:** Estimado en 3 mm

Fecha de finalización del ensayo / ***Date of the end of test*:** 22/07/2013

Duración total del ensayo / ***Total duration of the test*** (hrs:mins:sec) :

Probeta / *Specimen* 1	01:07:29
Probeta / *Specimen* 2	01:12:34
Probeta / *Specimen* 3	01:11:51

Fecha de la última calibración del equipo / ***Date of the last calibration of the apparatus*:** 17/07/2013

Orientación del equipo / **Apparatus orientation**: Horizontal / *Horizontal*

Posición del lado caliente de la muestra / ***Warmer side of the specimen position*:** Superior / *Upper*

Envoltura hermética al vapor de agua / ***Water vapour hermetic cover*:** No utilizada / *Not used*

Operario que lleva a cabo el ensayo / ***Operator who carries out the test*:** GES

Jordi Ferri
Responsable Departamento
Comportamiento al Fuego
Head of Fire Behaviour department

Digitally signed by JORGE FERRI PASCUAL - NIF:48294121D
Date: 2013.07.24 13:50:16 +02:00
Reason: Responsable
Location: Alcoy

CLAUSULAS DE RESPONSABILIDAD

1.- AITEX responde únicamente de los resultados sobre los métodos de análisis empleados, consignados en el informe y referidos exclusivamente a los materiales o muestras que se indican en el mismo y que queden en su poder, limitando a éstos la responsabilidad profesional y jurídica del Centro. Salvo mención expresa, las muestras han sido libremente elegidas y enviadas por el solicitante.
2.- AITEX no se hace responsable en ningún caso del mal uso de los materiales ensayados ni de la interpretación o uso indebido que pueda hacerse de este documento.
3.- El informe original emitido se guarda en AITEX. Al cliente se le proporciona una copia electrónica que conserva el valor de original, y será válida siempre que no se vulneren las propiedades de seguridad del documento. Una copia impresa con el logotipo de AITEX marcado con el cuño seco en todas las páginas, conserva el valor de original.
4.- Los resultados se consideran propiedad del solicitante y, sin autorización previa, AITEX se abstendrá de comunicarlos a un tercero. Transcurrido un mes, AITEX podrá utilizar los resultados con fines estadísticos o científicos.
5.- Ninguna de las indicaciones formuladas en este informe puede tener el carácter de garantía para las marcas comerciales que en su caso se citen.
6.- Ante posibles discrepancias entre informes, se procederá a una comprobación dirimente en la sede central de AITEX. Asimismo, el solicitante se obliga a notificar a AITEX cualquier reclamación que reciba con causa en el informe, eximiendo a este Centro de toda responsabilidad en caso de no hacerlo así, y considerando los plazos de conservación de las muestras.
7.- AITEX podrá incluir en sus informes, análisis, resultados, etc., cualquier otra valoración que juzgue necesaria, aún cuando ésta no hubiere sido expresamente solicitada.
8.- Si no están indicadas, las incertidumbres estimadas de los ensayos acreditados por ENAC se encuentran a disposición del cliente en AITEX.
9.- Los materiales o muestras sobre los que se realicen los ensayos se conservarán en AITEX durante los DOCE MESES posteriores a la emisión del informe, por lo que toda comprobación o reclamación que, en su caso, deseara efectuar el solicitante, se deberá ejercer en el plazo indicado.
10.- Este informe sólo puede enviarse o entregarse en mano al solicitante o a la persona debidamente autorizada por él.
11.- Los ensayos marcados con asterisco (*) no están incluidos en el alcance de la acreditación.
12.- Los laboratorios de AITEX se encuentran en Alcoy.

LIABILITY CLAUSES

1.- AITEX is liable only for the results of the methods of analysis used, as expressed in the report and referring exclusively to the materials or samples indicated in the same which are in its possession, the professional and legal liability of the Centre being limited to these. Unless otherwise stated, the samples were freely chosen and sent by the applicant.
2.- AITEX shall not be liable in any case of misuse of the test materials nor for undue interpretation or use of this document
3.- The original test report is kept in AITEX. An electronic copy of it is delivered to the costumer which keeps the value from the original one as far as the security properties of the document are not violated. A hard copy of this report with the AITEX logotype sealed in all the pages, keeps the original value.
4.- The results are considered to be the property of the applicant, and AITEX will not communicate them to third parties without prior permission. After one month, AITEX may use the results for statistical or scientific purposes.
5.- None of the indications made in this report may be considered as being a guarantee for the trade marks mentioned herein.
6.- In the eventuality of discrepancies between reports, a check to settle the same will be carried out in the head offices of AITEX. Also, the applicants undertake to notify AITEX of any complaint received by them as a result of the report, exempting this Centre from all liability if such is not done, the periods of conservation of the samples being taken into account.
7.- AITEX may include in its reports, analyses, results, etc., any other evaluation which it considers necessary, even when it has not been specifically requested.
8.- If not are included, the estimated uncertainties in the tests accredited by ENAC are at the client' s disposal in AITEX.
9. - The tested samples will be stored in AITEX facilities during the next TWELVE MONTHS after the report emission. Any verification or complaint, requested by the client, will be made during the mentioned period.
10.- This report may only be sent or delivered by hand to the applicant or to a person duly authorised by the same.
11.- Tests marked with an asterisk (*) are not included within the scope of the accreditation
12.- AITEX laboratories are placed in Alcoy.