

FPCS WFC

**POLYUREA SYSTEM APPROVED
FOR FOOD CONTACT
100% VOC FREE**

Elastomers

PRODUCT

EPAPROOF FPCS WFC : elastomeric system based on pure polyurea. The resin component of the system, in the neutral format, is totally free of polyurethanes and has a content of amines equal to 100%.

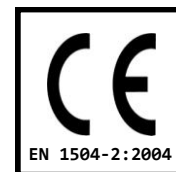
PRODUCT DESCRIPTION

EPAPROOF FPCS WFC is a two-component system, based on aromatic isocyanates and special flexible amines for the protection of metals and concrete surfaces, wood and EPS. The product is 100% solids. According with EN 13823:2010 the product belong to the E class of fire reaction. Suitable for processing and storage environments for food products following the CE directives n° 72 of 06/08/2002 and the UE Commission Regulation n° 10/2011. The test method used according to CE directives 82/711 and 85/572. It is approved (report n.001.14EP-2140392) for contact with potable water for human use too following the International Technical Standard n° 61 of 01/18/1999 and ANSI/NFS 61-1999 (Drinking Water System Components Health Effects). See annex at the end of the TDS. The system further has a temperature resistance ranging from -30 ° C to + 170 ° C.

FIELDS OF APPLICATION

**CONCRETE, METAL,
WOOD, EPS,
PU FOAM AND
COMPOSITES**

- Water containment
- Industrial and manufacturing facilities, storage, load and high traffic areas in the food industry
- Industrial floors and protecting cement items in food environments
- potable water reservoirs, rain storage tanks, cleanwater tanks
- pools indoor-outdoor, recreations areas, slip-hazard areas
- filtration systems, oxygen-tanks, sedimentation tanks
- pipeling coating
- cold storage, loading docks, ramps
- laboratories
- wear and tear parts, belt-conveyors



ADVANTAGES

EPAPROOF FPCS WFC is a poliurea system:

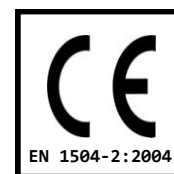
- environment friendly – no VOC
- no loss of weight
- no secondary reaction product
- highly resistant to weathering
- non sensitive to humidity
- excellent impact, abrasion and puncture resistance
- low permeability values
- applicable in temperature -15°C to +70°C
- performs in constant temperatures from -30°C to +140°C
- very good bridging properties

SPECIFIC PRODUCT FEATURES

EPAPROOF FPCS WFC is a 100% pure polyurea system made up of two liquid components, isocyanates and amines, mixed together with a special spray equipment.

COLOR

Available color: Green ral 6010, Green ral 6020, Red ral 3009, Grey ral 7040, Black ral 9005. Other colors available on request.



**PRODUCT MECHANICAL –
PHYSICAL PROPERTIES**

Spec.weight ISO (25°C)
Spec.weight RES (25°C)
Viscosity ISO (25°C)
Viscosity RES (25°C)
Mix Ratio
Gel time
Elongation at break
Tensile strength
Tear strength
Abrasion
Hardness
Vapour transmission
Thermal conductivity
Curing time walkable
Loading light traffic
Full curing
Steel adhesion
Concrete adhesion
Fibro-cement adhesion

VALUE		UNIT	STANDARD
MIN	MAX		
1.115	1.125	g/cm ³	UNI EN ISO 2811-1
1.0	1.05	g/cm ³	UNI EN ISO 2811-1
500	800	mPas	UNI EN ISO 3219 Brookfield
300	500	mPas	UNI EN ISO 3219 Brookfield
1:1		Vol	
4	6	sec	EPALAB0006.01
340 - 370		%	UNI EN 12311-2 (parte B)
15 - 20		MPa	UNI EN 12311-2 (parte B)
140 - 160		N	UNI ISO 34-1/UNI ISO 34-2
20		mg	UNI EN ISO 5470-1
48		Shore D	UNI EN ISO 868
0,025		permes	UNI EN 1931
0,14		W/mk	EN12667:2002
>15		min	
>8		h	
24		h	
>7		MPa	UNI EN 24624
>1,5		MPa	UNI EN 24624
>1,4		MPa	UNI EN 24624

AGING

The product **EPAPROOF FPCS WFC** was subjected to Accelerated Weathering Test with QUV Tester according to ASTM G 53 and with the use of lampade UVB-313, a cycle of 4 hours luce/4h dark. For each 4 hours of dark specimens were simultaneously subjected to a cycle of condensation at 50 ° C. In the cycle of light instead of 4h UV irradiation took place at a temperature of 60 ° C. It is not possible to establish a clear and direct correlation between the time of accelerated and natural aging. It can be stated that in principle 2200 h of QUV test (4h +4 h / cycle) are approximately 1 real Florida year, and 340 h of QUV test (4h +4 h / cycle) are approximately 1 real Europe year. In the following table the changes of the physical and mechanical properties after the QUV exposition.

PROPERTIES	UNIT	As such	after 1700 h	after 3200 h
ΔE color	-	0	31,16	32,5
Modulus al 100%	Mpa	6,5	7	7,16
Modulus al 300%	Mpa	10	10,33	10,78
Tensile strength	Mpa	12	13,18	14,34
Elongation at break	%	250	266	255
Tear strength	KN/m	90	93,44	107,98

ANTISLIP PROPERTIES

EPAPROOF FPCS WFC was also subjected to the test for determining the coefficient of friction for floors according to the BCRA Method in accordance with the provisions of Ministerial Decree of June 14th 1989 n°236,. Article 8.2.2.

This Ministerial Decree provides that:

- By Element leather slip on dry pavement, the coefficient of friction $\mu > 0.40$;
- By Element slip rubber on wet pavement, the coefficient of friction $\mu > 0.40$.

The following table shows the results of the test

SLIDING ELEMENT	DIRECTION TEST	COEFFICIENT OF FRICTION MEDIUM μ
Leather on a dry surface	A 	0,62
	B (ort. ad A)	0,65
Rubber on a wet surface	A 	0,55
	B (ort.ad A)	0,59

PROCESSING PARAMETERS

EQUIPMENT TEMPERATURE	60 - 80°C
HOSE TEMPERATURE	60 - 80°C
PRESSURE	Following the instructions of your equipment supplier

SURFACE PREPARATION

The outline criteria on the entity of a surface preparation depends on several factors that can be essentially summarized in:

- kind of surface;
- surface condition;
- coating cycle;
- overall stresses.

The surfaces usually needing to be coated can be limited to the following cases:

- concrete or cement surfaces;
- plastering;
- stoneware, Klinker, brick tile;
- stone;
- metal.

In all types of substrate moisture content must never be higher than 4%. The substrate and polymerized membrane must be at least 3 ° C above the dew point to reduce the risk of condensation or blooming of the membrane finish.

It is possible to identify different types of preparation:

Smoothing

It is intended as the mechanical action by abrasive wheels, or abrasive paper (smoothing over) to remove cement milk, dirt and so on from the surface outer layer.

Bush-hammering

It is intended as the mechanical action by a suitable scotching machine, whether rotating or not, which removes 3-5 mm of surface layer.

Such tool only removes weak-mechanical-resistance material.

Milling

It is intended as the mechanical action by a rotating fraise to achieve a uniform and total constant- thickness removal, regardless of the surface resistance.

Sandblast

It is intended as the mechanical action by mineral or metal grains suitable to remove brittle and loose parts, previous coatings, besides realizing a higher nominal adhesion surface.

Shot-peening

It is intended as the mechanical action by metal grains gave off by suitable machines featuring a total recycle, parting and retrieval of sanding materials and fragments, in absence of powders.

Hydrowash

It is intended as the hydraulic action by an high- pressure

water jet, in case at an high temperature, for a deep surface cleansing.

Hydro-sandblast

It is intended as the mechanical action by an high- pressure water jet together with the sand abrasive action to remove brittle and loose parts, previous coatings, and for a deep surface cleansing.

Chemical wash

It is intended as the chemical-physical action of suitable chemical agents to neutralize or remove particular products that could compromise the coating adhesion. Obviously, if the surface is particularly critical, several treatments can be superposed. A suitable preparation treatment must be absolutely done in order to have a successful coating application.

Following the correct preparation it is suggested that the substrate be primed. In these case it is recommended an Epaflex product range as:

EPACRETE EPAPOX 22: a primer suggested for concrete surfaces;
EPACRETE EPAPOX BUS: a primer suggested for dump surfaces;
EPACRETE EPAPOX 25: a primer suggested for metal surfaces;
EPACRETE OLV 13 MONOC.: a primer suggested for concrete and steel smooth surfaces.
 (for these products it is available the specific TDS)

Before applying **EPAPROOF FPCS WFC** on any primer range Epaflex such as EPACRETE EPAPOX 22 you must meet the following timeout settings:

Substrate temperature	Minimum	Maximum
+10°C	26 hours	3,5 days
+23°C	23 hours	3,5 days
+30°C	17 hours	3,5 days
+40°C	15 hours	3,5 days

Prior to overlap on **EPAPROOF FPCS WFC** a second layer of **EPAPROOF FPCS WFC** it is recommended to respect the following ranges:

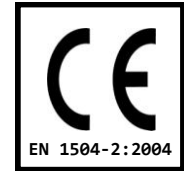
Substrate temperature	Minimum	Maximum
+10°C	10 - 15 seconds	7 hours
+23°C		6 hours
+30°C		5 hours

Preparation cycles

- **Smoothing:** New surfaces without any particular hardening treatments.
Coating cycles: Film coatings in general.

- **Bush-hammering:** Old surfaces featuring brittle parts, which are not spread on the whole surface.
Coating cycles:
 - 1) self-levelling flooring, upon trimming;
 - 2) troweled mortar flooring;
 - 3) multilayer.
- **Milling:** Particularly deteriorated or contaminated old surfaces from which it is necessary to remove a continuous and uniform layer.
Coating cycles:
 - 1) self-levelling flooring, upon trimming;
 - 2) troweled mortar flooring;
 - 3) multilayer.
- **Sandblast:** Concrete, stone, brick, metal as well as tile surfaces.
Coating cycles:
 - 1) thick-film;
 - 2) self-levelling flooring;
 - 3) troweled flooring;
 - 4) multilayer;
 - 5) wall coating in general;
 - 6) concrete protection in general;
 - 7) anticorrosion protection.
- **Shot-peening:** Concrete, stoneware-tile, concrete-tile, brick, stone as well as metal surfaces.
Coating cycles:
 - 1) thick-film;
 - 2) self-levelling flooring;
 - 3) troweled mortar flooring;
 - 4) multilayer.
- **Hydrowash:** Concrete, brick, stone surfaces.
Coating cycles:
 - 1) thick-film;
 - 2) thin-film;
 - 3) wall coating in general;
 - 4) concrete protection in general.
- **Hydro-sandblast:** Concrete, brick, stone as well as metal surfaces.
Coating cycles:
 - 1) thick-film;
 - 2) thin-film;
 - 3) multilayer;
 - 4) wall coating in general;
 - 5) concrete protection in general.
- **Chemical wash:** Concrete, brick, stone surfaces.
Coating cycles:
 - 1) thick-film;
 - 2) multilayer;
 - 3) thin-film;
 - 4) wall coating in general;
 - 5) concrete protection in general

The kinds of preparation as well as its weight depend on the kind of stress the surface will undergo; this is essentially valid



for floorings, so the kinds of preparation can be divided as follows:

Weak stresses:

- grinding;
- hydrowash;
- chemical wash.

Medium stresses:

- sandblast;
- hydro-sandblast.

Strong stresses:

- shot-peening;
- bush-hammering;

PACKAGING

EPAPROOF FPCPS WFC system is supplied in two components:

EPAPROOF FPCR WFC RESINA in 205 kg green drums or 50 kg blue little drums;

EPAPROOF FPCI WFC ISO in 225 kg red drums or 50 kg little red drums.

STORAGE

The two system components must be stored in a cool place away from direct sunlight, perfectly sealed in original packaging and at a temperature between +5°C and 30°C. The stability at 65°C of isocyanate component is 60 - 90 days. The Shelf life of the resin component is 12 months from the production date, while for the isocyanate component is 6 months from the production date, stored in original packaging, unopened, undamaged and sealed.

SAFETY

Avoid contact with skin and mucous membranes. Use suitable protections, in particular, mask and gloves. Avoid inhaling the vapour's product and if it is possible ventilate the work areas. For further informations follow the MSDS recommendations.

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ISSUED DATE: 23.10.2013
ISSUED BY ANTONIO GARZIA
REV.04.010415



Report n. 001.14 EP (2140392)

EPAFLEX POLYURETHANES SRL

Via Circonvallazione Est, 8

27023 CASSOLNOVO (PV)

Product's sample: EPAPROOF FPCS WFC (Elastomeric aromatic polyurea for food contact)

Received: 09.05.2014

Analytical specifications:

CE Directive n.72 06/08/2002: plastic materials and articles intended to come into contact with foodstuffs.

UNI: International Technical Standard n. 61 01/18/1999; ANSI/NFS 61-1999: Drinking Water System

Components Health Effects (Joining and sealing materials).

D.M. 03/21/1973 and following amendments: Hygienic regulation of packaging, containers and tools intended to come into contact with foodstuffs.

UE Commission Regulation N. 10/2011 of 14 January 2011: on materials and objects of plastic intended to come into contact with foodstuffs

Characteristics of product: n° 05 specimens of each size 20 cm x 20 cm x (1,79 ± 2.62)mm

Test conditions: For each migration test we used n° 4 specimens (test length: 10 days according to CE Directives 82/711 and 85/572).

Test results

Sample (Epaproof FPCS WFC)	Test length	Test Temperature	Test Results
n°03 test in distilled water (M ¹ /M ² /M ³)	240 h for (M ¹ /M ² /M ³)	40 °C	No detectable migration

Comment: On the basis of tests carried out to evaluate the concentration of the chemical product migration "EPAPROOF FPCS WFC: elastomeric aromatic polyurea for food contact" simulant above we certify that this product doesn't transfer any component if it's used in standard conditions.

In accordance to current regulations, you can use it, in the manufacture of other food products that can come into contact with alimentary products.

Novi Ligure, 18.06.2014

The lab director
Dott.ssa Loredana Zambelli