



## **WATERPROOFING OF BALCONIES. COLD-LIQUID APPLIED.**

### **0) Introduction & summary of systems**

This document explains the different systems that Krypton Chemical, SL. proposes for the liquid cold applied waterproofing of balconies. All the systems described meet the requirements of the ETA (ETAG 005) certificate of IMPERMAX, number 06/0263, with the following features W3 and P4.

The summary of the five different systems proposed can be seen on the next table:

Non exposed membrane, covered with tiles		1	
Exposed  Membrane	Protective top coat based on a single colored aliphatic high performant polyurethane (Colodur plus colour paste)		
	Decorative	2	
	Finish	Quartz Colour + Clear aliphatic high performant polyurethane top coat, Colodur.	3
		Decorative Flakes + Clear aliphatic high performace polyurethane top coat, Colodur.	4
Decorative aggregates binded with an aliphatic polyurethane (draining system). Pavistone 1K		5	

### **1) Description of the main products**

#### **IMPERMAX QC**

Single component polyurethane resin, moisture cured, semi-thixotropic and containing an accelerator that lets the resin gets dry very fast even at low temperatures (QC for quick curing). Solvent based. Designed to create a thick, seamless, and elastic waterproofing membrane with outstanding capacity to bridge over fissures. IMPERMAX QC also holds a BBA (UK) certificate for 25 years. Roller applied.

#### **HUMIDITY PRIMER**

Two component waterborne resin, free from fillers and plasticizers. Applied as a primer over porous concrete surfaces with the objective to seal the porosity of the surface before the application of the first IMPERMAX QC layer. Could be applied over surfaces with moisture up to 6%. It could be accelerated to reduce its curing time at low temperatures (Epoxy Accelerator). Roller applied.



## **COLODUR**

Single component polyurethane resin, with very good scratch, wear, chemical, UV and outdoors resistance. Solvent based, clear, mineral filler and plasticisers free. Could be coloured with a suitable colour paste (at about 20%). Applied as a protective top coat over the IMPERMAX QC membrane. Roller and/or airless applied. A final, diluted airless applied layer (over a previous Colodur roller applied layer) permits a more aesthetical finish. Gloss finish, however a final thin layer with Matting additive could be applied if a matt finish is required. Could be mixed with Antislip Additive (Fine or Coarse) to obtain an anti skid finish. CE Mark under EN 13813 norm (coatings for flooring).

### **2) Description of the systems**

#### **2.1) Description of the basic system**

To ensure a good penetration and bonding of the coating, concrete surface must fulfil the following conditions:

- I). Should be even
- II). Should be cohesive and compact
- III). Should have a regular and smooth appearance
- IV). Free from cracks and fissures (or suitable treated)
- V). Should be clean, neat, free from laitance, loose particles or strange matter. Free from oils, silicones, mosses or greases.
- VI). Completely dry

The procedure to create the waterproofing membrane is as follows:

- A) Treatment of the surface. Repair the cracks and fissures using Rayston Flex PU sealant to fill up all gaps and joints. Treatment with diamond grinding machine would be advisable.
- B) Application of primer. Humidity Primer, about 0,35 kg/m<sup>2</sup> in one single layer. If the content of moisture inside the surface is well above 6%, an initial layer of TECNOCEM at minimum 2 kg/m<sup>2</sup> should be applied.
- C) Accurate treatment of details and upstands.
- D) Application of the first (base) layer of IMPERMAX QC. 1 kg/m<sup>2</sup>. Reinforcement with Rayston Fiber 150. If any loose fibres are sticking up after the base layer has cured – then it is best to lightly sand/abrade these fibres
- E) Application of the second layer of IMPERMAX QC (normally in a different colour). 1 kg/m<sup>2</sup>. If any bubbles appear you can use a spike roller to remove them while the top coat is wet.



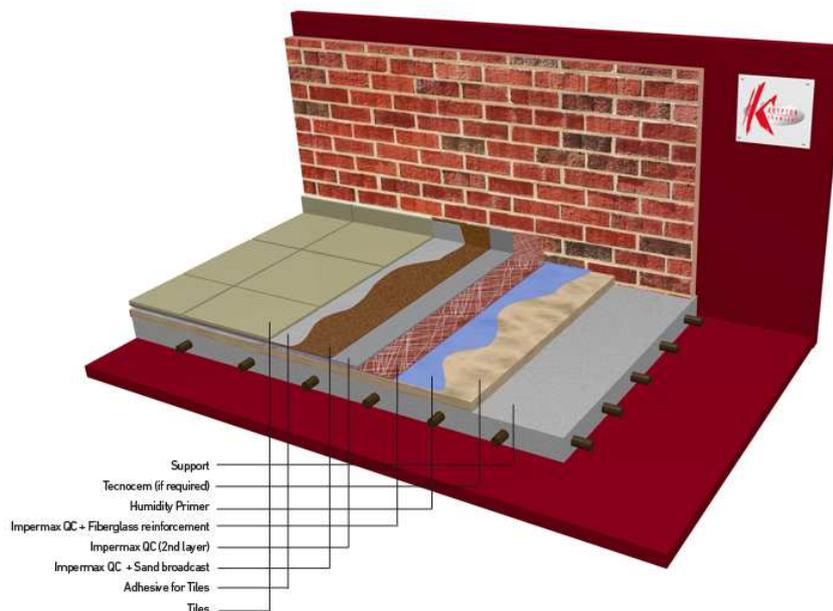
(If for any reason time between second and first layer of IMPERMAX QC is too long, in order to have good adhesion between both layers, clean the first layer with a strong solvent (Rayston Solvent) to activate the surface and apply the PU Primer, adhesion promoter for non porous surfaces).

## 2.2) Description of the different finishes

### 2.2.1) Non exposed waterproofing membrane (system 1), covered with tiles

In order to have a very good adhesion between the IMPERMAX QC coating and the tiles, a further thin layer of IMPERMAX QC (after step E, section 2.1), 0,5 kg/m<sup>2</sup> (thinned with 10% of Rayston Solvent) should be applied. While still wet broadcast quartz sand (0,4-0,8) until saturation (about 3 - 4 kg/m<sup>2</sup>). Excess of quartz sand will be removed by brush or preferably with a vacuum cleaner after the resin gets dry. So a rough surface is created.

We recommend a class C2 flexible cementitious tile adhesive.

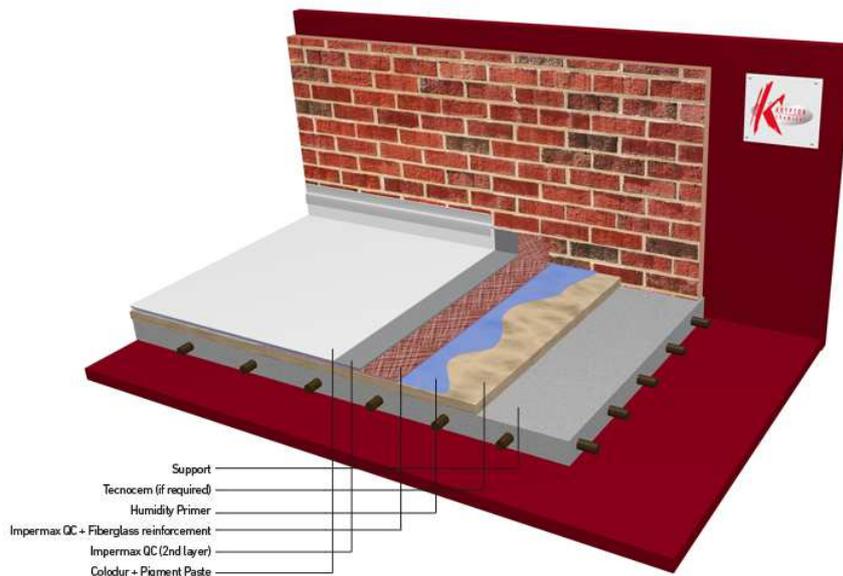




### 2.2.2) Exposed waterproofing membrane. Aliphatic top coat single colour finish (system 2)

After Step E (Section 2.1), application of one or two layers of 0,2 kg/m<sup>2</sup> per layer of Colodur mixed with about 20% of Colour Paste. Two layers (or even more) for better protection. If just one layer is applied, colour should be similar to the colour of the last layer of IMPERMAX QC applied.

Colodur may be mixed with an Antislip Additive (Fine or Coarse) in order to be able to obtain an anti-skid finish.



### 2.2.3) Exposed waterproofing membrane. Decorative finish. Quartz colour (system 3)

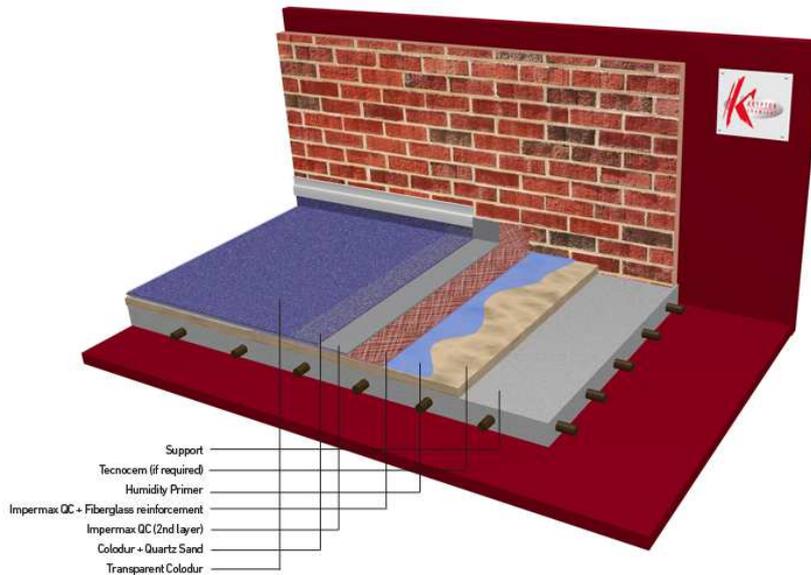
After step E (Section 2.1),

F) Application of a base layer of Colodur with white Colour Paste or even Pavidur (single component aromatic PU, hard and rigid for flooring applications) with white Colour Paste (for lower cost) of about 0,2 kg/m<sup>2</sup>.



- G) Broadcast the coloured quartz sand until saturation (normally between 2,5 – 3 kg/m<sup>2</sup>).
- H) When the base resin gets dry, remove the excess of quartz sand with a brush or preferably with a vacuum cleaner. Sand (abrade) the surface mechanically depending on the final roughness desired.
- I) Apply 1 or two layers of Colodur (clear) as a protective top coat (0,2-0,3 kg/m<sup>2</sup>).

Final roughness/smoothness of the surface may be controlled by the degree of abrasion (step H) and/or the quantity of clear Colodur applied (step I)

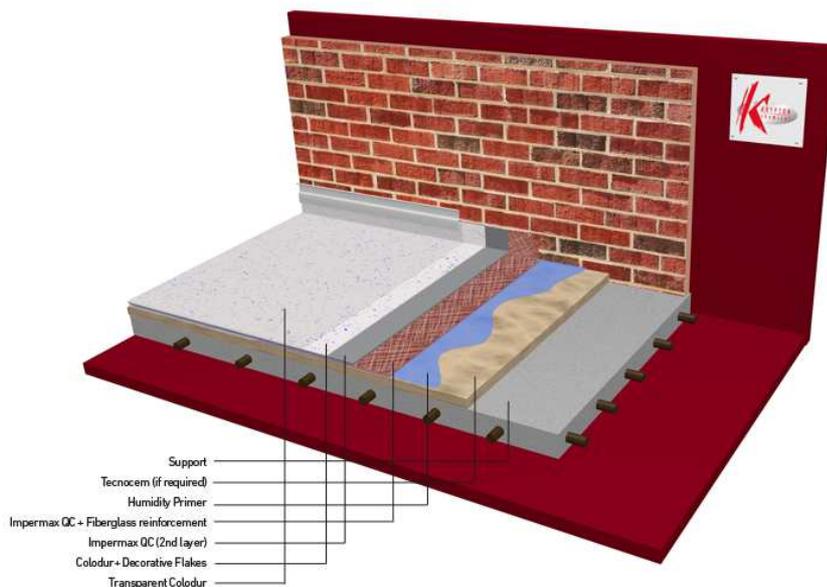




#### 2.2.4) Exposed waterproofing membrane. Decorative finish. Decorative Flakes (system 4)

After step E (Section 2.1),

- F) Application of a base layer of Colodur with Colour Paste of about 0,2 kg/m<sup>2</sup>. Colour should be similar to the colour of the last layer of IMPERMAX QC applied (step E).
- G) Broadcast the decorative flakes. Quantity depends on the type of flake and the desired finish. 300-400 grams/m<sup>2</sup> for saturated surface. Lower quantities for not saturated surfaces.
- H) Apply one or two layers of Colodur (clear) as a protective top coat (0,2-0,3 kg/m<sup>2</sup> per layer).



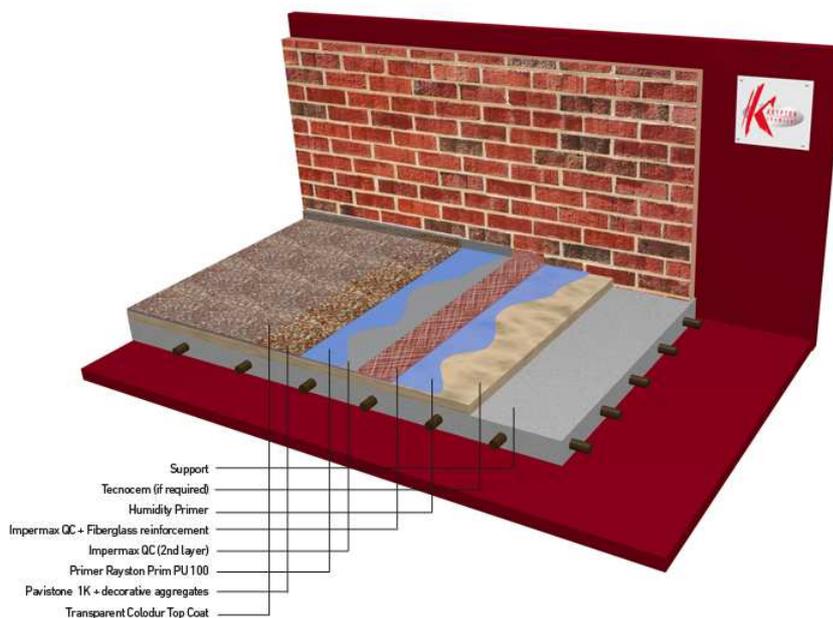
#### 2.2.5) Exposed waterproofing membrane. Decorative finish. Decorative aggregates binded with an aliphatic polyurethane (system 5). Pavistone system.

After step E (Section 2.1),

- F) Application of the Rayston Prim PU 100 (primer specially designed for the Pavistone system) 0,2 kg/m<sup>2</sup>.



- G) Application of about 17 kg. of decorative stones per m<sup>2</sup> and 1 cm. thick, binded with about 0,9-0,95 kg. (depending on size and shape of the aggregates) of the aliphatic single component polyurethane resin, solvent free, filler free, plasticizer free, Pavistone 1K.
- H) Application of a protective top coat, a very thin layer of clear Colodur (0,1 kg/m<sup>2</sup>), to avoid the detachment of the superficial aggregates.



This information, as well as our advices, both written as oral or provided through testing, are based on our experience, and they do not constitute any product guarantee for the installer, who must consider them as simple information. We recommend studying carefully all information provided before proceeding to the use or application of any of our products, and strongly advise to conduct tests "on-site" in order to determine their convenience for a specific project.

Our recommendations do not exempt of the obligation of installers to carefully study the right application method for these systems before use, as well as to conduct as many preliminary tests as possible should any doubt arise. The application, use and processing of our products are beyond our control, and therefore under the exclusive responsibility of the installer. In consequence, the installer will be the only responsible of any damage derived from the partial or total in-observation of our indications, and in general, of the inappropriate use or application of these materials.

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