# APPLICATION GUIDE.

## **Rayston Floor EP 10** System

by Krypton Chemical

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# 1. General conditions

## RECOMMENDATIONS

### MANUFACTURER

The manufacturer of the products used in the work described in this specification shall demonstrate in writing that its Quality Assurance system complies with the requirements of Spanish Standard UNE-ISO 9001.

### APPLICATOR

For the correct application of the systems specified in this report, it is recommended that the application company has successfully completed a training program on their installation or application and the appropriate methods for preparing the substrate. It must also have the necessary equipment for the correct application of the product.
The application company must have the necessary means and equipment in suitable condition for the correct application of the system.

## APPLICATION EXECUTION:

### ENVIRONMENTAL CONDITIONS

Before starting the work described in this specification, it must be verified that the environmental conditions, the work site, and the substrate are suitable for application.
The final responsibility for any decision regarding the application of the system on site shall lie with the site manager, project manager, and/or builder, and in no case with the product supplier.

### PREPARATION

Proper preparation of the substrate is vital for the correct application of the products. Therefore, the technical instructions recommended by the manufacturer must be followed.

### APPLICATION

It is recommended that the products described in this report be applied or installed in accordance with the manufacturer's instructions and in compliance with current regulations.

### PROTECTION SYSTEMS

Before starting the application work, the necessary measures must be taken to protect workers in terms of Occupational Risk Prevention, and the appropriate measures must be taken to ensure that personnel not involved in the work are not affected by the application.

## 2. Proposed solution

This document is intended to assist you and the applicator during the application of the **RAYSTON FLOOR EP 10** system. This is a two-component, pigmented epoxy resin-based system with a smooth or rough top coat applied to concrete substrates.

To this end, the preliminary actions to be carried out on the surface must be defined in order to mitigate the risk of future injuries. In addition, we will take into account the minimum properties that the substrate must meet in order to mitigate future risks.

## 3. System steps

The system must follow these steps:

- Primer: Rayston Epoxy 100
- Main coat and top coat: EP Coat 100

# 4. Substrate requirements and treatment of details and specific points

1 Substrate requirements:

The concrete substrate must meet the following properties:

- Minimum cohesion (pull-off/tensile strength) of 1.5 N/mm².
- The concrete substrate must be compact and have sufficient compressive strength (minimum 25 N/mm²).



- HR <4%
- No cracks
- Cohesive
- Uncontaminated
- Level

(Otherwise, the coating will highlight any existing irregularities).

2 Moisture content, ambient and substrate temperatures.

Before application, confirm the moisture content of the substrate, RH, dew point, or condensation. If the moisture content of the substrate is greater than 8%, and if possible, dry the surface using devices designed for this purpose; otherwise, other types of primer will be evaluated.

The ambient and substrate temperatures and humidity levels must be controlled throughout the application cycle (before, during, and after) (min. +10°C and max. +30°C) to prevent accelerated reactions. In addition to this, the dew point or condensation point must also be controlled (always apply when the temperature is 3°C above).

Note: The speed of any chemical reaction depends on the temperature; as a general rule, the higher the temperature, the faster the reaction. Condensation on the substrate must be at least 3°C above the dew point, and the ambient humidity must not exceed 85%.

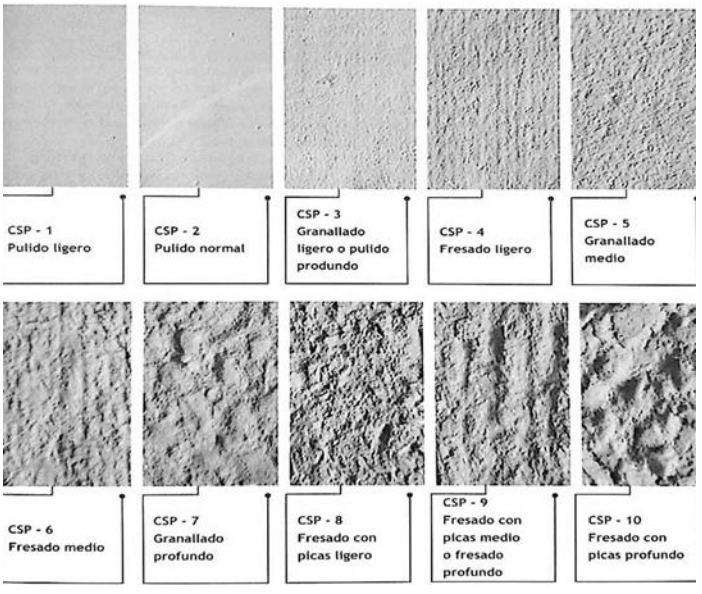
## 3 Substrate preparation:

To ensure good compatibility of the system with the existing substrate and obtain good adhesion, it is very important that the substrate meets the following minimum requirements:
adhesion, it is very important that the substrate meets the minimum requirements and has the following
properties:

1. Cohesive.
2. Regular and homogeneous.
3. Completely continuous.
4. Free of cracks, fissures, and cavities (which must be treated beforehand).
5. Clean and free of dust, grease, fluids, and any other type of chemical contaminant.
6. Fully cured.
7. Free of particles and other materials not completely adhered to the substrate.
8. As dry as possible (without risk of negative pressure).

The substrate should be washed with a high-pressure water machine to remove dirt (degreasing) and impurities. It is important that no material residues remain, as they can affect the adhesion of the membrane to the substrate.

The degree of roughness in the concrete must be CSP1-CSP3 according to Technical Guide No. 03732 of the ICRI (International Concrete Repair Institute) "Selection and Specification of Concrete Surface Preparation for Polymeric Coatings, Sealants, and Coverings."



4 Treatment of damage and impact marks:

Before proceeding with the primer on the surface, local treatments shall be carried out with dry mortar based on Rayston Epoxy 100 resin, with aggregate of 0.4 to 0.9 mm grain size or equivalent, or with R4-type cementitious repair mortar, ensuring complete aesthetic homogeneity with the existing treatment. Any cracks or small cavities shall be filled with Rayston Flex polyurethane filler or equivalent.

5 Treatment of details and specific points:

Right angles should be avoided at horizontal-vertical joints, corners, and other parts of the structure; in other words, it is advisable to round off these areas of the surface with mortar **(half-rounds)**.

With regard to the **expansion joints** in the structure, if they have a movement greater than 50% of the size of the joint, mechanical joints must be installed (for example, a joint with a minimum width of 10 cm must be opened a maximum of 15 cm). To ensure the watertightness of the system, these mechanical joints must be installed following the manufacturer's specific recommendations.

If the movement is smaller, they can be treated with Rayston Joint Geo high-elasticity tape, after filling them appropriately (polyethylene foam cylinder and Rayston Flex-type polyurethane mastic). Rayston Joint Geo adheres to the primed substrate thanks to an adhesive (PU 2K Adhesive) or an epoxy resin such as Rayston Epoxy 100 applied to the geotextile attached to the tape. Polyurea membranes do not adhere well to the Rayston Flex Joint Geo strip, so if the joint moves, this movement will not be transferred to the polyurea membrane, or in any case the movement will be attenuated when it reaches the polyurea membrane, reducing the risk of cracking.

Rayston Joint Geo can be supplied in different widths; it is advisable to always use a strip of the appropriate width.

For small jobs, Rayston Flex 3040 single-component polyurethane mastic should be applied manually. For greater productivity, the highly elastic polyurea-based sealant (two-component, cures in a few seconds) Rayston Flex 70 can be applied alternatively using the portable Rayston Spray Gun machine. If a large number of linear meters of joint need to be filled, application will be more efficient with the Rayston G-1 machine.

A similar treatment should be carried out on cracks larger than 2 mm or even smaller if there is a suspicion that they are moving and/or continuing to open over time (unstabilized cracks or fissures).

*Important*: Treatment carried out in winter (at the lowest possible temperatures) will always be more effective than treatment carried out in summer. In winter, at low temperatures, the materials will be contracted and the edges of the joint will be further apart. In summer, with high temperatures, the materials will be expanded and the edges of the joints will be closer together. If the treatment is carried out in summer, without leaving any slack in the membrane, when winter arrives and the temperature drops, the edges of the joints will separate and the membrane will become tense, with the risk of cracking.

# 5. Steps and application of the system

## 5.1 Primer

**RAYSTON EPOXY 100** is a high-viscosity, high-solids epoxy system consisting of two pre-measured components. Depending on the porosity of the substrate, it can be diluted with Rayston solvent to improve liquid penetration and adhesion performance. Ideally applied in two stages to achieve maximum adhesion.

Apply 0.5 $^{kg/m^2}$of Rayston Epoxy 100 in two coats. The first coat of primer can be diluted with 10%-15% Rayston solvent to help it penetrate (anchor) into the surface and aid consolidation. A total of 0.2 $kg/m^2$should be applied in this first coat.

Once the first coat has cured, apply the second coat with a light wet sprinkling of 0.3-0.8 mm aggregate. Apply a total of 0.3 $kg/m^2$ $(0.06\ lb/ft^2)$.

For application, spread the material in a regular manner, avoiding accumulations, and work within the product's useful life (see FT).

Important: The primer is applied to seal the porosity of a surface and should never be applied when there is rising air, i.e., when there is direct sunlight on a porous exterior surface that is gradually heating up. The recommended product in this system, RAYSTON EPOXY 100, can only be used if the substrate moisture content is less than 4%. (If it is higher, ask the technical office for a list of primers).

Application tools for Rayston Epoxy 100 :

## 5.2 Main coat

**EP COAT 100** is a 100% solid two-component epoxy coating for the protection of concrete surfaces and floors.

For this project, two coats of the material should be applied at a rate of 0.3–0.5 $kg/m^2$ per coat, giving a total of approximately 0.6–1 $kg/m2$. Work within the product's useful life (see FT), apply with a roller.

To obtain a non-slip top coat, sprinkle 1 $kg/m^2$ of 0.3–0.8 mm aggregate onto the first coat.

*Resin mixture:*

1. Before mixing, stir component A (resin) for 1/2 minute at low speed (about 300 rpm) and then add component B (hardener). Add all of the hardener to the container of component A.
2. Mix both components thoroughly with an electric mixer at low speed (about 300 rpm) for at least 3 minutes until the mixture is uniform.
3. Transfer the mixed material to a second clean container and mix for another minute.

*Note*: With the Rayston Floor EP 10 system, special attention and care must be taken with moisture, condensation, and water for at least the first 48 hours after application. This will prevent water spotting.

# 6. Certificates

## EP COAT 100 Certificates

**Type of test:**

- CE marking - UNE-EN 13813:2003
- Adhesion resistance, UNE-EN13892-8:2003
- Impact resistance, UNE-EN ISO 6272-1:2012
- BCA wear resistance, UNE-EN 13892-4:2003
- Determination of the slip resistance value of unpolished flooring (USRV). UNE-ENV 12633:2003
- Classification of reaction to fire - EN 13501-1:2007

## 7. Maintenance

It is advisable to maintain the facilities and carry out periodic cleaning, removing surface debris and dirt before cleaning.

A minimum frequency of two visual inspections per year is recommended, one at the beginning of spring and the other at the beginning of autumn.

In addition, the system should always be inspected after other professionals have carried out work such as construction, installation of new equipment, or repair of existing equipment.

## 8. Conclusions

The **RAYSTON FLOOR EP 10** system proposed by Krypton Chemical has been used in a large number of construction and renovation projects in Spain and other countries. It has a long track record of success.

This system is completely continuous (without joints), remains adhered to the treated surface, and offers great resistance over time. In addition, it is a system that easily and effectively resolves all the unique issues that may be encountered in an installation of this type.

This system, applied on site by a company approved by Krypton Chemical, has CE marking based on tests carried out by the APPLUS laboratory.

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