



APPLICATION GUIDE.

Rayston Floor PU 20 System

by Krypton Chemical

Contents

1.	General conditions	4
2.	Proposed solution	5
3.	System steps.....	5
4.	Requirements of the substrate and treatment of details and unique points	6
5.	System steps and application.....	10
5.1	Primer	10
5.2	Main coat.....	11
5.3	Top coat	11
6.	Certificates.....	12
7.	Maintenance.....	13
8.	Conclusions.....	13

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 PU 20** system. A two-component, multi-layer, 100% solids system based on polyurethane resins, with a rough, aliphatic top coat for the protection of concrete surfaces and floors. Ideal for coating flooring in industrial premises, warehouses, workshops, etc. where greater movement tolerance is required than conventional epoxy systems can provide.

To this end, the preliminary actions to be carried out on the surface must be defined in order to mitigate the risk of future damage. 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: Pavifloor & aggregates (1/0.3) and aggregate dusting.
- Top coat: Colodur Eco or Floortop 1K

4. Substrate requirements and treatment of details and specific points

1 Substrate requirements:

The concrete substrate must meet the following properties:

- Minimum cohesion (resistance to tearing/traction) 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 temperatures, and substrate.

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, we must 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, 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%.

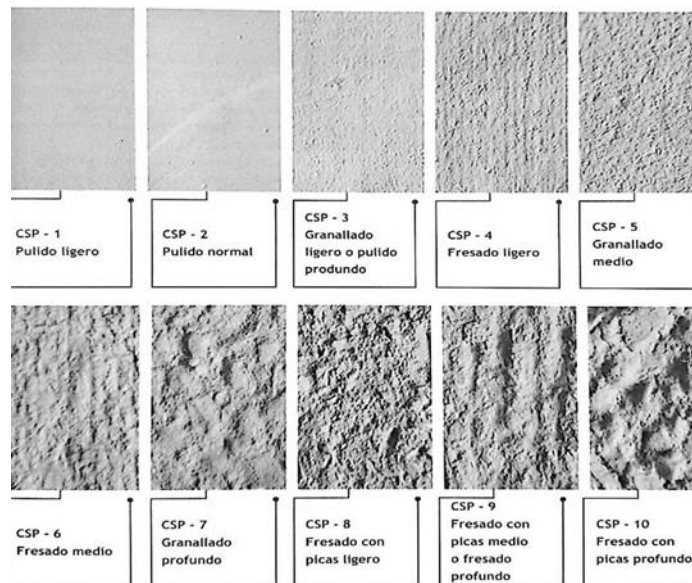
3 Substrate preparation:

To ensure good compatibility of the system with the existing substrate and obtain good adhesion, it is very important that the substrate meets certain minimum conditions 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 CSP3-CSP5 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, 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 Rayston Flex Joint Geo tape, 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 mastic (two-component, cures in a few seconds) Rayston Flex 70 can be applied alternatively with 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 (when temperatures are at their lowest) will always be more effective than treatment carried out in summer. In winter, when temperatures are low, materials will have 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.

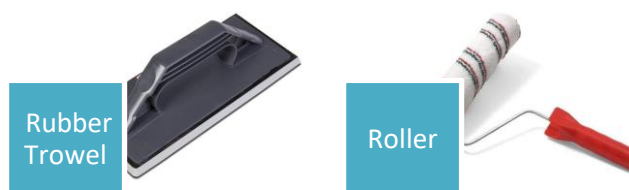
Apply 0.5 kg/m² of Rayston Epoxy 100 in two coats. The first coat of primer can be diluted with 10%-15% Rayston solvent to help it penetrate (anchor) into the surface and aid consolidation. A total of 0.2 kg/m² should be applied in this first coat.

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/m².

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

PAVIFLOOR is a two-component, self-leveling, 100% solids aromatic polyurethane resin. Solvent-free, flexible, and resistant.

Spread the material in a regular manner, avoiding accumulations, at a rate of 2 kg/m^2 in a single coat mixed with 0.1-0.3 mm aggregates at a ratio of 1/0.3.

While still fresh, sprinkle with 0.3-0.8 mm aggregates until saturated, at a rate of approximately 3 kg/m^2 .

Work within the product's useful life (see FT) and apply with a short-pile roller. While the product is still fresh, pass the spike roller in crosswise strokes with the help of the corresponding spike shoes. Depending on the size of the surface to be applied, assign sufficient personnel to mix, apply, and deaer quickly and evenly.

5.3 Top Coat

Apply 0.4 kg/m^2 of **COLODUR ECO** in two coats of 0.2 kg/m^2 each.

Colodur Eco is a high-performance, two-component, water-based aliphatic polyurethane resin that provides hard yet flexible coatings with high resistance to abrasion and chemical agents. It provides excellent surface protection for flooring subject to intense wear and tear. This product does not yellow when exposed to UV rays, making it suitable for outdoor use. The absence of solvents allows this product to be used in areas with public access, without the need to evacuate them.

Spread the material with a 5-6 mm Teflon microfiber roller with beveled edges, spreading the material from one end of the flooring to the other in the direction of application with the same roller in a transverse direction, covering approximately 1.30 m without overlapping the previous roller strip again at 1.35 m.

Overlap less than 5 cm. Then switch to a dry roller and spread the overlap slowly, checking that there are no areas of excess material.

If you want to achieve a surface without overlaps, always keep the edge of the application "fresh."

To achieve a non-slip top coat, add 5-7% anti-slip additive to the last coat.

Another option would be to use the aliphatic top coat Floortop 1K, a single-component solvent-based product.

6. Certificates

Pavifloor Certificates

The Pavifloor product has been thoroughly tested by the Applus laboratory, which has carried out the following tests.

- Adhesion to concrete substrates, UNE-EN 1381:2003
- Pencil hardness, UNE 48269:95
- Surface hardness, UNE-EN 13892-6
- Impact resistance, UNE-EN ISO 6272-1:2012
- BCA wear resistance, UNE-EN 13892-4:2003
- Determination of slip resistance, UNE-ENV 1263:2003
- Compressive and flexural strength, UNE-EN 13892-2:2003
- Determination of flexural properties, UNE-EN ISO 178:2003

Colodur ECO certificates

The Colodur ECO product has been thoroughly tested by the Applus laboratory, which has carried out the following tests:

- Abrasion resistance TABER s/n UNE 48250
- Scratch resistance s/n UNE EN ISO 1518
- Resistance to liquids (motor oil and diesel) s/n UNE EN ISO 2812-3 and UNE EN ISO 2812-4
- Resistance to stains caused by contact with vulcanized rubber
- Determination of brightness s/n UNE EN ISO 2813
- Colorimetric determination (CIELAB coordinates) n/a UNE 48073/2 and ISO 7724/2
- Determination of whiteness index and yellowness index s/n ASTM E313
- Accelerated artificial aging test in the open air
- Test method s/n UNE EN ISO 11341: 2005 "Paints and varnishes: Aging

7. Maintenance

It is advisable to maintain the facilities and carry out periodic cleaning, removing surface residues 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 roof 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 PU 20** 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 can be encountered in an installation of this type. It has an aliphatic top coat.

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

The information contained in this document, as well as the advice given by Krypton Chemical, SL professionals, whether in writing, orally, or through testing, is provided in good faith based on our experience and the results obtained through tests carried out by independent laboratories. However, it does not serve as a guarantee for the applicator, who should take it as a reference only and for informational purposes. We recommend that you study this information in depth before choosing, using, and applying any of these products. It is advisable to carry out tests on site to determine the suitability of a treatment in that location. Our recommendations do not exempt the applicator from the obligation to have in-depth knowledge of the correct method of application of these systems before proceeding with their use, as well as to carry out as many tests as necessary in case of doubt about their suitability for any work, installation, or repair, taking into account the specific circumstances in which the product will be used.

Krypton's obligations are those established by Law 38/1999 on Building Regulations in Article 15 in its capacity as a product supplier. Under no circumstances is it assumed that Krypton is assuming the responsibilities and obligations corresponding to the project manager, construction manager, and builder as established by said law.

The obligations enforceable against Krypton shall be solely those that can be claimed from a product supplier. Under no circumstances, through this or any other document, does Krypton assume the responsibilities and obligations corresponding to the project manager, the construction manager, or the builder.

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