APPLICATION GUIDE.

Rayston Floor PU 30 System

by Krypton Chemical

Contents

1. General conditions

MANUFACTURER'S

RECOMMENDATIONS

The manufacturer of the products used in the works described in this specification shall provide written evidence that its Quality Assurance system complies with the requirements of the Spanish Standard UNE-ISO 9001.

APPLICATOR

To ensure the correct application of the systems specified in this report, it is recommended that the contractor has successfully completed a training programme covering their installation or application and the appropriate methods for preparing the substrate; furthermore, they must have the necessary equipment for the correct application of the product.
The application contractor must have the necessary resources and equipment, all in good working order, to ensure the correct application of the system.

RUNNING THE APPLICATION:

ENVIRONMENTAL CONDITIONS

Before commencing the work described in this specification, it must be verified that the environmental, site and substrate conditions are suitable for the application.
Ultimate responsibility for any decision regarding the application of the system on site rests with the site manager, project manager and/or contractor, and under no circumstances with the product supplier.

PREPARATION

Proper preparation of the substrate is vital for the correct application of the products. You should therefore follow the technical instructions recommended by the manufacturer.

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 commencing the application work, the necessary measures will be taken to protect workers in accordance with health and safety regulations, and appropriate steps will be taken to ensure that personnel not involved in the works 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 30** system. A two-component, 100% solids, self-levelling, pigmented, polyurethane resin-based antimicrobial finishing system designed to protect concrete surfaces and floors.
The RAYSTON FLOOR PU 30 system must be completely seamless. It must effectively protect the floor from cleaning products, foot traffic and normal use of the premises by users. The system's key advantages include: solvent-free, non-porous, good impact and abrasion resistance, and easy to clean.

To this end, the preliminary measures to be carried out on the wall surface must be defined in order to mitigate the risk of future injuries. Furthermore, 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 the following steps:

- Primer: Epoxy 100 Primer
- Main coat: Pavifloor
- Finish: Colodur Eco

4. Substrate requirements and treatment of details and specific areas

1 Requirements that the support must meet:

The concrete substrate must have the following properties:

- Minimum cohesion (tear/tensile strength) of 1.5 N/mm^2.
- The concrete substrate must be compact and have sufficient compressive strength (minimum 25 N/mm^2).

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

(Otherwise, the covering will highlight any existing unevenness)

2 Moisture content, ambient temperatures and substrate.

Before application, check the substrate's moisture content, relative humidity (RH), and dew or condensation point. If the substrate's moisture content exceeds 8%, the surface should be dried using suitable equipment where possible; otherwise, alternative primers should be considered.

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

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

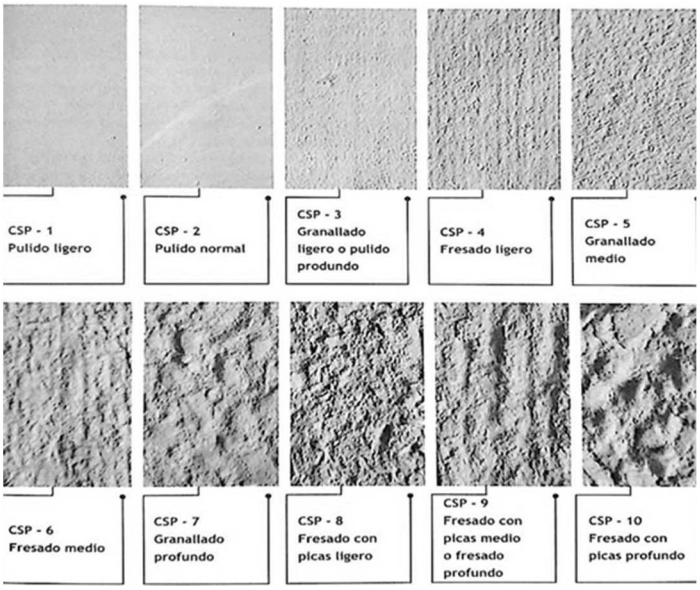
3 Preparation of the substrate:

To ensure that the system is fully compatible with the existing substrate and to achieve good adhesion, it is very important that the substrate meets certain minimum requirements and possesses the following properties:

1. Cohesive.
2. Even and uniform.
3. Completely continuous.
4. Free from fissures, cracks and potholes (which must be treated beforehand).
5. Clean and free from dust, grease, liquids and any other type of chemical contaminant.
6. Fully cured.
7. Free from particles and other materials not fully bonded to the substrate.
8. As dry as possible (without the risk of negative pressure).

The substrate must be washed with a high-pressure water jet to remove dirt (degreasing) and impurities. It is important that no material residues remain, as these may affect the membrane's adhesion to the substrate.

The degree of roughness in the concrete must be CSP3–CSP5 in accordance with Technical Guide No. 03732 of the ICRI (International Concrete Repair Institute), "Selection and Specification of Concrete Surface Preparation for Polymer Coatings, Sealants and Linings".



4 Treatment of damage and impact marks:

Before priming the surface, localised repairs shall be carried out using a dry mortar based on Rayston Epoxy 100 resin, with aggregate of 0.4 to 0.9 mm particle size or equivalent, or using an R4-type cementitious repair mortar, ensuring complete visual consistency with the existing surface. Any cracks or small voids shall be filled with a polyurethane sealant such as Rayston Flex or equivalent.

5 Handling details and special cases:

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

With regard to the structure's **expansion joints**, if they move by more than 50% of the joint's width, mechanical joints must be installed (for example, a joint with a minimum width of 10 cm must open by a maximum of 15 cm). To ensure the system is watertight, these mechanical joints must be installed in accordance with the manufacturer's specific recommendations.

If the movement is minor, they can be treated using the highly elastic Rayston Joint Geo tape, after filling them appropriately (with a polyethylene foam cylinder and a polyurethane sealant such as Rayston Flex). Rayston Joint Geo adheres to the primed substrate using an adhesive (2K PU Adhesive) or an epoxy resin such as Epoxy Primer 100, applied to the geotextile bonded to the tape. Polyurea membranes do not adhere well to the Rayston Flex Joint Geo strip; therefore, in the event of movement at the joint, this movement will not be transferred to the polyurea membrane, or at any rate the movement will be dampened by this polyurea membrane, reducing the risk of cracking.

Rayston Joint Geo is available in various widths; it is advisable to always use a strip of the correct width.

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

A similar treatment will be carried out on fissures wider than 2 mm, or even on those narrower than this if there is a suspicion that they are moving and/or continuing to widen over time (unstabilised fissures or cracks).

Important: Treatment carried out in winter (when temperatures are as low as possible) will always be more effective than treatment carried out in summer. In winter, when temperatures are low, the materials will have contracted and the edges of the joints will be further apart. In summer, at high temperatures, the materials will have 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 be stretched, with the risk of it 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 thinned 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 may be thinned with 10–15% Rayston Solvent to ensure it penetrates (bonds) into the surface and helps to consolidate it. A total of 0.2 kg/m^{2}should be applied in this first coat.

Next, once the first coat has set, apply the second coat with a light wet dusting of aggregate with a particle size of 0.3–0.8 mm. Apply a total of 0.3 kg/m^2.

To apply, spread the material evenly, avoiding build-up, and work within the product's pot life (see technical data sheet), using a trowel or roller.

Important: The primer is applied to seal the porosity of a surface and must never be applied when there is rising damp, i.e. when direct sunlight is hitting a porous exterior surface that is gradually heating up. The product recommended for this system, RAYSTON EPOXY 100, may only be used if the substrate's moisture content is less than 4%. (If it is higher, please contact the technical department for a list of primers).

Application tools for Epoxy 100 primer

5.2 Top coat

PAVIFLOOR is a two-component, self-levelling, 100% solids aromatic polyurethane resin for the protection of concrete surfaces and floors. It produces self-levelling floors 2–5 mm thick in a single coat with high impact resistance, for concrete floors subject to heavy wear in all types of indoor areas. For the Rayston Floor PU30 system, the recommended quantity of Pavifloor is 3 kg/m².

The product should be applied by spreading the material evenly with a trowel or notched trowel, avoiding build-up, at a rate of 3 kg/m² to achieve an approximate thickness of 2.1 mm. It is advisable to wear spiked shoes and to de-air the product using a spiked roller in criss-cross strokes, within a maximum of 10 minutes of mixing. Depending on the size of the surface to be treated, ensure there are sufficient staff to carry out the mixing, application and de-airing quickly and evenly.

5.3 Finish

For the finish, we will apply a total of 0.5 kg/m² in two coats of 0.25 kg/m² each of **COLODUR ECO PIGMENTED**, a high-performance, water-based, two-component aliphatic polyurethane resin that provides hard yet flexible coatings with high resistance to abrasion and chemical agents. It provides excellent surface protection for floors subjected to heavy 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. To achieve a seamless surface, always keep the edge of the application 'fresh'.

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 abrasion 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:
- TABER Abrasion Resistance in accordance with UNE 48250
- Scratch resistance s/n UNE EN ISO 1518
- Resistance to liquids (petrol and diesel) in accordance with UNE EN ISO 2812-3 and UNE EN ISO 2812-4
- Resistance to staining caused by contact with vulcanised rubber
- Determination of brightness s/n UNE EN ISO 2813
- Colorimetric determination (CIELAB coordinates) in accordance with UNE 48073/2 and ISO 7724/2
- Determination of whiteness index and yellowness index in accordance with ASTM E313
- Accelerated artificial ageing test in the open air

Test method in accordance with UNE EN ISO 11341: 2005 "Paints and varnishes: Ageing

7. Maintenance

It is advisable to maintain the facilities and carry out regular cleaning, removing surface residues and dirt prior to cleaning.

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

In addition, the roof will always be inspected after other tradespeople have carried out work such as building work, the installation of new equipment or the repair of existing equipment.

8. Conclusions

The **RAYSTON FLOOR PU 30** system, developed by Krypton Chemical, has been used in a large number of construction and renovation projects in Spain and other countries. It has a proven track record of success.

This system is completely seamless (with no joints), adheres firmly to the treated surface and offers excellent long-term durability. Furthermore, it is a system that easily and effectively addresses all the specific challenges that may arise in a facility of this nature. It features an aliphatic finish.

This system, installed on site by a company approved by Krypton Chemical, bears the CE mark, based on tests carried out by the APPLUS laboratory.

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