

RAYSTON SPRAY D50



Pure polyurea membrane, for special waterproofing projects. Applied with a proportioning machine. Gas radon barrier

DESCRIPTION

Rayston Spray D50 is a pure polyurea resin, totally free of solvents and mineral fillers. Spray applied with a proportioning machine. Once cured, it forms a continuous and seamless high performing membrane, chemical and outdoors resistant, that has got a thermosetting and elastomeric behaviour (hard and elastic at the same time). The membrane cures in a few seconds and returned to service in a matter of hours.

APPLICATION

- Waterproofing of water tanks containing aggressive chemicals (primary containment). Waste water treatment plants. Biogas digesters.
- Waterproofing of swimming-pools (Paintchlore 2K as a top coat).
- Waterproofing of secondary containment tanks, resistant to punctual spills of aggressive chemicals.
- Waterproofing of foundations, especially when an effective Radon barrier is required.

PROPERTIES

- Fully continuous membrane, very hard, elastic and flexible. High puncture and compression resistant, able to bridge over cracks in the support.
- Very good chemical resistance. (Even in continuous contact with aqueous solutions containing hydrogen sulphide, H₂S and biogenic sulphuric acid, BSA, H₂SO₄, in wastewater treatment plants).
- Very low permeability against Radon gas.

CERTIFICATES

CE marking, EN-1504-2 protection and repair of concrete structures. Certificate number 0370-CPR-2247.



TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION

	Component A	Component B												
Chemical description	Polyamine	Aromatic isocyanate prepolymer												
Physical state	Líquid	Líquid												
Packaging Note: Pigment is delivered in a third container. See Pigment Spray data sheet for specific details.	Metal container 188 kg 23.5 kg	Metal container 208 kg 26 kg												
Non-volatile content (%)	approx 100%	100%												
Flash point	>100°C	>100°C												
Colour	Dark yellow	Slightly yellow												
Density														
	<table border="1"> <thead> <tr> <th>Temp (°C)</th> <th>Density (g/cm3)</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>1.01</td> </tr> <tr> <td>60</td> <td>0.98</td> </tr> </tbody> </table>	Temp (°C)	Density (g/cm3)	20	1.01	60	0.98	<table border="1"> <thead> <tr> <th>Temp (°C)</th> <th>Density (g/cm3)</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>1,14</td> </tr> <tr> <td>60</td> <td>1.10</td> </tr> </tbody> </table>	Temp (°C)	Density (g/cm3)	20	1,14	60	1.10
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Viscosity	Temp (°C)	Viscosity (m.Pas)	Temp(°c)	Viscosity (m.Pas)
	Approximate	5	1100	5
	10	740	10	1800
	20	425	20	800
	30	250	30	450
	40	140	40	300
	50	80	50	200
	60	60	60	120
Mixing ratio A/B	A=1, B=1,12 by weight A=1, B=1 by volume			
Density and viscosity of the mixture	Fast polymerization. See Pot life data			
Colour	Dark yellow, but component A is pigmented by addition of pigment paste (Pigment Spray) delivered with each kit of Rayston Spray D50..			
Pot life	Gel time mixture A+B (20 g) 4 s at 25°C 3 s at 60°C			
Approximate				
Storage	Keep between 10° y 30°C.			
Use before	12 months after manufacture date, provided it is kept in its sealed container.			

INFORMATION ON THE FINAL PRODUCT

Final state	Solid elastomeric membrane	
Colour	Available Pigment Spray pastes are similar to Grey RAL 7001, 7011. Tile red, Beige RAL 1001, blue RAL 5015. Other special colour pastes under request.	
Hardness Shore	50D, 96A	
Mechanical properties	Elongation at break: 270%	(UNE EN ISO 527-1/3)
	Tensile strength: 17.2 MPa	(ISO 34-1 method B)
	Tear strength: 100 N/mm	
Gas Radon difusión coefficient	8 x 10 ⁻¹² m ² /s (ISO/DTS 11665-13)	
Adhesion strength	surface	Adhesión (m.Pa)
	concrete	2.5
UV resistance	Good resistance to UV-induced degradation. Aromatic polyureas undergo change of colour under sunlight. This change does not affect its mechanical properties. Additional UV protection can be achieved by application of an Impertrans or colodur topcoat.	
Abrasion resistance	Taber, CS10, 1000 c, 1 kg: 20 mg	
Chemical resistance	Immersion test, 80°C, 7 days (0=worst, 5=best)	

chemical	conditions	Result
Water	15d, 80°C	5
Salt water (saturation)	15d, 80°C	5
Xylene	7d, 80°C	2
Ethyl acetate	7d, 80°C	1
Isopropyl alcohol	7d, 80°C	0
Sodium hydroxide 50%	7d, 80°C	5
Hydrogen peroxide 33%	7d, 25°C	4
Sulfuric acid 10%	7d, 80°C	5
Sulfuric acid 30%	30d, 80°C	4
Bleach	7d, 80°C	4
Ammonia	7d, 80°C	5
Diesel	16d, 80°C	5
Hydrochloric acid 12M 37%	7d, 80°C	0
Hydrochloric acid 6M 18%	7d, 80°C	1
Hydrochloric acid 3M 9%	7d, 80°C	4
Hydrochloric acid 0.75M 2%	7d, 80°C	5
Sodium hypochlorite 15%	7d, 80°C	4
Engine oil	7d, 80°C	5
Crude petroleum	21d, 20°C	5
Sulfamic acid 85%	7d, 60°C	4



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Oleic acid	7d, 80°C	0
Glycerine	7d, 80°C	5
Kerosene	7d, 80°C	3

SUPPORT REQUIREMENTS

If a fully adhered system is applied, the support must be free of contaminants (fats, oils and silicones), dust and loose materials. The support must be smooth, regular, homogeneous, continuous, cohesive, in case of concrete it must be totally cured and free of any rest of laitance. Irregularities pointed or protruding from the rest of the surface should be eliminated. Ideally a concrete support must be completely dry, in this case it will be primed with the Epoxy 100 or Epoxy Gel Primer. Epoxy Gel applied especially on vertical surfaces, not properly regularized in tanks. If the concrete support has a humidity level higher than 4%, it will be primed with the Primer GC. In case of water tanks with negative pressures, a previous treatment with Tecnozem should be done. Tecnozem (a three component waterborne epoxy-cement system) is resistant against negative pressures.

In case of a base support with a high moisture content, irregular or not fully cured concrete, the alternative is a non-adhered system. The special non-woven geotextile Geomax Spray 200 should be laid on the support (concrete or even directly over the soil) and then the Rayston Spray D50 will be applied, always creating a totally continuous waterproofing / barrier membrane.

RECOMMENDED ENVIRONMENTAL CONDITIONS

The temperature of the support should be between 5°C and 40°C. Anyway, it should always be 3°C above the dew point temperature, to avoid condensation on the surface.

MIXING

Stir and homogenise separately both components using suitable mixing equipment before being loaded into the machine. Add the required Pigment Spray to the A-component and stir before loading. Recirculate both components while heating up to the required application temperatures.

APPLICATION GUIDELINES

Rayston Spray D50 must be applied using a 2-component hot spraying equipment. Recommended temperatures are:

Component A: 65°C
Component B: 70°C

Hose: 70°C
Pressure should be 130 bar.

During application, check layer thickness and curing speed. Apply Rayston Spray D50 at minimum 2 kg/m². Thicker coating will permit improve the chemical resistance, especially in very aggressive environments and also the efficiency as a barrier to radon gas.

Wind speeds in excess of 25 km/h may result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun affecting polyurea surface texture, cure, and physical properties and will cause overspray issues.

Contact Krypton Chemical for more detailed technical information.

CURING TIME

Approximate hardness values are provided as reference only (2 mm, polypropylene support, 20°C 50% RH)

Time	Hardness shore D
5 min	35
45 min	43
6 hours	48
24 hours	50

REAPPLICATION

Usually, necessary thickness can be obtained in one single coat. If necessary, a second coat can be applied immediately afterwards. In any case, do not wait more than 2 hours for a second coat. If spraying over a previously applied epoxy primer, ensure the primer is completely cured (circa 8 hours).

RETURN TO SERVICE

Under most usual conditions (25°C, 50% rh), the membrane is resistant to rain droplets after 5 minutes, and able to resist light pedestrian traffic in 1 hour. After 1 day, more than 90% of the final properties are reached.

TOOL CLEANING

Solvent use for machine component cleaning is discouraged. A cleaning plasticizer fluid like Rayston Fluid is suitable. Component B must be completely removed from all air-exposed parts and replaced with this cleaning fluid.

CLEANING AND MAINTENANCE

A maintenance work should be carried out regularly on the treated surfaces according to the intended use

FAQS

PROBLEM	QUESTION	CAUSE	SOLUTION
product does not cure	AB ratio is correct?	Pressure differences	Check and correct machine operation Apply suitable primer before Rayston Spray D50
Bubbles or open pores	Porous support?	No primer	Apply 1 kg/m ² Ensure full A+pigment homogeneization
No hiding power	Horizontal?	Too little product Too little pigment	Use a last coat in dark grey or red Not recommended. Rayston Spray D50 is always delivered with the pigment of choice. Use of pigment helps to obtain an uniform appearance
Colour change	Exposed to sunlight?	UV-reaction	Can it be applied without pigmentation?

SAFETY

Component B contains isocyanates. Always follow the safety instructions in the Material Safety Data Sheet. As a general rule, a good ventilation and/or respiratory protection is needed (combined organic vapor filter+particles) along with protective clothing. This product must be used only for the applications here described. This product is intended for industrial and professional use. It is not suitable for DIY-type applications.

ENVIRONMENTAL PRECAUTIONS

LEED-requirements compliant.
EQ Credit 4.2, Low emissin materials: Paints and Coatings.

Empty containers must be handled with the same precautions as if they were full. Treat empty containers as hazardous waste, and transfer them to an authorized waste manager. If the containers still have some material left, do not mix with other product with no knowledge of potential dangerous reactions. Component A and B may be mixed on a 1/1 ratio in order to get an inert material, but never do it in volumes larger than 5 litres in order to prevent a dangerous heat evolution.

OTHER INFORMATION

The information contained in this Technical Data Sheet, as well as our advice, both written as verbal 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 to study deeply 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 deeply 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.



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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.

This Technical Data Sheet supersedes previous versions.



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