

# RAYSTON SPRAY P3050

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products



Sprayed, hot-applied pure polyurea membrane

## DESCRIPTION

Rayston Spray P3050 is a 2-component pure polyurea resin, which cures very fast into a hard and elastic membrane. This product can only be applied by 2-component spraying equipment.

## APPLICATION

- Industrial machinery and vehicle protection

## PROPERTIES

- Flexible, hard membrane
- Fast curing
- Pigmentable.

## TECHNICAL DATA

### INFORMATION ON THE PRODUCT BEFORE APPLICATION

|   | Component A  | Component B                          |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
|---|--|--------------------------------------|------------------|----|------|----|------|---|-----------|-----------------|-----|------|-----|------|----|----|----|--|----------|------------------|---|------|----|------|----|-----|----|-----|----|-----|----|-----|----|-----|
| <b>Chemical description</b>   | Polyamine  | Aromaticisocyanateprepolyme<br>r     |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Physical state</b>   | Liquid   | Liquid                               |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Packaging</b><br>Note: Pigment is delivered in a third container. See Pigment Spray data sheet for specific details. | Metal container<br>188 kg<br>18,8 kg   | Metal container<br>208 kg<br>20,8 kg |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Non-volatilecontent (%)</b>  | approx 100%  | 100%                                 |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Flash point</b>  | >100°C   | >100°C                               |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Colour</b>   | Dark yellow  | Slightlyyellow                       |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Density</b>  |  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
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| Temp (°C)   | Density (g/cm3)  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 20  | 1.01   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 60  | 0.98   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| Temp (°C)   | Density (g/cm3)  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 20  | 1,14   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 60  | 1.10   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Viscosity</b> Approximate  | <table border="1"><thead><tr><th>Temp (°C)</th><th>Viscosity (Pa·s)</th></tr></thead><tbody><tr><td>5</td><td>1100</td></tr><tr><td>10</td><td>740</td></tr><tr><td>20</td><td>425</td></tr><tr><td>30</td><td>250</td></tr><tr><td>40</td><td>140</td></tr><tr><td>50</td><td>80</td></tr><tr><td>60</td><td>60</td></tr></tbody></table> | Temp (°C)                            | Viscosity (Pa·s) | 5  | 1100 | 10 | 740  | 20  | 425       | 30              | 250 | 40   | 140 | 50   | 80 | 60 | 60 | <table border="1"><thead><tr><th>Temp(°C)</th><th>Viscosity (Pa·s)</th></tr></thead><tbody><tr><td>5</td><td>2500</td></tr><tr><td>10</td><td>1800</td></tr><tr><td>20</td><td>800</td></tr><tr><td>30</td><td>450</td></tr><tr><td>40</td><td>300</td></tr><tr><td>50</td><td>200</td></tr><tr><td>60</td><td>120</td></tr></tbody></table> | Temp(°C) | Viscosity (Pa·s) | 5 | 2500 | 10 | 1800 | 20 | 800 | 30 | 450 | 40 | 300 | 50 | 200 | 60 | 120 |
| Temp (°C)   | Viscosity (Pa·s)   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 5   | 1100   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 10  | 740  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 20  | 425  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 30  | 250  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 40  | 140  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 50  | 80   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 60  | 60   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| Temp(°C)  | Viscosity (Pa·s)   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 5   | 2500   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 10  | 1800   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 20  | 800  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 30  | 450  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 40  | 300  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 50  | 200  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| 60  | 120  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Mixing ratio A/B</b>   | A=1, B=1,12 by weight<br>A=1, B=1 by volume  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Density and viscosity of the mixture</b>   | Fast polymerization. See Pot life data   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Colour</b>   | Dark yellow, but component A is pigmented by addition of pigment paste (Pigment Spray) delivered with each kit of Rayston Spray P3050..  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Potlife</b><br>Approximate   | Gel time mixture A+B (20 g)<br>4 s at 25°C<br>3 s at 60°C  |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Storage</b>  | Keep between 10° y 30°C.   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |
| <b>Use before</b>   | 12 months after manufacture date, provided it is kept in its sealed container.   |                                      |                  |    |      |    |      |   |           |                 |     |      |     |      |    |    |    |  |          |                  |   |      |    |      |    |     |    |     |    |     |    |     |    |     |

### INFORMATION ON THE FINAL PRODUCT

|                    |  |
|--------------------|--|
| <b>Final state</b> | Solid elastomeric membrane   |
| <b>Colour</b>      | Available Pigment Spray pastes are Gray RAL 7001, 7011. Tile red, Beige RAL 1001, blue RAL 5015. Other pastes under request. |

| <b>Hardness Shore</b>        | 50D<br>96A   |         |              |          |     |
|------------------------------|--|---------|--------------|----------|-----|
| <b>Mechanical properties</b> | Elongation at break: 270%<br>Tensile strength: 17.2 (UNE EN ISO 527-1/3)<br><br>Tear strength: 100 N/mm (ISO 34-1 method B)  |         |              |          |     |
| <b>Adhesion strength</b>     | <table border="1"><thead><tr><th>Surface</th><th>Adhesión ( )</th></tr></thead><tbody><tr><td>concrete</td><td>2.5</td></tr></tbody></table>   | Surface | Adhesión ( ) | concrete | 2.5 |
| Surface                      | Adhesión ( )   |         |              |          |     |
| concrete                     | 2.5  |         |              |          |     |
| <b>UV resistance</b>         | 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. |         |              |          |     |
| <b>Abrasion resistance</b>   | Taber, CS10, 1000 c, 1 kg: 20 mg   |         |              |          |     |
| <b>Chemical resistance</b>   | 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   | 7d, 80°C   | 0      |
| 37%                     |            |        |
| Hydrochloric acid 6M    | 7d, 80°C   | 1      |
| 18%                     |            |        |
| Hydrochloric acid 3M 9% | 7d, 80°C   | 4      |
| Hydrochloric acid 0.75M | 7d, 80°C   | 5      |
| 2%                      |            |        |
| Sodium hypochlorite     | 7d, 80°C   | 4      |
| 15%                     |            |        |
| Engine oil              | 7d, 80°C   | 5      |
| Crude petroleum         | 21d, 20°C  | 5      |
| Sulfamic acid 85%       | 7d, 60°C   | 4      |
| Oleic acid              | 7d, 80°C   | 0      |
| Glycerine               | 7d, 80°C   | 5      |

## SUPPORT REQUIREMENTS

Original paint must be removed and the surface must be clean and rust-free. Metal should be resistant to deformation by curing stress.

Support temperature must be between 10°C and 40°C. At higher temperatures, additional measures to be advised by the manufacturer must be taken. Support moisture must be less than 4%

## SUPPORT PREPARATION

Metal substrates must be thoroughly sanded and the final surface must be free of dust. A suitable adhesion-promoting primer must be used (e.g. PU Primer) to prevent deformation, cracks or adhesion failure.



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pigment helps to obtain an uniform appearance

## 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 P3050 must be applied using a 2-component hot spraying equipment. Recommended temperatures are:

Component A: 65°C  
Component B: 65°C

Pressure should be 130 bar.  
During application, check layer thickness and curing speed.  
Spray Rayston Spray P3050 at 1-2 kg/m<sup>2</sup>.

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 (ca 8 hours)

## RETURN TO SERVICE

Under most usual conditions (25°C, 50% rh), the membrane is able to resist light use 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. 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  |
| Bubbles or open pores | Porous support?                         | No primer            | Apply suitable primer before Rayston Spray P3050   |
| No hiding power       | Horizontal?                             | Too little product   | Apply 1 kg/m <sup>2</sup>  |
|                       |   | Too little pigment   | Ensure full A+pigment homogenization   |
| Colour change         | Exposed to sunlight?                    | UV-reaction          | Use a last coat in dark grey or red  |
|                       | Can it be applied without pigmentation? |                      | Not recommended.<br>Rayston Spray P3050 is always delivered with the pigment of choice. Use of |



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## 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 filters+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

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.

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.**