

**KRYPTON CHEMICAL, S.L.**

C/ Martí i Franquès, 12

P.I. Les Tàpies.

43890 l'Hospitalet de l'Infant (Tarragona)

Tel 977 822 245 Fax 977 823 977

rayston@kryptonchemical.comwww.raystonpu.com**INDUSTRIAL COATINGS****TECHNICAL DATA SHEET KRYPTANATE**

Polyurethane-polyurea hybrid coating for metal protection.

PRODUCT OVERVIEW

Coating KRYPTANATE is a polyurethane-polyurea hybrid polymer, based on novel amine reactants having moderate reactivity as compared to usual polyfunctional amines used in polyurea systems. The high reactivity associated with classical polyurea resulted in very quick gel times, and inadequate flow which impaired a good appearance. This new coating has all the desired application characteristics and performance properties for maintenance, marine and architectural applications. Additional benefits such as rapid cure, low temperature curability, improved adhesion and improved corrosion resistance can result in time and cost savings for the end users, along with compliance with increasing VOC regulations.

MAIN FEATURES

HARD,SINGLE COAT FINISH.
2-COMPONENT, DESIGNED FOR SPRAY APPLICATION.
ALIPHATIC (NON YELLOWING POLYURETHANE). EXCELLENT
GLOSS AND COLOUR RETENTION.
NEAR-ZERO VOC-NON FLAMMABLE.
SHORT DRY TIME.
CORROSION PROTECTION PROPERTIES.
GOOD WEATHERING RESISTANCE.

**KRYPTON CHEMICAL, S.L.**

C/ Martí i Franquès, 12

P.I. Les Tàpies.

43890 l'Hospitalet de l'Infant (Tarragona)

Tel 977 822 245 Fax 977 823 977

rayston@kryptonchemical.comwww.raystonpu.com**ADDITIONAL BENEFITS**

1. Low temperature cure: paint applications at low temperatures may cause all sorts of problems, such slow drying, solvent entrainment, reduced cure and so. These new reactants have inherently high reactivity towards aliphatic polyisocyanates even at low temperatures.
2. High film-builds with a single coat. Another advantage of this class of polyurethane-polyurea topcoats is that 150-500 microns can be achieved in a single application. This allows getting the desired film thickness in, e.g. two coats instead of three, which effectively replaces conventional epoxy / polyurethane systems.
3. Improvement of corrosion resistance. Evaluations have shown that these coatings contribute to corrosion inhibition, due to the presence of unreacted free amine in the cured film, by passivating the steel surface.
4. Ideal for maintenance of new construction applications, since this system is relatively easier to put in place vs. conventional multi product VOC containing coatings.

TECHNICAL CHARACTERISTICS

	Component A	Component B
Nature	Aliphatic polyamine	Aliphatic polyisocyanate, pigmented
Viscosity (20°C, Brookfield, mPa.s, 20 rpm, s63)	approx.2500	approx. 4000
Density (g/cm ³ , 20°C)	1.1	1,2

	System (A+B)
Mixing ratio	1/1 w/w, approx
Pot life after mixture	15 minutes
Touch Dry (400 g/m ² coat, 20°C 60% rh)	approx. 45 minutes
Full cure (400g/m ² , 20°C, 60% rh)	approx. 1 – 4 h

**KRYPTON CHEMICAL, S.L.**

C/ Martí i Franquès, 12

P.I. Les Tàpies.

43890 l'Hospitalet de l'Infant (Tarragona)

Tel 977 822 245 Fax 977 823 977

rayston@kryptonchemical.comwww.raystonpu.com**MECHANICAL / PHYSICAL PROPERTIES***

	Values
Shore D Hardness	45-55 Shore D
Elongation at break	115%
Tensile strength (1,8 mm thick film)	5,6 N/mm ²
Abrasion resistance (TABER, CS17, 500g, 100 cycles)	15 mg
(TABER, CS10, 1000g, 1000 cycles)	21 mg
Adhesion strength (Pull test) UNE EN ISO 2409 (square cuts), 3mm space	Gt0
Corrosion resistance, ISO 7253 (C2 / C3 Categories) 48 / 120 h	Blistering ISO 4628-2 – None 0(S0). Oxide ISO 4628-3 – RiO: no signs. Cracking ISO 4628-4 – 0(S0): no signs. Pellets ISO 4628-5: 0(S0): no signs.
Condensation resistance, ISO 6270, C2(120h) C3(240h)	Blistering ISO 4628-2 – None 0(S0). Oxide ISO 4628-3 – RiO: no signs. Cracking ISO 4628-4 – 0(S0): no signs. Pellets ISO 4628-5: 0(S0): no signs.
Adhesion strength after 240 h condensation (as per ISO 4624)	> 5 Mpa (N/mm ²) Break type: Y/Z 100% (adhesive break between product and substrate).
UV resistance, EN ISO 11341, Method 1, A cycle, 1000 h	Initial CIELAB Coordinates: L* = 77,4 / a* = -1,59 / b* = -1,22 Alterations: $\Delta L^* = -1,05$ / $\Delta a^* = 0,39$ / $\Delta b^* = 1,14$ TOTAL Alteration: $\Delta E^* = 1,60$

NOTE: samples tested on sand blasted mild steel.

APPLICATION GUIDELINES:

This 2-component PUR coating is designed for spray application.

Component A and Component B should be homogenised and heated separately to achieve a suitable mixing and spraying viscosity prior to use. The chart below depicts the viscosity-temperature profile.

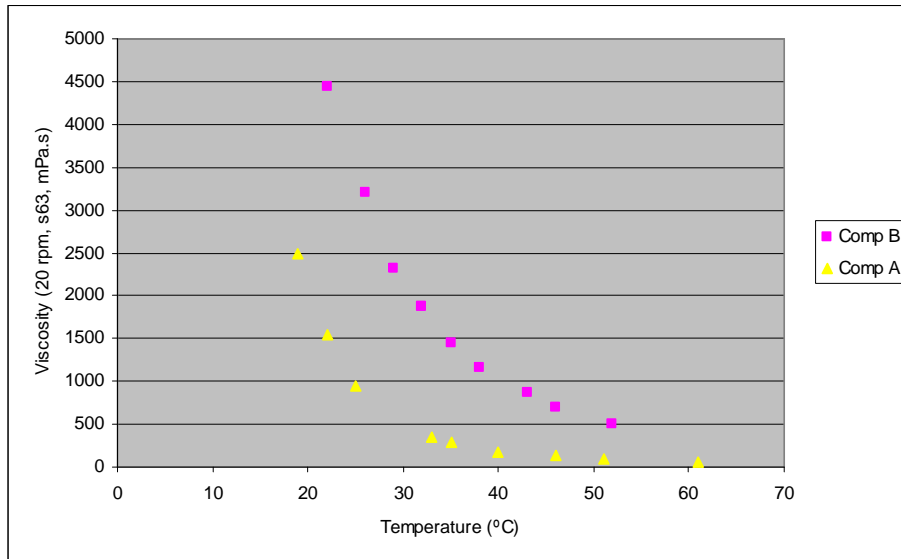
**KRYPTON CHEMICAL, S.L.**

C/ Martí i Franquès, 12

P.I. Les Tàpies.

43890 l'Hospitalet de l'Infant (Tarragona)

Tel 977 822 245 Fax 977 823 977

rayston@kryptonchemical.comwww.raystonpu.com

Due to the rather short pot life of the mixture (15 minutes at 20°C, 40% relative humidity), fully 2-component spray equipment should be always used (GRACO REACTOR E-10 or similar). 1 component procedures and/or manual mixing and application should be carefully organized before proceeding.



Picture: GRACO REACTOR E-10 spray equipment.

PROCEDURE PROPOSAL:

NOTE: Steel substrate must be clean, sand blasted, and degreased.

**KRYPTON CHEMICAL, S.L.**

C/ Martí i Franquès, 12

P.I. Les Tàpies.

43890 l'Hospitalet de l'Infant (Tarragona)

Tel 977 822 245 Fax 977 823 977

rayston@kryptonchemical.comwww.raystonpu.com**a. PRIMING**

Primer Advised: RAYSTON PU PRIMER, 100 g/m², paper-wiped.
Dry time : 15 minutes.

Note: this is a solvent (alcohol) based product. If adhesion of the main coat without priming is considered satisfactory, this step may be skipped. Alternatively Krypton could provide a non-solvent (water based) solution which might take longer time to evaporate.

b. FIRST COAT KRYPTANATE.

Spray apply a first coating of 200 – 300 g/m².

Note. For plain corrosion protection, a primer + single layer of p1696-478 is sufficient.

c. Anti-skid (where needed).

Glass beads applied: 0,2-0,4 mm type, 100-130 g/m²

Note: Application of anti-skid be done quickly, before setting of the first coat: maximum 15-20 minutes.

It is advised to use a venturi machine for faster / better distribution of sand across treated parts.

d. SECOND COAT KRYPTANATE.

Spray apply a first coating of 200 – 300 g/m² to encapsulate anti-skid particles properly.

STORAGE

When stored in their sealed containers at temperatures not exceeding 30°C, the products will remain stable for at least 6 months. Component B is moisture-sensitive. Water pick up can result in pressure building-up inside the container.

SAFETY OF USE

Refer to the Material Safety Data Sheet for a complete information.



Component A:

May cause sensitization by skin contact. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component B:

May cause sensitization by skin contact. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Contains isocyanates. Provide enough ventilation when handling this product or the mixture with A while still liquid. Once dried, the film is harmless. Spraying application must be done with proper ventilation and/or respiratory protection. A combined cartridge filter A2-P2 type is suitable only for short-term procedures. Protection of eyes and skin is also necessary.