

Systems and Solutions

# ANTICORROSION SYSTEMS

[www.kryptonchemical.com](http://www.kryptonchemical.com)





## ABOUT KRYPTON CHEMICAL S.L.

Krypton Chemical is a leading global company, dedicated from 1999 to the manufacture of resins of polyurethane, epoxy and polyurea for the construction market, and Industry. At our facilities located in Hospitalet de l'Infant, Tarragona, we develop and manufacture our resins of polyurethane, epoxy and polyurea for waterproofing projects, flooring coating, and industry, strictly following our procedures to achieve the highest quality of our products.



### CERTIFICATES OF THE COMPANY

In order to guarantee the durability and stability of our products systems, we have a long list of certifications, based on tests carried out in several independent laboratories around the world.

# ANTICORROSION PROTECTION PRODUCT RANGE



## ONE COMPONENT POLYURETHANES PROTECTION: STEEL AND CONCRETE RAYFORCE PU 1K

This range of products is made up of different types of primer, intermediate and finishes coat, with loads of Zn, Al, molten iron based on polyurethane resins monocomponents of moisture curing, optimal for ISO 12944, Norsok high performance anticorrosion protection systems, NO ENVIRONMENTAL CONDITIONS LIMITATIONS.

## TWO COMPONENT POLYURETHANES PROTECTION: STEEL AND CONCRETE RAYFORCE PU 2K

This range of products is made up of different types of polyurethane with two components with anticorrosion and Al pigments, based on bicomponents polyurethane resins chemical curing, flexible resins, aliphatic HB, with anticorrosion and Al pigments. Optimum for systems based on ISO 12944, NORSOK with high corrosion protection.



## TWO COMPONENT EPOXIES RAYFORCE

This range of products is made up of different types of primers, intermediate and finishes, with high content of Zn, Al, micaceous iron based on bicomponents epoxy resins chemical curing, flexible resins, aliphatic HB. Optimum for systems based on ISO 12944, NORSOK with high corrosion protection.





### RAYSTON PIPE

This range of products is made up of bicomponents polyurethane and epoxy resins, chemical curing, of high performance, high build by application with plural component airless hot equipment and cold application products, for protection of pipes, outside and inside, according to ISO 10290.

### RAYSTON PSX

This range is made up of high-performance products, as Rayston PSX products are based on polysiloxane resin.

And the range has polysiloxanes, temperature resistant polysiloxanes, antigraffitti polysiloxane.



### SILICATO DE ETILO RICO EN ZN Y SHOP PRIMER ESZn

This range is made up of zinc-rich ethyl silicate and shop primer with zinc content for temporary protection of steel.

PREMIUM  
SYSTEMS:  
FULL RANGE OF 1  
COMPONENT  
MOISTURE CURED  
POLYURETHANE,  
ADVANTAGES:

- Extended painting seasons and conditions.
- One component material eliminate errors in mixing and pot life limits.
- Can be applied at high relative humidity of air (up to 99 %).
- No dew point restrictions.
- Increased contractor's productivity.
- Short to long recoat window of primers and intermediate coats.
- Rust-back-tolerant, zinc-rich primers.
- Outstanding UV resistance which results in excellent colour, gloss retention and overall weathering properties.
- Superior overcoat technology for old lead-based paints.
- Excellent impact and abrasion resistance.
- Maintaining high-quality performance due to consistent, high level of available polyurethane content.
- VOC levels already meeting current regulations (340g/l), or lower
- High-performance properties equal to or better than existing, established technologies
- Suitable system for high humidity climates
- Excellent system for maintenance and repairing of metallic structure.

## RAYSTON PU 1K

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-PU 1K Puregalvanic	One component moisture cure polyurethane anticorrosion zinc-rich primer. 65% Vs. color grey, matt. Surface: Steel	Cures down to -18 °C No dew point restrictions. Tolerant to very high humidity up to 99% Containing > 81% of Zinc. Long Cathodic Protection For Structures in extreme atmospheric corrosivity categories, system ISO 12944/2018, from C3 to CX and for structures immersed (Im1- Im4). Certified system according to Norsok.
RAYSTON-PU 1K AL Primer	One-component, moisture-cure polyurethane primer/sealer coat with AL and micaceous iron oxide (MIO) pigments. 67% VS colour Aluminium. Surface: Steel and Concrete Surfaces non ferrous metals, stainless steel and galvanized	Cures down to -18 °C No dew point restrictions Tolerant to very high humidity up to 99%. No restriction on the maximum recoating interval Can be used on poorly prepared steel surface, minimum surface preparation to grade ST2 (ISO 8501-1) High adhesion, anticorrosion and barrier properties due to AL and MIO pigments. As a sealer coat for non ferrous metals and galvanized surfaces. For Structures in extreme atmospheric corrosivity categories, system ISO 12944/2018, from C3 to CX.
RAYSTON-PU 1K Zn Primer	One-component, moisture-cure, fast drying polyurethane anticorrosion primer filled with zinc and micaceous iron oxide (MIO). 67% VS colour grey, matt Surface: Steel	Cures down to -18 °C No dew point restrictions. Tolerant to very high humidity up to 99%. No restriction on the maximum recoating interval Can be used on poorly prepared steel surface, minimum surface preparation to grade ST2 (ISO 8501-1) Primer for waterproofing membranes Cathodic and barrier long-term protection. Coefficient of friction 0.47 at 20°C. For Structures in extreme atmospheric corrosivity categories, system ISO 12944/2018, from C3 to CX and for structures immersed (Im1- Im4), and Norsok Certified system C5H, according to ISO 12944/2018. Certified system Norsok.

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-PU 1K MIO	<p>One-component, moisture-cure polyurethane priming and intermediate coating with micaceous iron oxide (MIO). 64% VS, colour beige, grey Surface: Steel and Concrete Surfaces non ferrous metals, stainless steel and galvanized</p>	<p>Cures down to -18°C, No dew point restrictions High relative humidity up to 99%. Directly on the surfaces, ferrous and non ferrous metals. High resistance to UV, weathering and abrasion Anticorrosion and barrier properties. Included in systems ISO 12944/2018 High durability (C3-CX), Immersion (Im2-Im4) and Norsok.</p>
RAYSTON-PU 1K Silver	<p>One-component, moisture- cure polyurethane coating filled with Al pigment. 60% VS, colour Aluminium, semigloss. Surface: Steel and Concrete Surfaces non ferrous metal, stainless steel, and galvanized</p>	<p>Cures down to -18 °C No dew point restrictions High Relative humidity up to 99%. No restriction on the maximum recoating interval Directly on the surfaces, ferrous and non ferrous metals, as a single layer as well. Excellent Resistance to UV, abrasion, atmospheric influence. Anticorrosion and barrier properties due to AL pigments. system ISO 12944 durability VH and immersion. Included in systems ISO 12944/2018 High durability (C3-CX), Immersion (Im2-Im4) and compatibility with cathodic protection.</p>
RAYSTON-PU 1K MIO Sealer	<p>One component, moisture cured polyurethane deep penetrating impregnating primer for Concrete. 51% VS, color transparent, matt</p>	<p>For Concrete Application at sub-zero temperatures down to -10°C Relative Humidity up to 99%. No dew point restrictions. No restriction on the maximum recoating interval. High penetration ability, High strength of the coating to the substrate As an impregnating primer-adhesive coating when applying elastomeric polyurethane insulation coatings based on polyurea.</p>
RAYSTON-PU 1K TOP	<p>One component moisture curing polyurethane top coating. RAL and other colours. Semigloss. VS 62% Surface: Steel and concrete.</p>	<p>Application at sub-zero temperatures down to -18°C Relative Humidity up to 99%. No dew point restrictions. No restriction on the maximum recoating interval Excellent resistance to atmospheric influence and abrasion Excellent resistance to UV and colour stability long term protection. Included in systems ISO 12944/2018 High durability (C3-CX), Immersion.</p>





## RAYFORCE PU 2K

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-PU 2K TOP	Two component flexible, high solids, fast drying aliphatic polyurethane with anticorrosion pigments. Colour RAL, semigloss. VS 65%.	High Strength of the coating. High impact resistance and elasticity. Fast drying High resistance to sunlight and UV radiation. Well preserved gloss. Single layer in low and medium atmospheric corrosion C2-C3 and multilayer system up to CX, according ISO 12944. Maintenance coating over old painted surfaces. Surface: Steel, concrete, non ferrous, stainless steel and galvanized surfaces, primed and previously painted surfaces.
RAYSTON-PU 2K TOP-AL	Two component flexible, fast drying aliphatic polyurethane with AL pigments. Colour RAL, Semigloss, VS 45%.	High Anticorrosion properties due to aluminium pigments High resistance to sunlight and UV radiation. Single layer in low and medium atmospheric corrosion C2-C3 and multilayer system up to CX, according ISO 12944. Maintenance coating over old painted surfaces. Surface: Steel and primed or previously painted surfaces.
RAYSTON-PU 2K TOP-LQ	Two component aliphatic polyurethane transparent high gloss varnish. Colour: Transparent and Glossy. VS 43%.	High strength of the coating Good impact resistance and it can be piled after a short drying time. Withstands sunlight and UV radiation. For Steel and concrete as a varnish to improve the gloss and facilitate the cleaning of surfaces. For primed and previously painted surfaces.
RAYSTON-PU 2K TOP-HG	Two-component high solids, aliphatic acryl-polyurethane topcoat Semigloss, colour RAL, VS 65%	Curing at low temperatures. Good colour retention Withstands to sunlight and UV radiation. Surface: Steel and primed or previously painted surfaces As topcoat in corrosivity categories C2-C3-C4, C5, CX for epoxy and polyurethane systems according ISO 12944.

## RAYFORCE

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-Rayforce	High solids epoxy reinforced with glass flakes Colour grey, pink aluminium. VS:80% Surface: Steel and concrete.	Application and cured from -5 to +50°C Stability in aggressive atmospheric, heating, chemical and mechanical exposure, for high temperature exposure. For immersion in fresh, sea and waste water. Long-term protection against corrosion. Outstanding abrasion resistance for steel and concrete.
RAYSTON-Rayforce FD	HB Epoxy, primer and midcoat. Colour Grey, VS 78%. For surfaces: Steel, Al, non ferrous metals, stainless steel	Cured at low temperature. Compatibility with cathodic protection and prevents corrosion under coat. Possibility of applying polyurethane without an intermediate. Included in system according ISO 12944/2018, high durability, C2-C5 y CX. Certified system C4VH (ISO 12944/2018).
RAYSTON-Rayforce UC 90	Epoxy Novolac HB, solvent free. 100% VS. Colour dark grey or Red. Surface: Steel and concrete.	High Chemical and corrosion resistance of steel and concrete, at elevated temperatures in contact with various chemicals. Dry temperature resistant dependent on service up to 170°C. Immersion heat resistant dependent on chemical contact up to 90°C.
RAYSTON-Rayforce HT	Amine cured, novolac Epoxy, HB 87%VS. Colour: grey, yellow, light red, etc Surface: Steel, non ferrous metals, galvanized, stainless steel, and concrete	Temperature resistant up to 230°C in wet/dry conditions High Chemical Resistant and Resistant to thermal shock. Anticorrosive protection coating under insulation. System for tank lining with good chemical resistance. Included in system according ISO 12944 high durability (C2-C5, CX). for structures immersed in fresh, sea or brackish water.(Im1-Im4).
RAYSTON-Rayforce FD Primer	Epoxy primer, FD with a special hardener. VS: 68%. Colour: red, grey, beige, and off white, matt. Surface: Steel, non ferrous metals and stainless steel	Application and curing form -5 to +40°C. Optimum for application for priming aluminium surfaces Possibility of applying polyurethane coating without an intermediate layer. as a primer or protective coating in corrosivity categories C2-C5, CX, according to ISO 12944, high durability.
RAYSTON-Rayforce FD ZP Primer	Primer Zinc phosphate Epoxy, FD VS: 68%. Colour: red, grey, beige, and off white, matt. Surface: Steel, non ferrous metals and stainless steel	Application and curing from -5 to 40°C Fast dried, Resistance to the corrosion. Application for priming aluminium surfaces Possibility of applying polyurethane coating without an intermediate layer. As a primer or protective coating in corrosivity categories C2-C5, CX, according to ISO 12944, high durability.
RAYSTON-Rayforce LS	Polyamine cured Epoxy, solvent free HB Colour red, Gloss Surface: Steel and concrete	High resistance to corrosion, abrasion, impact and chemical influences. High resistance under severe operating conditions, in highly aggressive environments. Superior barrier protection in both single and in multilayer systems Withstands extreme ice loads, penetration into the soil and atmospheric influence, Im1-Im4 ISO 12944 Compatibility with impressed current cathodic protection (ICCP) Internal protective coating for sewage, industrial water, oil and petroleum products.



# RAYFORCE

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-Rayforce Zinc	Zinc Epoxy primer. VS: 53%. Colour: Bluish Grey Surface: Steel	High anticorrosive protection by cathodic protection. Content Zn> 81%, SSPC Paint 20 level 2. As a primer in epoxy systems C2-C5 and CX, according ISO 12944, high durability. Included in certified system C4 VH ISO 12944/2018.
RAYSTON-Rayforce Mastic	Multimastic Epoxy, surface-tolerant, HS pigmented with micaceous iron oxide. VS 80%. colour: Grey, red, white and industrial colours with limitations. Semimatt Surface: Steel and concrete.	Recommended to maintenance and repairing coating of metallic structure High adherence over substrate with minimum surface preparation grade St2(ISO 8501/1) Cures at low temperatures, down to -5 °C. Due to the content of special additives, the material prevents corrosion over substrate with poor preparation of surface. As primer or topcoat included in systems according ISO 12944/2018, high durability, C2-C5 y CX, and Im1 hasta Im4.
RAYSTON-Rayforce FD Primer	Polyamide cured fast drying epoxy primer. VS: 53%. Colour: Red, grey, beige, black and off white, Matt. Surface: Steel, non ferrous, stainless steel and galvanized surface	Barrier and cathodic protection. Extended recoating interval. Possibility of applying polyurethane coatings without an intermediate layer. Meets with the Swedish Standard SIS 185205 for two-component paints. Al and non ferrous: As an adhesive layer for epoxy and polyurethane system, C2-C5 and CX. Steel: C2-C4 and C5I/C5M on blast cleaned steel surface (ISO 12944-2).
RAYSTON-Rayforce RP	HB, rust penetrating Epoxy mastic, reinforced with glass flake. VS:82%. Colour grey, gloss. Surface: Steel	On poor prepared surfaces till grade ST2 (ISO 8501-1) and as maintenance coating on deep seated rust as well as previously painted surfaces. To damp surfaces at relative humidity up to 95%. To surfaces prepared by high pressure water jetting (HPWL) Excellent corrosion and abrasion resistance Impact and chemical resistance in aggressive environment. Included in system according to ISO 12944, high durability, C2-C5 y CX, Im1- Im4. Single coat system C2-C4.
RAYSTON-Rayforce Sealer	Epoxy primer for concrete. VS:100%, colour yellowish, gloss	Epoxy priming lacquer for damp surface. High penetration ability, high coating bond strength to the substrate. Overcoating with polyurethane coating without intermediate layer. To impregnate and seal the top layer of concrete and other porous substrates.
RAYSTON-Rayforce UA	Ultra-high build, polyamide cure epoxy VS:85%. Colour: Grey, yellow, light red, semigloss. Surface: Steel	Suitable for surfaces prepared by high pressure water jetting (HPWJ) Corrosion and abrasive resistance Curing even after immersion in sea water. Excellent cathodic disbandment protection and chemical resistance Maintenance coating for surfaces damaged by pitting corrosion and for previously painted surfaces in marine environment. Included in systems according to ISO 12944, high durability, as primer and top coat C2-C5 y CX, for structures immersed in water Im 1-Im4. Single coat system C2-C5. Application 850 microns per coat Certified system C5H ISO 12944.
RAYSTON-Rayforce Coldgalvanic	One component, Epoxy ester, fast drying, anticorrosive zinc rich VS: 50% colour: grey matt. for Steel.	Cathodic protection on the whole surface and the film thickness. Provides maximum underlying corrosion protection. Contain 88% of zinc in dry film. It used as cold galvanizing. Included in system according ISO, high durability C3-C5 y CX and Im1 hasta Im4.

## RAYSTON PIPE

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON Pipe	HB polyurethane, solvent free VS:100% Colour: grey, dark yellow and black, semigloss For steel and concrete	DFT up to 3mm in one layer. Application and curing from -5 and +50 °C VOC, 0 g/lit Drying and curing time very short. Gel time 120 seconds. Operating temperature up to 60 °C Plural component hot airless application,3:1 System according to ISO 12944, high durability, C3-C5 and CX, and Immersion Im1- Im4. Certification EN 10290 Type 2 Class B.
RAYSTON Pipe Rayforce 95	Epoxy ultra HB, solvent free VS:100%, Colour Grey, semigloss For Steel	Application up to 85°C of surface temperature. Application up to 1500 microns in one layer. By plural feed hot airless spray equipment or by brush, roller. Fast dry and backfill time. High abrasion and impact resistant coating. Wet temperature up to 95°C. Excellent adhesion with epoxy-based powder coating, FBE Compatibility with cathodic protection. Single layer coating to prevent corrosion under insulation. Protection internal and external of pipeline System according to ISO 12944, high durability, C3-C5 and CX, and Immersion Im1- Im4.
RAYSTON Pipe XF	Polyurethane HB, solvent free 100% VS Extra fast gel time. Colour grey, dark yellow and black semigloss for steel and concrete	Application with DFT from 0.5 to 3mm in one layer. Application and curing from -5 to +50 °C VOC,s 0 g/lit Drying and curing time very short, extra fast. Gel time 45 seconds Operating temperature up to 60 °C System according to ISO 12944, high durability, C3-C5 and CX, and Immersion Im1- Im4.
RAYSTON Pipe Rayforce PW	Polyamine Epoxy HB, solvent free 100% VS, contact with drinking water. Colour yellow, glossy For Steel and concrete	Application at substrate temperature up to 55°C. Application in single layer with DFT 600 microns. Application by plural feed hot airless spray equipment Resistant against bacterial attack. Wet temperature resistance up to 80°C, in drinking water up to 60°C Solvent free coating for protection of pipes and structures used for potable water. For the long-term protection of drinking water pipelines. Storage and process tanks or vessels and other water retaining structures and related steelwork immersed or in contact with potable water.
RAYSTON Pipe BG	Polyurethane HB, solvent free, 100% VS Manual application Colour grey, dark yellow and black	Application and curing from -5 to +50°C. Application in one layer with dry film thickness up to 1 mm. Very short drying time VOC,s 0 g/lit For manual application with a brush or spatula. System according to ISO 12944, high durability, C3-C5 and CX, and Immersion Im1- Im4. For long-term maintenance-free protection of exterior metal and concrete as well FRP, GRP, RTRP.



## RAYSTON PSX

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-Antigraffiti	One component moisture curing polysiloxane. VS 50%, colour Transparent, gloss. For Steel and concrete	Polysiloxane antigraffiti. Excelente repulsion and ease elimination of permanent markers and spray paints Excellent resistance of external surfaces to such influences as precipitation, sun and high temperatures.
RAYSTON-Termaprime	One component moisture-cured, heat resistant Polysiloxane primer with zinc powder pigment. VS: 56%, Colour grey zinc, Matt, For Steel and concrete	Application at sub-zero temperatures down to -10°C. Low content of volatile organic compounds, VOC's Permanent heat resistant up to 400°C. Included in system according ISO 12944 high durability (C2-C5, CX).
RAYSTON-Termafinish	One component moisture-cured, heat resistant, Polysiloxane primer/top coating with aluminium powder pigment. VS:45%, Colour silver, Matt For Steel, non ferrous metal, stainless steel and concrete surfaces.	Application at sub-zero temperatures down to -10°C. Low content of volatile organic compounds, VOC's Permanent heat resistant up to 600°C. For Steel and concrete: system according to ISO 12944, high durability, C3-C5 and CX. For non ferrous metals: as protective coating.
RAYSTON-AC TOP PSX	Two component, solvent free, weather and wear-resistant epoxy polysiloxane based coating. VS: 96%, colour RAL, glossy For steel, non ferrous, stainless steel and galvanized surfaces	High hardness and good impact resistance. Withstands sunlight and UV radiation. Resistant to continual splashing of water and various process chemicals. Steel surface: As a single coat system, C2-C3 according to ISO 12944 In epoxy system, C3-C5 y CX, according to ISO 12944. Maintenance painting over old paint surfaces Non ferrous and galvanized surfaces: As protective coating.

## ZINC SILICATE AND SHOP PRIMER ESZn

PRODUCT	DESCRIPTION	PERFORMANCES
RAYSTON-Raysil	Moisture curing zinc silicate coating VS: 50.5%, For steel surface.	Cathodic protection. Application at low temperatures from -18 to +50°C. Application at relative humidity in the range of 50-90% operating temperature and maintain anticorrosion characteristics up to 400°C and with the appropriate topcoat up to 540°C. Ability to use in the presence of an aggressive atmosphere, heating, chemical and mechanical influence. Increased resistance to abrasive loads to protect wastewater collection tanks with a pH in the range of 5.5-9. as an anticorrosion primer coating for building structures with a long overcoating interval. As a primer coating in system C2-C5, CX and Im1, Im2 (ISO 12944-2/2018).
RAYSTON-Ferrogalvanic SP	One component quickly drying Shop primer based on combination of binders and mix complex of zinc pigment. VS:25%, Color grey, Matt	Temporary protection of steel for a period of 3 years with DFT 20 microns. Welding without removing the primer. Over-coating with most types of the paints. No limitation to the maximum interval for the next coat application. Use as shop-primer to protect steel plates after abrasive blast cleaning, including automatic shot-blasting line.



## CERTIFICATIONS

LABORATORY	STANDARD	CLASS/TYPE	PRODUCTS	THICKNESS
COT	EN 10290	TYPE 2 CLASS B	SYSTEM RAYSTONPIPE	>1500 MICRAS
COT	ISO 12944-6	C5M HIGH	RAYSTON RAYFORCE UA	250 MICRAS
			RAYSTON RAYFORCE UA	250 MICRAS
				500 MICRAS
COT	NORSOK M-501 rev.5	SYSTEM 7	RAYSTON PU Zn PRIMER 1K	80 MICRAS
			RAYSTON AC MIO 1K	100 MICRAS
			RAYSTON AC TOP 1K	60 MICRAS
				240 MICRAS
COT	NORSOK M-501 rev.5	SYSTEM 7	RAYSTON PUREGALVANIC 1K	80 MICRAS
			RAYSTON AC MIO 1K	100 MICRAS
			RAYSTON AC MIO 1K	100 MICRAS
				280 MICRAS
COT	NORSOK M-501 Edition 6	SYSTEM 7A	RAYSTON RAYFORCE RP EPOXIDE	300-330 MICRAS
			RAYSTON RAYFORCE RP EPOXIDE	300-330 MICRAS
			RAYSTON AC TOP 1K	60-70 MICRAS
				660 MICRAS
SP	ISO 20340:2009	SYSTEM 1	RAYSTON PU Zn PRIMER 1K	80 MICRAS
			RAYSTON AC MIO	100 MICRAS
			RAYSTON AC TOP 1K	60 MICRAS
				240 MICRAS
IKS (SCHÜTS DRESDEN)	ISO 12944-6 2018	C5H	RAYSTON PU Zn PRIMER	80 MICRAS
			RAYSTON AC MIO	100 MICRAS
			RAYSTON AC TOP	60 MICRAS
				240 MICRAS
COT	ISO 12944-6 2018	C4VH	RAYSTON RAYFORCE FD	220 MICRAS
			RAYSTON AC TOP 2K	60 MICRAS
				280 MICRAS
COT	ISO 12944-6 2018	C4VH	RAYSTON RAYFORCE ZINC	60 MICRAS
			RAYSTON RAYFORCE FD	120 MICRAS
			RAYSTON TOP 2K	60 MICRAS
				240 MICRAS





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