KRYPTON - ProLine CH55

Pure polyurea membrane for submersion applications.

DESCRIPTION

ProLine CH55 is a pure polyurea membrane formulated to provide excellent chemical and moisture resistance for submersion applications. The dense but flexible nature of the protective lining makes it ideal for applications subject to handling, transport, installation or operational damage such as impact or abrasion. Once cured, it forms a continuous and seamless barrier that has high impact properties making it an ideal tank lining or pipe coating for below and above ground applications.

APPLICATIONS

- Lining of tanks containing chemical and / or high solids liquids.
- Lining of secondary containment bunds subject to chemical leaks.
- Pipe coating for below ground applications including in soils with high moisture and chemical content.
- Above ground pipe coating applications subject to sand abrasion.
- Re-instatment of leaking concrete tanks or substrates subject to movement.
- Protection metallic structures

FEATURES

- Seamlessly spray applied to any thickness in one application.
- Remains flexible across a wide temperature range.
- Extremely fast cure resulting in reduced handling and re-use times.
- High impact resistance
- High puncture and compression resistance.
- Very good abrasion resistance.
- Very good chemical resistance.
- High anticorroison protection long durability
- Very low permeability to Radon, Methane and Carbon Dioxide gases.
- Very low permeability.

CERTIFICATES

System C5H certified, according to ISO 12944-6:2018

TECHNICAL DATA

INFORMATION ON THE PRODUCT BEFORE APPLICATION

	Component A	Component B
Chemical description	Polyamine	Aromatic isocyanate prepolymer
Physical state	Liquid	Liquid
Packaging Note: Pigment is delivered in a third container. See Pigment Spray data sheet for specific details.	Metal container 196 kg 18.6 kg Component C (pigment paste) Metal can (4 kg or 0.4 kg)	Metal container 220 kg 21 kg
Non-volatile content (%)	100%	100%
Flash point	>100ºC	>100ºC
Colour	Straw yellow	Brownish

Density

Temperature (ºC)	Density (g/cm³)	Temperature (ºC)	Density (g/cm³)
20	1.01	20	1,14
60	0.98	60	1.10

Viscosity
Approximate

Temperature (ºC)	Viscosity (mPa.s)	Temperature (ºC)	Viscosity (mPa.s)
5	1100	5	2500
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 ProLine CH55.
Pot life **Approximate**	Gel time mixture A+B (20 g) 6 - 8 s at 25ºC
Storage	Keep between 10º and 30ºC.
Shelf life	Approximately 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	55 D (± 5)
Mechanical properties	Elongation at break: 450% Tensile strength: 25 MPa (UNE EN ISO 527-1/3) Tear strength: 100 N/mm (ISO 34-1 method B)
Gas Radon diffusion coefficient	8×10^{-12} m²/s (ISO/DTS 11665-13)
Methane permeation coefficient (DIN 53380/ISO 15105-1)	140 Ncm³ x mm / m² x day x bar
Carbon dioxide permeability (EN ISO 7783:2012)	μ = 50484. Sd > 50 (if coating thickness greater than 1 mm.)

Adhesion strength

Surface	Adhesion (MPa)
Concrete	2.5
Steel	≥ 8

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 pigmented topcoats.
Abrasion resistance	Taber, CS10, 1000 c, 1 kg: 20 mg

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CHEMICAL RESISTANCE

Immersion test, 80ºC, 7 days (0=poor resistance, 5=good resistance)

Krypton recommends that in all applications involving chemicals a pre-test of the lining's suitability in the customer`s application be conducted. Consult with Krypton Technical Team.

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

SUBSTRATE REQUIREMENTS

The substrate must be free of contaminants (fats, oils and silicones), dust and loose materials. Irregularities protruding from the surface should be eliminated.

In the case of concrete it must be totally cured and free of any laitance. Ideally a concrete substrate must be completely dry, in this case it will be primed with the Epoxy 100 or Epoxy Gel Primer. Epoxy Gel primer is recommended on vertical surfaces. If the concrete substrate has a humidity level higher than 4%, it should be primed with the Primer GC.

Steel surfaces should be prepared with a class 2 ½ blast with a surface profile of approximately 80 microns.

For specific application methodologies consult with the Krypton Technical team.

RECOMMENDED ENVIRONMENTAL CONDITIONS

The temperature of the substrate should be between 5ºC and 40ºC. In all cases substrates should be 3ºC above dew point before applying primers or membranes.

MIXING

Add the required Pigment to the A-component and thoroughly power stir before using and periodically during spraying operations. It is recommended to pre-heat both components by recirculating both components through the spray machine with the heaters set at recommended settings.

APPLICATION GUIDELINES

➢ ProLine CH55 can only be applied using high pressure heated plural component spray equipment by trained and experienced applicators.
➢ In ambient temperatures below 20C chemical drums should be pre-heated using band heaters to 30 – 40° C.
➢ The A-side component should be thoroughly power stirred prior to the commencement of spraying and periodically during the spraying process to ensure there is no settling out of the A-side chemical components.
➢ The Pigment is always mixed into the A-side using a power stirrer.
➢ Both the A-side and B-side drums should be fitted with desiccant dryers.
➢ Compressed air supply should be supplied via an air dryer.
➢ Primary heaters should be set at between 65-70°C. Adjustments can be made on-site based on environmental conditions, mixing module size and application circumstances.
➢ It is important to ensure sufficient heat is maintained. Failure to maintain sufficient heat can compromise the mix and final physical properties of the coating.
➢ Hose heaters should be set at 70 ° C. Adjustments can be made on-site based on environmental conditions, mixing module size and application circumstances.
➢ For best results ensure spray pressure (not static pressure) is a minimum of 155 bar (approximately 2250 psi)
➢ For full substrate preparation and / or repair procedures consult with your Krypton Technical representative

Contact Krypton Chemical for more detailed technical information.

CURING TIME

Approximate hardness values are provided as reference only (2 mm, polypropylene substrate, 20ºC 50% RH)

Time	Hardness shore D
5 min	35
45 min	43
6 hours	50
24 hours	55

REAPPLICATION

Usually, not necessary as desired thickness can be obtained in one single application. In the event additional thickness is required apply additional material within 2 hours of original coating application. If spraying over a previously applied epoxy primer, ensure the primer is completely cured (circa 8 hours) but no older than 48 hours. (Overcoat window). In extreme heat the overcoat window is dramatically reduced downwards from 48 hours.

RETURN TO SERVICE

Under most conditions (25ºC, 50% rh), the membrane is resistant to 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, MAINTENANCE AND INSPECTION

An inspection and maintenance program should be followed relevant to the application.

FAQs

Problem	Question	Cause	Solution
Product does not cure	A/B ratio is correct?	Pressure differences	Check and correct machine operation
Bubbles or open pores	Porous substrate?	No primer	Apply suitable primer before ProLine CH55

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Poor hiding power	Horizontal?	Too little product Too little pigment	Apply 1 kg/m^2 Ensure A+pigment is thoroughly power blended.
Colour change	Exposed to sunlight?	UV-reaction	Apply a top coat
	Can it be applied without pigmentation?		Not recommended. ProLine CH55 is always delivered with the pigment of choice. Use of pigment helps to obtain a uniform thickness and appearance

SAFETY

Component B contains isocyanates. Always follow the safety instructions in the Material Safety Data Sheet. Respiratory protection is mandatory (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 only.

ENVIRONMENTAL PRECAUTIONS

LEED-requirements compliant.
EQ Credit 4.2, Low emission 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 to avoid potentially dangerous reactions. Component A and B may be mixed on a 1/1 ratio to create a reaction that results in an inert material. Never manually mix volumes greater than 5 litres in order to prevent the development of excessive exothermic heat.

OTHER INFORMATION

The information contained in this Technical Data Sheet, as well as our advice, both written and verbal or provided through testing, is based on our experience, and does not constitute any product guarantee.
We recommend to study thoroughly all information provided before proceeding to handle or apply of any of our products, and strongly advise to conduct tests “on-site” in order to determine the products suitability for a specific project.
Our recommendations do not exempt the obligation of installers to determine the suitability of the product and the application methods for each project.
The application, use and processing of our products are beyond our control, and are therefore under the exclusive control and responsibility of the installer. Consequently, the installer is responsible of any damage caused by the partial or non-observation of Krypton`s guidelines and instructions and in general, any inappropriate use or application of these materials.

This Technical Data Sheet supersedes previous versions.