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Poly urea Aromatic



Description

Poly urea Aromatic is a spray-applied, 100% solids, flexible, two-component, rapid curing pure poly urea system, designed as a waterproofing and protective coating. It combines the advantages of seamless coating with very long life cycles and high durability.

Poly urea Aromatic consists of the two components, poly urea part A ISO and poly urea part B AMINE. The system offers excellent surface properties and overall physical properties.

Uses

Anti-corrosion, waterproof and protective coating for concrete and steel in a wide range of environmental conditions.



Specification

Where mentioned in the contract drawings, the protective and waterproofing coating shall be poly urea, a 100% solids, flexible, two components, rapid curing, pure poly urea coating system providing high corrosion resistance, abrasion and thermal shock resistance.

Application

- Below and above ground waterproofing
- Pipe coatings
- Bridge piers/deck waterproofing
- Water tanks
- Marine
- Theme parks/ Waterparks
- Aquarium lining
- Stadia
- Line striping
- Secondary containment
- Green roofs
- Tunnel lining
- Swimming pools



Advantage

- ✓ -Environment friendly – 100% solids
- ✓ -Excellent chemical resistance, thermal stability and UV resistance
- ✓ -Very fast turn-around time. The coated substrate can be put into service within an hour.
- ✓ -Excellent impact, abrasion and puncture resistance
- ✓ -Seamless and monolithic, including field joints
- ✓ -Significantly enhances the durability of reinforced concrete
- ✓ -Low permeability values
- ✓ -Color stable when coated with ACRUX UVR topcoat
- ✓ -Fire rated when coated with ACRUX UVR topcoat
- ✓ -Can be applied at ambient temperatures between -30°C to $+70^{\circ}\text{C}$
- ✓ -Designed for service temperature from -30°C to $+135^{\circ}\text{C}$

- See chemical resistance and color sections
- See Acrux UVR topcoat data sheet
- For applications below $+5^{\circ}\text{C}$, consult Ilia for specific advice.
- For high temperature applications, consult Ilia for specific advice.



Properties

Typical Physical properties @ 23°C

Solids by Volume : 100%

Viscosity : A ISO =1000 MPas
: B AMINE <1200 MPas

Density at 25°C, sprayed film : 1.01 g/ml

Tensile Strength ASTM D-412 : >19 MPa

Modulus 100%/200%/300% : >9/13/16 MPa
ASTM D412

Tear Resistance ASTM D624C: 90 ± 4(N/mm)

Elongation ASTM D412 : >300%

Shore -D ASTM D2240 : 46

Abrasion (1kg, CS10 wheels) : 0.4 mg/1000 cycles
ASTM D4060

Abrasion (1kg, CS17 wheels) :10 mg/1000 cycles
DIN EN ISO 5470

Abrasion (1kg, H22 wheels) : 36 mg/1000 cycles
ASTM D4060

Service temperature range : -30°C to 100°C *

*excursions to 140°C acceptable. e.g steam cleaning operations, bridge deck asphalting operations.



Clarification of property values

The typical physical properties given above are derived from independent verified testing of ILIA poly urea spray applied in accordance with the ILIA poly urea method statement with prober p2 gun in controlled laboratory environment and tested after a minimum of 14 days' cure.

Results derived from testing field-applied samples may vary dependent on circumstances beyond our control such as the film thickness test and curing conditions age of samples tested. A water sinking must be carried out and a "pass" achieved prior to spraying.

Certification

Root Resistant to CEN TS 14416.

Fire Rated as roof waterproofing to BS476-3: EXT F. AA when coated with ILIA ACRUX UVR Topcoat.



Processing parameters

Block Temperature : + 70°C to +80°C

Hose Temperature : + 70°C to +80°C

Volume ratio : 1:1

Pressure : 120 - 150 bar

Gel Time : 5 - 10 sec

Walkable : 2 minutes

Trafficable (light duty) : 15 - 20 minutes

Fully Serviceable : 24 hours

Refer to application section below and ILIA poly urea method statement for further detail.

Project LOG

A project log should be maintained for each poly urea site application. For details of project log requirements refer to the ILIA poly urea method statement.

Preparation

All surfaces must be clean, dry and free from contamination. Metal surface must be assessed and treated in accordance with ISO 8504.



Concrete:

Dry abrasive blasting, wet abrasive blasting, vacuum-assisted abrasive blasting, and centrifugal shot blasting, as described in ASTM D4259, may be used to remove contaminants, laitance, and weak concrete, to expose blow holes, and to produce a sound.

R-DIS: Resistant - Discoloration only

R-C: Resistant - Conditional; discoloration and / or slight softening or swelling
concrete surface with adequate profile and surface porosity. All blow holes and minor surface imperfections shall be filled with recommended filler prior to application of Primer.

Bare Steel

All welding seams must have a surface finish which ensures that the quality of the paint system will be maintained in all respects. Holes in welding seams, undercuts, cracks, etc. must be avoided. If found, they must be remedied by welding and/or grinding. All weld spatters must be removed. All sharp edges must be removed or rounded off in such a way that the specified film thickness can be built-up on all surfaces. The radius of the rounding must be minimum 2 mm.

The steel must be of first class quality and must not have been allowed to rust more than corresponding to grade B of ISO 8501- 1:2007. Any laminations must be removed.

Blast cleaning to Sa 2½. (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve a coarse surface of Grade Medium G (50-85µm, Ry5) (ISO 8503-2).

Priming

Following correct preparation, the substrate must be primed. For sound, dry concrete and at ambient/substrate temperatures of $\geq 10^{\circ}\text{C}$, prime using ILIA Poly prime. If this condition or concrete substrate condition is not met (see Limitations), then ILIA Primer must be used. For steel surfaces use ILIA Primer, for other surfaces consult ILIA for advice.

For concrete, suggested application rate is 0.25kg per m²; For steel substrates, a suggested rate of 0.15kg per m². A broadcast of fire-dried sand is recommended for optimum adhesion properties.

The primer shall be allowed to become touch-dry prior to application of ILIA Poly urea.

Refer to ILIA Poly Urea Method Statement for full details.



Spray Equipment

A high pressure spray proportioning machine/ spray gun for plural heated poly urea components such as those manufactured by GlasCraft or Graco should be used for this product.

A list of appropriate equipment is provided in the ILIA Poly Urea Method Statement.

Chemical Resistance Chart				
ASTM D 3912 - primed concrete and primed steel				
Chemical	72 hours Immersion		6 months immersion	
	Result	Max Service	Results	Max Service
Anti-freeze (Texaco)	R	50°C	R- DIS	50°C
Brake fluid	R-C	50°C	R- C	50°C
Hydraulic Oil	R	50°C	R- DIS	50°C
Motor Oil	R-DIS	50°C	R- DIS	50°C
Kerosene	R	25°C	R- C	25°C
Diesel Fuel	R	25°C	R- DIS	25°C
Petrol	R-DIS	25°C	R- C	25°C
Skydrol	NR		NR	
Sodium hydroxide (10%)	R	50°C	R	50°C
Sodium hydroxide (25%)	R	50°C	R	50°C
Sodium hydroxide (50%)	R	50°C	R-DIS	50°C
Potassium hydroxide (50%)	R	50°C	R	50°C
Ammonia (0.880) 33%	R	25°C	R- DIS	25°C
Sea water	R	50°C	R-DIS	50°C
Urea (10%)	R	50°C	R	50°C
Urea Solution conc.	R	50°C	R-DIS	50°C
Sugar Solution conc.	R	50°C	R-DIS	50°C
Bleach (5%)	R-C	25°C	NR	
Industrial Methylated spirits	NR		NR	
Acetic Acid (10%)	R	50°C	Concrete R-DIS Steel NR	50°C
Lactic Acid (10%)	R	50°C	R-DIS	50°C
Lactic Acid (20%)	R	50°C	R- C	50°C
Cetric Acid (10%)	R	50°C	R-DIS	50°C
Cetric Acid (50%)	R	50°C	R- C	50°C
Tartaric Acid (50%)	R	50°C	Concrete R-DIS Steel R-C	50°C
Oleic Acid (100%)	R-DIS	50°C	NR	
Phosphoric Acid (10%)	R	50°C	R- C	50°C
Hydrochloric Acid (20%)	R-C	50°C	R- C	50°C
Hydrochloric Acid (20%)	NR		NR	
Nitric Acid (30%)	R-C	25°C	NR	
Sulphuric Acid (10%)	R	50°C	R-DIS	50°C
Sulphuric Acid (70%)	R-C	25°C	NR	

R : Resistant

Note: The chemical resistance detail given above is a guideline based on laboratory testing in controlled conditions; results from the field may vary due to actual conditions on site; contact ILIA for further advice.



Color Stable Topcoat

If color stability is required, a minimum 0.2mm film of ILIA Acrux UVR Topcoat of the appropriate color should be applied. See product data sheet. Acrux UVR Topcoat should be applied to clean, dry Poly urea surface within 48 hours of poly urea application. If >48 hours has elapsed since poly urea application, poly urea surface should be reactivated using a ILIA poly prime wipe and allowed to dry prior to application of Acrux UVR Topcoat. Refer to ILIA Acrux UVR Topcoat product data sheet and ILIA Poly Urea Method Statement for further detail.

Estimating supply

ILIA poly urea part A ISO component	
Drums	200 lit
ILIA poly urea part B AMINE component	
Drums	220 lit

Or

Drum	220 lit
ILIA poly prime 31	
Metal containers	Check with ILIA office
ILIA primer	
Metal containers	25 kg packs
ILIA poly prime 150	
Plastic containers	1 lit packs
ILIA Acrux topcoat	



Plastic containers	25 kg
coverage	
ILIA poly primer	0.25kg per m ² (concrete) ILIA Primer 0.15kg per m ² (steel)
ILIA Poly urea	1.5-3.0 lit per m ² (1.5-3.0mm thickness) depending on specification
ILIA ACRUX UVR	16m ² per 5kg pack for Topcoat 0.2mm film** 80m ² per 25kg pack for 0.2mm film **

ACRUX UVR Topcoat should be applied as a minimum 0.2mm film to achieve 100% opacity.

Storage

ILIA Poly urea has a shelf life of 12 months if kept in a dry, air conditioned store between +5°C and +30°C in the original unopened containers. Any changes in color have no negative effect on reactivity and physical properties of the coating.

Safety handling

Avoid contact with eyes and skin. Wear suitable protective clothing, gloves and eye/face protection at all times. Ensure adequate ventilation and avoid inhalation of vapored aerosol. Use supplied air hood.

ILIA Poly urea, Poly prime, ILIA Primer and ILIA Acrux UVR Topcoat may cause sensitization.



In case of eye contact, first aid must be administered immediately. The eyes should be held open while flushing with a continuous low pressure stream of water for at least 15 minutes. Seek medical advice immediately. If swallowed, seek medical attention immediately - do not induce vomiting.

The use of barrier creams provides additional skin protection.

Refer to product safety data sheets for detailed information.

Application

The client/ main contractor must be satisfied that the applicator has suitable equipment and expertise, and will follow the procedures detailed in this datasheet and in the ILIA Poly Urea Method Statement.

Do not dilute ILIA Poly urea, ILIA Poly prime or ILIA Primer under any circumstances.

Normal recommended minimum applied thickness of ILIA Poly urea is 1.5mm, using cross-hatch spray pattern.

Applied product can be walked on carefully after approximately 2 minutes; is light duty trafficable (e.g. light foot traffic) after approximately 15-20 minutes, and fully serviceable after 24 hours.

For temperatures below +5 °C, longer cure times must be anticipated – contact ILIA for further advice. For field/day joints for applications >12 hours after the previous poly urea coating application, a Poly prime wipe is required, and allowed to dry prior to fresh poly urea application.

Use appropriate non-solvent chemical for the flushing of equipment.

In the case of prolonged product storage prior to use, thoroughly mix the amine component with a drum mixer until a homogenous mixture and color is obtained.

Refer to ILIA Poly Urea Method Statement for further detail.

Limitations

Do not proceed with application if atmospheric relative humidity is >90% or if the surface temperature is <3 °C above the dew point.

For a bonded poly urea coating application, concrete substrate must have achieved at least 75% of its design strength. Concrete relative humidity must be ≤75%. Do not proceed with application if the substrate temperature or the ambient temperature is, or is anticipated to be, <+5 °C during the application.



For work in exposed areas, do not proceed with application if precipitation is imminent.

If in doubt, contact ILIA for advice.

It should be noted that ILIA Poly urea is an aromatic poly urea; therefore, as with all aromatics, over a period of time significant color change will occur if exposed to UV rays. This will not cause any negative effect on the physical properties of the product. ILIA Poly urea is not suitable for application where negative water pressure or raising dampness occurs.

Technical support

ILIA offers a comprehensive technical support service to specifiers, end users and contractors. ILIA is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

Disposal Considerations

Cured ILIA Poly urea, cured ILIA Poly prime, cured ILIA Primer and cured polyuria UVR Topcoat can be disposed of without restriction. The uncured Part A and Part B components should be disposed of according to local environmental laws and ordinances. “Drip free” containers should be disposed of according to local environmental laws and ordinances. Refer to safety data sheets for all relevant information on ILIA Poly urea, ILIA Poly prime, ILIA Primer, ILIA Poly prime and ILIA Acrux UVR Topcoat.

Information

ILIA manufactures a wide range of complementary products which include

- Water proofing membranes & Water stops
- Joint sealants and filler boards.
- cementitious & epoxy grouts
- Specialized flooring products



ILIA additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. ILIA's 'Systematic Approach' to concrete repair features the following:

- hand-placed repair mortars
- spray-grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult ILIA office. ILIA is a registered trademark of ILIA International Limited.