DESCRIPTION:

NUKOTE AL® is NCSI's multipurpose high performance aliphatic polyurea designed and developed to perform well for anticorrosion and waterproofing applications on steel, concrete, and many other substrates requiring high degree of UV and color stability. This coating is extremely color stable and displays excellent UV weathering characteristics, chemical resistance, high abrasion resistance, and gloss retention property. It is a two-component, 100% solids, pure polyurea that significantly reduces the moisture problems that commonly cause pin holing and blistering in most polyurethane, polyurethane-hybrid and other organic coating systems. . Nukote AL can be textured easily for anti-skid purposes. The product has very good moisture permeation resistance and performs as an excellent barrier coating. Nukote AL provides excellent adhesion to most substrates when used with a suitable Nukote primer.

FEATURES:

- 100% solids with zero VOC
- Fast reactivity and cure time resulting in almost immediate return-to-service time
- Performs in constant process temperatures from -22 °F to 140 °F (-30 °C to 60 °C)
- Maintains high physical properties on weathering
- UV and colour stable
- Superior elongation and tear properties
- Seamless, resilient, flexible and durable
- Excellent corrosion protection
- High impact and abrasion resistance
- Resistant to many solvents, acids and alkalis (consult NCSI)
- Low permeability waterproofing membrane

TYPICAL USES:

- As a Top coat on Aromatic polyurea and polyurethane membranes
- General waterproofing including exposed areas
- Corrosion protection in highly corrosive environments
- Carparks and heavy duty flooring
- Pedestrian and vehicular decks
- Secondary containment

COLORS:

Standard medium grey only. Custom colors, blended to match any RAL number, are available upon request subject to minimum quantity.

PACKAGING:

400-liter drum sets, shipped in metal drums of 200-liters each of side A and side B.
40-liter kits, shipped in metal pails 20-liters each of side A and side B.

COVERAGE:

Nukote AL may be applied at any rate to achieve the desired thickness.
Calculation for theoretical coverage: 40 Ft^2 /gal @ 40 mils (1 m^2/liter @ 1mm).

STORAGE:

Twelve to eighteen months in factory delivered, unopened drums. Store on pallets and keep away from extreme heat, freezing, and moisture. The use of drum heaters is encouraged to reduce material viscosity at low temperatures.

TECHNICAL DATA (All values @ 77 ºF / 25 ºC)	**Metric**
Solids by volume (ASTM D2697)	100%
Volatile organic compounds (ASTM D2369)	0 gm/ lit
Theoretical coverage	1m^2/ lit @ 1mm
Specific Gravity of materials (ASTM D792)	A: 1.12, B: 1.01 kg/ liter
Viscosity at 158 ºF/70 ºC in cps ±10% (ASTM D4878)	A-160, B-80
Shelf life @ 77 ºF /25 ºC	12 - 18 Months
Tensile strength (ASTM D412-C)	21 - 23 MPa
Elongation (ASTM D412-C)	200-300 %
Hardness (ASTM D2240)	45 -55 Shore D
Flexibility (2mm mandrel ASTM D522)	Pass
Water vapour transmission rate (ASTM E96)	0.29to 0.39gms/hr-m^2
Water absorption -24 hours (ASTM D570)	~1.5%
Crack Bridging @ -13 ºF/-25 ºC (ASTM C1305), 25 cycles	Pass
Tear strength (ASTM D642)	65- 80 Kn/m
Impact Resistance (ASTM G14), No Holidays	> 20 J (N-m)
Fire Rating (ASTM E108)	Meets Class A for Flame spread
Flash point Pensky Martin	>93 °C
Service temperature (Dry)	-30 °C to 60 °C
Abrasion Resistance (ASTM D4060) weight loss	< 35 mg loss Taber CS 17 wheel 1Kg/1000 rev
PROCESSING PROPERTIES (Under standard lab conditions)	
Mix Ratio V/V	**1:1**
Gel time	**6 to 20 seconds**
Tack free time (DFT & Temperature dependent)	**30 to 45 Seconds**

Post cure time	**24 hours**
Properties and values are highly dependent on equipment, spray gun, mix chamber temperature, pressure and related parameters. Variations are possible and expected. Values included above are per NCSI standard lab practices & methodology at various dry film thicknesses	

MIXING:

Nukote AL might not be diluted under any circumstance. Thoroughly mix Nukote AL Part B resin material with air driven power equipment until a homogeneous mixture and color is obtained. Always use dedicated spray equipment.

SURFACE PREPARATION:

Concrete:
The surface of a concrete subfloor should be dry, smooth, structurally sound and free of depression, scale, or foreign deposits of any kind. Remove all curing compounds. Abrasive blast, sweep blast or water blast to remove all latent material and expose voids. Use a good quality epoxy filler or mortar for void and spall filling, skim coat or repairs. Prime, fill imperfections in the substrate surface to limit out-gassing. All concrete substrates, on or below grade level should be tested for moisture content. On-grade or below-grade concrete floors or slabs should have a moisture barrier installed to protect from ground moisture. The surface preparation of concrete should meet and conform to Joint NACE 6/SSPC-SP 13 standards and achieve a concrete surface profile of CSP 3 to CSP 6 as per ICRI Guideline No.03732 for optimum performance.

If concrete surfaces known to, or likely to suffer from, rising dampness, potential osmosis problems or have a moisture content > 5%, concrete has to be treated with Nukote HLT*.

If concrete is < 28-days old and rush application is desired, concrete has to be treated with Nukote HLT*.

If concrete surfaces known to, or likely carbonation, concrete has to be treated with Nukote HLT*.

Steal:
All steal surfaces should be clean and free from contamination. The surface should be assessed and treated in accordance with ISO 8504, Abrasive blast the surface to minimum NACE-2/SSPC SP-10/Sa 2.5, as per ISO 8501-1, for a visual assessment of surface cleanliness with an anchor profile of 3 to 4 mils (75 -100 microns). Soluble salts must be removed to an acceptable level.
Where extended coating performance on metal surfaces is desirable with an extended window of application prior to surface oxidation, metal surfaces are recommended to be treated using Premera CW* range.

Where abrasive blasting is not permissible due to spark generation, metal surfaces are recommended to be cleaned using Premera CW-VB*.

**** Refer to products' Technical Data Sheets for further details***
*****Refer to NCSI surface preparation manual for detailed procedures for different types of substrates.***

PRIMING:

Following correct preparation, the substrate must be primed.

Concrete
For dry conditions, sound, dry concrete, prime using Nukote Polyprime I/II* or Nukote Metal Prime II*.
If moisture content of concrete exceeds 5%, prime using Premera MI Prime*.

Steal
For steal surfaces, prime using Nukote Metal Prime II** or Premera AE T7/AE T7 LF*.

Other Substrates
Painted or unpainted iron; aluminium, copper and other metals; hot rolled steel, cold rolled steel, stainless steel; powder coated and galvanized surfaces; wood, rubber, plastic, fiberglass and glass, prime using Nukote Metal Prime II* or Premera AE T7/AE T7 LF*

Refer to products' Technical Data Sheets for further details.

APPLICATION:

Must be applied utilizing high-pressure, heated plural component 1:1 spray proportioning equipment, such as Graco Reactor, or equivalent, capable of delivering materials without loss of pressure or drop in temperature for the appropriate hose length on a consistent basis.
Both Part-A and Part-B material should be preconditioned at 26-33°C before application. Recommended surface temperature must be at least 3°C above the dew point.
Both Part-A and Part-B materials should be sprayed at a minimum of 2000 psi and at temperatures above 70°C. Adequate pressure and temperature should be maintained at all times.
For optimum performance, the substrate should be abrasive blasted. Concrete substrates should be allowed to cure for a minimum of 28 days. On concrete, Nukote ST should always be applied over a suitable primer for maximum adhesion.
On horizontal surface applications, a texture "stipple" coat can be applied for non-skid purposes, after reaching the initial desired film thickness.
Recommended DFT's are a subjected to functionality and exposure requirements. Please review your specific design with Nukote technicians.
Nukote ST should be sprayed in smooth, multidirectional passes to improve uniform thickness and appearance.
Application of subsequent layers should be within the over coating open window time. If maximum over-coating time is exceeded, it is necessary to activate the previous layer using Nukote IC PRIME U*.

Refer to products' Technical Data Sheets for further details.

EQUIPMENT CLEAN UP:

Cured product may be disposed of without restriction. Uncured Isocyanate and resin portions should be mixed together and disposed of in accordance with local regulations. Containers should be disposed of according to local environmental laws and ordinances.

LIMITATIONS:

Do not open until ready to use, and store in a sealed container after opening. Adding a nitrogen blanket is strongly recommended for the 'A' component when storing after opening.
Due to its aromatic composition, Nukote ST will tend to yellow or darken in color and will become flat after exposure to UV light. A topcoat can be applied to Nukote ST within six hours of application with an aliphatic polyurethane/polyurea coating for a colorfast finish.

WARNING:

This product contains Isocyanate and curatives

CHEMICAL RESISTANCE:

Each Nukote product formulation has varying levels of resistance to specific chemicals. Please review the chemical immersion test data included in the Nukote Test Book for general resistance to specific chemicals at specific concentration levels. Chemical concentrations are complex and when combined with temperatures above ambient levels this complexity increases exponentially. Contact Nukote Technical Personnel for specific recommendations for chemical resistance prior to specifying these products in this application type. Consult with NCSI for more details on product and chemical resistance. The following chart is the results of Polyurea immersed in chemicals and tested as per modified ASTM D 3912.

Chemicals	Resistance	Chemicals	Resistance
Hydrochloric acid upto 10%	R	Ammonium Hydroxide 20%	R
Sulphuric Acid 15%	R	Ammonium Hydroxide 50%	RC
Phosporic Acid 10%	R	Pottasium Hydroxide 10%	R
Acetic Acid 10%	R	Pottasium Hydroxide 20%	RC
Sea water	R	Sodium Hydroxide 20%	R
Waste Water	R	De ionized Water	R
Water @ 176 ºF (80 ºC)	R	Diesel Fuel, Gasoline (unleaded)	R
Hydrogen Sulphide (gas)	R	Motor Oil, Brake Oil	RC
Sodium Hydroxide-50%	RC	Hydraulic Oil	R

R = Resistant RC = Slight surface change or discolouration with no loss of hardness

WARRANTIES AND DISCLAIMERS:

Nukote Coating Systems warrants that the two components of this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product is dependent upon the proper mixture and application of the components by the applicator. Nukote Coating Systems has no role in the application of the finished polymer other than to manufacture and supply its two components. It is vital that the person applying this product understands the product and is fully trained and certified in the use of plural component equipment and application of plural component materials. There are no warranties that extend beyond the description on the face of this instrument, except when provided in writing, directly by Nukote Coating Systems and executed under seal by a company officer.