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**DESCRIPTION:**

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Nukote ST-M is NCSI's multipurpose specially formulated polyurea coatings with characteristics and physical properties best suited for applications on substrates where faster gelling time is desired to minimize outgassing and the resultant pinholes, excess sagging and for overhead applications. Nukote ST-M (f) has uses in general as well as various industrial application including mining and mineral processing industries. It is a two-component, 100% solids, pure Polyurea that significantly reduces downtime in new as well as old construction and suitable for Metal, non-metal, SPU, and concrete structures and assets. This aromatic Polyurea Elastomer displays good resistance to a broad range of chemicals including hydrogen Sulphide, methane, excellent thermal stability, abrasion resistance and UV resistance. Nukote ST-M (f) exhibits excellent adhesion to most substrates with or without use of a suitable Nukote primer.

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**FEATURES:**

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- 100% Solids with zero VOC
- Fast reactivity and cure time resulting in almost immediate return-to-service time
- Can be applied in temperatures from -22° F (-30° C) and upwards
- Perform in constant temperatures from -22° to 250° F (-30° to 120° C)
- Retains physical properties on weathering
- Excellent elongation properties
- Seamless, resilient, flexible and tough
- Excellent corrosion protection
- Impact, tear and abrasion resistant
- Resistant to many solvents, acids and alkalis (consult NCSI)
- Resistant to Gases and chemicals common to Sewage and Land fills

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**TYPICAL USES:**

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- Transportation and Bulk Haulage
- Erosion-corrosion in the milling process
- Pump, Pipe and Piping systems
- Process equipment
- Heap Leach Pads
- Storage Tanks
- Atmospheric corrosion
- Primary and Secondary containment in Acid drainage
- Landfill containment
- Water, waste water and industrial effluent transmission and treatment plants

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**COLORS:**

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

Clear/Neutral available upon request. Color Packs, when used, must be added to Side-B.

**PACKAGE:**

100-gallon (380-liter) drum sets, shipped in metal drums of 50 gallons (190 liters) each of side A and side B  
 10-gallon (38-liter) kits, shipped in plastic pails of 5 gallons (19 liters) each of side A and side B  
 500-gallon (1900 liter) totes, 250 gallons (950 liters) each of side A and side B

**COVERAGE:**

Nukote ST-M may be applied at any rate to achieve the desired thickness.  
 Calculation for theoretical coverage: 40 Ft<sup>2</sup>/gal @ 40 mils (1 m<sup>2</sup>/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.

<b>TECHNICAL DATA (All values @ 77 °F / 25 °C)</b>	<b>US</b>	<b>Metric</b>
Solids by volume (ASTM D2697)	100%	100%
Volatile organic compounds (ASTM D2369)	0 lb./gal	0 gm/ lit
Theoretical coverage	40 ft <sup>2</sup> /gal @ 40 mils	1m <sup>2</sup> / lit @ 1mm
Specific Gravity of materials (ASTM D792)	A: 9.35, B: 8.43 lbs./gal	A: 1.12, B: 1.01 kg/ liter
Specific Gravity of materials (ASTM D792)	Mixed: 8.9 lbs./gal	Mixed: 1.1 kg/ liter
Viscosity at 158 °F/70 °C in cps ±10% (ASTM D4878)	A-100 ± 20, B-50 ± 20	A-100 ± 20, B-50 ± 20
Shelf life @ 77 °F /25 °C	12 - 18 Months	12 - 18 Months
Tensile strength (ASTM D412-C)	4500 ± 500 psi	31 ± 3 MPa
Elongation (ASTM D412-C)	350 ± 50 %	350 ± 50 %
Hardness (ASTM D2240)	50 ± 5 Shore D	50 ± 5 Shore D
Flexibility (2mm mandrel ASTM D522)	Pass	Pass
Water vapor permeability (ASTM E96)	0.361 perm-inch	
Water vapor transmission rate (ASTM E96)	0.037-0.038grains/hr-ft <sup>2</sup>	0.2 to 0.3 gms/hr-m <sup>2</sup>
Water absorption -24 hours (ASTM D570)	~ 1 %	~1 %
Crack Bridging @ -13 °F/-25 °C (ASTM C1305), 25 cycles	Pass	Pass
Tear strength (ASTM D624)	600 ± 100 pli	105 ± 18 kN/m
Impact Resistance (ASTM G14), No Holidays	> 200 in-lbf	> 20 J (N-m)

Fire Rating (ASTM E108)	Meets Class A for Flame spread	
Flash point Pensky Martin	>200 °F	>93 °C
Service temperature (Dry)	-40 °F to 250 °F	-40 °C to 120 °C
Service temperature (Wet)	40 °F to 120 °F	4 °C to 50 °C
Abrasion Resistance (ASTM D4060) weight loss	< 8 mg loss Taber CS 17 wheel 1Kg/1000 rev	
Abrasion Resistance Slurry (ASTM G75) SAR Index	Less than 250	
Hydrostatic Pressure Test (ASTM D5385-93/05)	Pass at 100 psig	
<b>PROCESSING PROPERTIES (Under standard lab conditions)</b>		
Mix Ratio V/V	1:1	
Gel time	2 to 4 seconds	
Tack free time ( DFT & Temperature dependent)	20 to 40 seconds	
Recoat time	0 to 4 hours	
Post cure time	24 hours	
Return to service	Foot traffic 1-4 hours	
	Full service 24 hours	
<i>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 &amp; methodology at various dry film thicknesses</i>		

#### **MIXING:**

Nukote ST-M (f) might not be diluted under any circumstance. Use appropriate solvent for purge line and flushing of equipment and if spraying stops for a period of time in excess of the pot life of the material. Thoroughly mix Nukote ST-M (f) part B resin material with air driven power equipment until a homogeneous mixture and color is obtained.

#### **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. Meet and conform to either 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.

##### **Metal:**

All 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 levels. *Refer to NCSI surface preparation manual for detailed procedures for different types of substrates.*

**SPU:**

Ensure to apply only after the surface is free of trapped moisture in the system.  
*Refer to NCSI surface preparation manual for more details.*

**APPLICATION:**

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This material must be applied utilizing high-pressure, heated plural component spray proportioning equipment, such as those manufactured by Graco® or similar. The proportioning equipment utilized must be capable of supplying correct pressure and heat for the appropriate hose length on a consistent basis.

For optimum performance, the substrate should be abrasive blasted. Concrete substrates should be allowed to cure a minimum of 30 days. On concrete, Nukote ST-M (f) should always be applied over a suitable primer for maximum adhesion. Please review your specific project with Nukote technicians. For all submersed applications, a primer is absolutely essential, after proper preparation. Recommended DFTs are a function of the project, please contact a Nukote technician. On horizontal surface applications, a texture “stipple” coat can be applied for non-skid purposes, after reaching the initial desired film thickness.

**EQUIPMENT CLEAN UP:**

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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:**

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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-M 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-M within six hours of application with an aliphatic polyurethane/polyurea coating for a colorfast finish.

**WARNING:**

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This product contains Isocyanate and curatives

**CHEMICAL RESISTANCE:**

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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
Phosphoric Acid 10%	R	Pottasium Hydroxide 10%	R
Acetic Acid 10%	R	Pottasium Hydroxide 20%	RC
Sea water	R	Sodium Hydroxide 10%	R
Waste Water	R	De ionized Water	R
Water @ 176 °F (80 °C)	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 International, a Nevada, USA Corporation 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 International and executed under seal by a company officer.*