
DESCRIPTION:

Nukote PLC[®] is a polyurethane polyurea hybrid designed for multipurpose uses. It is developed specifically for steel and duct iron pipeline and steel structures in buried and exposed applications. It is 1:1 plural component, 100% solids, rapid curing coating suitable as a standalone corrosion protection liner on carbon steel and ductile iron. Nukote PLC can be coated to any thickness in multiple pass. Nukote PLC cures to develop high resistance to abrasion, chemical attack and cathodic disbondment. Nukote PLC provides excellent adhesion to most substrates when used with a suitable Nukote primer. It displays good adhesion even without primer on well prepared steel substrates.

FEATURES:

- 100% solids with zero VOC
- Fast reactivity and cure time resulting in almost immediate return-to-service time
- Good resistance to cathodic disbondment
- Good corrosion protection
- Good impact and abrasion resistance
- Good thermal stability
- Resistant to many solvents, acids and alkalis (consult NCSI)
- Simple inexpensive field jointing and repair material

TYPICAL USES:

- Below and above grade pipeline applications
- Fresh or saltwater submersed pipeline applications
- Waste water and Effluent transmission lines
- Field jointing and pipeline repairs
- Steel and concrete piles, penstocks, offshore jackets and platform
- Steel or concrete protection in Power, Paper & pulp mills, mining and refineries
- Tanks and primary containments lining

COLORS:

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

PACKAGING:

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
275-gallon (1045 liter) totes.

COVERAGE:

Nukote PLC may be applied at any rate to achieve the desired thickness.
Calculation for theoretical coverage: 40 Ft²/gal @ 40 mils (1 m²/liter @ 1mm).

STORAGE:

Nine to twelve 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 ° F / 25 °C) | US | Metric |
|---|---|-----------------------------------|
| Solids by volume (ASTM D2697) | 100% | 100% |
| Volatile organic compounds (ASTM D2369) | 0 lb./gal | 0 gm/ lit |
| Theoretical coverage | 40 ft ² /gal @ 40 mils | 1m ² / lit/mm |
| Specific Gravity of materials (ASTM D792) | A: 9.09, B: 9.01 lbs./gal | A-1.09, B-1.08 kg/ liter |
| Viscosity at 158 °F/70 °C in cps ±10% (ASTM D4878) | A-120, B-160 | A-120, B-160 |
| Shelf life @ 77 °F/25 °C | 09 to 12 Months | 09 to 12 Months |
| Tensile strength (ASTM D412-C) | 3800 - 4000 psi | 27 - 28 MPa |
| Elongation (ASTM D412-C) | 20-30 % | 20-30 % |
| Hardness (ASTM D2240) | 70 to 80 Shore D | 70 to 80 Shore D |
| Flexibility – 180 (ASTM D522) | Pass | Pass |
| Water vapour transmission rate (ASTM E96) | 0.040-0.046 grains/hr-ft ² | 0.35 to 0.4 gms/hr-m ² |
| Water absorption -24 hours (ASTM D570) | ~ 1 % | ~1% |
| Cathodic disbondment (ASTM G8) | < 8mm | < 8mm |
| Tear strength (ASTM D642) | 370 to 485 pli | 65 to 85 Kn/m |
| Impact Resistance (ASTM G14), No Holidays | > 75 in-lbf | > 8 J (N-m) |
| Flammability (FMVSS-571.302) Title 49 ,Transportation | Pass | Pass |
| Flash point Pensky Martin | >200 °F | >93 °C |
| Service temperature (Dry) | -20 °F to 250 °F | - 30 °C to 120 °C |
| Abrasion Resistance (ASTM D4060) weight loss | < 60 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 10 seconds | |
| Tack free time (DFT & Temperature dependent) | 60 to 120 Seconds | |
| Post cure time | 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 & methodology of draw down film at various dry film thicknesses.</i> | | |

MIXING:

Nukote PLC might not be diluted under any circumstance. Pre-condition both A and B side to 80 °-90 °F(25 °- 30 °C) Thoroughly mix Nukote PLC Part B resin material with air driven power equipment until a homogeneous mixture and color is obtained. Always use dedicated spray equipment.

SURFACE PREPARATION:

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 level depending on applications.

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 laitance and expose voids. Use a good quality epoxy filler or mortar for blow hole filling, skim coat or repairs. Prime, fill imperfections in the substrate surface to limit out-gassing. All concrete subfloors on or below grade level should be tested for moisture. On-grade or below-grade concrete floors 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 for optimum performance (6, 7).

Refer to NCSI surface preparation manual for detailed procedures for different types of substrates

APPLICATION:

Must be applied utilizing high-pressure, heated plural component spray proportioning equipment, such as Graco Reactor 2, or equivalent, capable of delivering materials without loss of pressure or drop in temperature 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 PLC should always be applied over a suitable primer for maximum adhesion. For all submersed or immersion applications, use of a suitable primer is absolutely essential. On horizontal surface applications, a texture “stipple” coat can be applied for non-skid purposes, after reaching the initial desired film thickness. Recommended DFTs are a function of the project specific requirements. Please review your specific project with Nukote technicians.

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. Poor gloss retention and tendency to chalk on UV exposure. Use an aliphatic top coat for color and gloss resistance.

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 |
| Phosphoric Acid 10% | R | Pottasium hydroxide 10% | R |
| Acetic Acid 10% | R | Pottasium hydroxide 20% | RC |
| Sea water | R | Sodium Hydroxide 20% | RC |
| Water @ 80 °C | R | | |
| Diesel Fuel | R | | |
| Gasoline Unleaded | R | | |
| Motor Oil, Brake Fluid | RC | | |

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.