

NUKOTE CHEMSHIELD TG

DESCRIPTION:

Nukote Chemshield TG is a plural component system composed of a proprietary polymeric binder, providing excellent performance in highly corrosive, chemical and abrasive environments, at ambient or elevated temperatures. This product is designed for industrial use at elevated temperatures and will maintain its physical properties under continued exposure at high constant temperature both in exposed as well as immersion conditions. Nukote Chemshield TG is resistant to many solvents, hydrocarbons, steam, chemicals including high levels of Hydrochloric Acid, Sulphuric Acid, Alkalis, Mineral Spirits, Cutting oil, Sulphur fumes, Seawater, in ambient or elevated temperatures. Nukote Chemshield TG has good bond to rubber, metals as well as concrete and also suitable in cryogenic applications. Chemshield TG is excellent for lining vessels in direct constant contact with Hydrochloric acid at elevated temperature and acid fumes.

FEATURES

- Fast curing Trowel grade consistency
- Back to service in 24 hours
- Excellent chemical resistance to wide range of chemicals
- Suitable for HCL at elevated temperature
- Good bond to rubber
- High temperature resistance- up to 200°C
- Inflammable without carbonization
- Good abrasion and impact resistance
- 100% solids, No VOC content
- Nukote Chemshield TG maintains strong adhesive strength and can be used for pitted steel
- Nukote Chemshield TG is machine able and can be used as a repair or rebuilding compound

TYPICAL USES:

- Internal coating for flow lines and transmission lines
- External coating for flow lines and transmission lines
- Petroleum and chemical tanks
- Petroleum and chemical process equipment
- Petroleum and chemical bulk carriers
- Offshore rigs and platforms
- Sour gas pipelines and process equipment
- Patching pipes, fill castings, repair, bond broken parts

COLORS:

Nukote Chemshield TG is available in standard grey and other Limited Colours in RAL subject to Minimum quantity.

PACKAGING:

Nukote Chemshield TG is available in 13.40 liters (21.60 kgs) and 6.70 Liters kits (10.8 kgs) shipped in metal/Plastic pails of 11.4 liters (19.44 kgs) of Part A and 2 liters (2.16 kgs) of part B or 5.7 liters (9.72 kgs) of part A and 1 liter (1.08 kgs) of Part B.

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TECHNICAL DATA (All values @25 °C)	
Solids by volume	100%
Volatile Organic Compounds	0 gm/ lit
Theoretical coverage@ 1000 microns	1m ² / lit
Specific Gravity (kg/ liter)	A-1.7, B-1.08
Viscosity at 25°C in cps	A:Thick pourable consistency, B-4000
Shelf life @ 25°C	12 to 18 Months
Tensile strength (ASTM D 638)	30 to 35 MPa
Adhesive shear strength (ASTM D 1002)	12-14 MPa
Flexural strength (ASTM D 790)	50-60 MPa
Elongation (ASTM D 638)	3-5%
Hardness (ASTM D 2240)	90 Shore D
Water Vapour Permeability (ASTM E 96)	< 0.5 perm-in
Water Absorption -24 hours (ASTM D 471)	< 0.5%
Thermal Fatigue (-35°C to 120 °C, 20 cycles)	Pass
Pinhole Pressure Test @ 100 Kgf/cm ²	Pass
Impact Resistance Izod D 256	5-7
Fire Rating UBC	Class 1
Flash point Pensky Martin	NA
Service temperature	175°C constant, Spike-200°C ,Immersion-150°C
Abrasion Resistance (ASTM D 4060)	< 45 mg loss Taber CS 10 wheel 1Kg/1000 rev
PROCESSING PROPERTIES (Under standard lab conditions)	
Mix Ratio V/V	5.7 A :1B
Pot life	15- 20 minutes (500 ml Volume)
Tack free time (500 microns@25°C)	35-40 minutes
Dry to Recoat	45-50 minutes
Hard Dry	4-6 hours (machinable)

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COVERAGE:

Nukote Chemshield TG when applied at 1mm thickness will cover an area of one square meter per liter

MIXING:

Mixing ratio for Chemshield TG is 5.7:1 by volume. Add 5.7 parts of Base (A) to 1 part of Hardener (B) to a wide mouthed mixing container. Mix gently the Side A (base) using a heavy duty slow speed drill fitted with a mixing paddle or commercially available paint mixers. Add side B (hardener) to side A and mix it thoroughly until a streak free homogeneous colour is obtained. Chemshield TG is ready to be applied. Mix only the quantity that can be used during the pot life. Discard material when the mixed material start gelling and do not try to re use by adding thinner. Mixing this product manually by hand is not recommended. When environment temperature is 10°C or lower, the product can be indirectly heated to 20-25 °C. This will make mixing easier and accelerate the curing and may have effect on Pot life. The mixed material will develop high exothermic heat and it is advisable to use small quantity to prevent wastage and mix it in a wide mouth container keeping the mixing vessel in cold/ice water where possible.

APPLICATION:

Chemshield TG is a trowel applied product and do not attempt to dilute and use any alternate method of application. Use under controlled conditions which will completely avoid material loss due to exothermic heat, faster gelling and pot life. Stripe coat details such as brackets, edges, corners, welds and work well into the substrate with a good quality stiff brush. Apply using a spatula with lift coats of 600-700 microns each to recommended thickness of Chemshield TG. Finish the last build coat with a hard rubber roller for a smooth finish. Standard abrasive blast with angular abrasives is the preferred method of preparing surfaces prior to application of the product and mandatory in dynamic applications. Preparation can also be accompanied by use of proper hand tools to remove all oxidation or other loose particulates. Follow any surface preparation with proper solvent (MEK, Acetone) wipe to remove residues and e prior to application of the products. Surfaces must be sound, dry, clean, free of oil, grease, dirt, mildew, and other foreign substances. Abrasive blast cleans the substrates to Sa 2½ BS 7079: Part A1: 1989 (ISO 8501-1: 1988). The average surface profile to be in the range 60-75 µm. Manually prepared surfaces should be to a minimum standard of St 3 BS 7079: Part A1: 1989 at the time of coating. Refer NCSI manual on surface preparation for more details.

EQUIPMENT CLEAN UP:

Cured product may be disposed of without restriction. The uncured should be mixed together and disposed if in a normal manner. Containers should be disposed of according to local environmental laws and ordinances

STORAGE:

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

LIMITATIONS:

Do not open until ready to use, and store in a sealed container after opening. Do not leave it on open sun. Not good for applications below 7°C.

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WARNING:

This product contains Amine 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. A minimum of 24 hours curing required for full physical properties. Nukote Chemshield TG may be force cured at 80°C for 6 hours for faster curing. The following chart is the results of Chemshield TG immersed in chemicals and tested as per ASTM D 3912.

Chemicals	Resistance	Chemicals	Resistance
Hydrochloric acid upto 33% at elevated temperature	R	Methanol, Ethanol	R
Sulphuric Acid 70%	R	Xylene, Toluene	R
Sulphuric Acid 50% at elevated temperature	R	Acetone, MEK	R
Nitric Acid 15%	R	Hydrogen Peroxide 30%	R
Acetic Acid 10%	R	Refined Petroleum products	R
Ammonium Hydroxide 50%	R	Sewage, Waste water	R
Crude Oil, JetFuel,	R	Most Industrial effluents	R
Gasoline, Kerosene, Diesel	R	Sea water	R
Motor Oil, Lubricants	R	Water @ 150 °C	R

R- Resistant, Contact NCSI for detailed lists.

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.