

**CE-228**  
**09/13 Supersedes 10/09**

# **TUFCHEM<sup>®</sup> II MEMBRANE SPRAY GRADE**

## **DESCRIPTION**

TUFCHEM II Membrane Spray Grade is a two component urethane-asphalt based membrane formulated for spray application. TUFCHEM II Membrane Spray Grade is generally specified to be installed in 2 or 3 passes over a primed substrate for a total nominal 125-165 mil (3.0-4.2 mm) WFT lining thickness. It can be used within its limitations to protect concrete, steel, and other substrates from permeation, chemical attack and abrasion. TUFCHEM II Membrane Spray Grade may also be applied by brush. **Consult Corrosion Engineering Specification [CES-326](#) and [CES-334](#) for complete installation details.**

## **AREAS OF USE**

TUFCHEM II Membrane Spray Grade is used to protect concrete and steel structures. It can be used in conjunction with ceramic brick or polymer concrete as a part of a multi layer composite lining system. TUFCHEM II Membrane Spray Grade may also be used by itself as a stand alone lining within its chemical, thermal, and mechanical limitations. It acts as a positive barrier to chemicals and moisture and may help prevent the transmission of substrate cracks through the lining.

TUFCHEM II Membrane Spray Grade is suitable for use with chemical-resistant masonry or polymer concrete linings, providing a cold-applied flexible membrane barrier under the primary lining. This is especially desirable when hot melt membrane systems cannot be used. It can be spark tested after application on steel substrates. Consult Corrosion Engineering for spark testing details on concrete.

Typical applications include interior and exterior chemical containment linings, clarifiers, secondary containment applications, as well as steel or ceramic brick internal chimney flues within its temperature limits. TUFCHEM II Membrane Spray Grade is not suitable for exposure to hydrocarbons and other solvents.

## **OUTSTANDING FEATURES**

- Rapid installation. Cold applied with industrial spray equipment.
- Very good chemical resistance.
- Forms a flexible bond that absorbs mechanical and thermal shock.
- Strong adhesion to concrete brick steel and other surfaces.
- Economical – low initial installed cost.

**TYPICAL PHYSICAL PROPERTIES**

PROPERTY	TUFCHEM II SPRAY GRADE
Color and Appearance	Black flexible rubber
Flash Point	Min 105°F (40°C)
Density	7.4 - 7.7 lb/gal (0.9 - 0.92)
Viscosity of Mixed Product	28500 cps #5 spindle @ 10 rpm. Brookfield LVD 70F. Recorded 5 minutes after mixing
Flexibility ASTM D522 cylindrical mandrel test 7 days	Pass. No evidence of cracking or disbondment.
Tensile Strength (ASTM D412) 7 days	70 psi
Elongation (ASTM D412) 7 days	> 100%
Service Temperature	Immersion: -40°F-140°F (-40°C-60°C). Flue gas service 180°F-200°F (82-93°C). Consult Corrosion Engineering for specific applications.
Adhesion to Primed Steel and/or Primed Concrete	Exceeds the tensile strength of material. 100% cohesive failure. (Corrosion Engineering internal test method 2" (50 mm) pull blocks).
Permeance (ASTM E96)	0.24 Perms
Abrasion Resistance (ASTM D968-05)	Excellent. < 1 mil (25 µm) thickness loss after 500 liters sand.
Solids Content (10 gm/100°C/1 hr)	70-75%
Primer - Concrete and ceramic brick - Steel	PENNTROWEL® Epoxy Primer (data sheet CE-139) PENNGUARD® Wash Primer (data sheet CE- 227)

**ESTIMATING/PACKAGING THEORETICAL QUANTITIES – NO OVERAGE ALLOWANCE**

PRODUCT	CODE	PACKAGING	*THEORETICAL COVERAGE*
TUFCHEM II Spray Grade Part A	19507	4.5 Gallon 38 lb (17 kg) Pail	1x 4.5 gal unit consists of 1x 4.5 gal Part A and 1 x 0.6 lb btl Part B. Coverage per unit:
Urethane Asphalt Hardener Part B	29488	0.6 lb (0.27 kg) Btl	44 sf/unit @ 165 mils WFT (125 mils DFT). (4.1 sm per unit @ 4.2 mm WFT, 3.2 mm DFT).  57 sf/unit @ 125 mils WFT (90 mils DFT). (5 sm per unit @ 3mm WFT, 2.25 mm DFT).

\*TUFCHEM II coverage\* is theoretical and does not allow for pail loss, wastage or surface irregularities.

**SAFETY PRECAUTIONS / DISCLAIMER**

Mixes and applications of this product present a number of hazards. Read and follow the hazard information, precautions and first aid directions on the individual product labels and [material safety data sheets](#) before using. While all statements, technical information, and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user.



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