



**EXTRA TOUGH POLYUREA COATING**

**WORLD CLASS TECHNOLOGY BY**

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**TECHNICAL DATA SHEET**

**D-FEND**

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# **D-FEND EXTRA TOUGH POLYUREA COATING**

## **PRODUCT DESCRIPTION:**

*D-FEND- Aromatic Silicone Polyurea*, is a two component 100% solid Polyurea with superior performance in industrial applications. **D-FEND** displays extremely fast cure times with excellent adhesions to different substrates. **D-FEND** can be spray applied at temperatures ranging from 20°F to 150°F. **D-FEND** has excellent chemical and water resistance. **D-FEND** has a temperature range of -40°F to 350°F. **D-FEND** conforms to USDA and FDA guidelines for incidental food contact.

## **PRIMARY APPLICATIONS:**

**D-FEND** adheres well to several substrates including concrete, steel, and wood. Some typical uses include:

- SECONDARY CONTAINMENT
- RAIL CARS AND TRUCK BEDLINERS
- WASTEWATER LAGOON AND POOL LININGS
- TABLE EDGING
- COLD STORAGE AREAS
- WASH BAY AND SHOWER LININGS
- COOLING TOWERS
- PETROCHEMICAL REFINERIES
- OILFIELD PIPELINE COATINGS
- WATER PROOFING
- SEWER LINERS
- MANHOLE RESTORATION
- INDUSTRIAL FLOORING
- BRIDGE COATINGS
- ANTI-GRAFFITI

## **AVAILABLE COLORS:**

- BLACK

## **SHIPPING, SAFETY AND HANDLING:**

**D-FEND** can ship via commercial truck lines, class 55.

## **D-FEND**

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**TYPICAL PHYSICAL PROPERTIES:**

Tensile Strength (PSI)	ASTM D412	3670
Elongation (%)	ASTM D412	320
100% Modulus	ASTM D412	2500
300 % Modulus	ASTM D412	4150
Tear Strength (PLI)	ASTM D2240	545
Hardness (Shore A)	ASTM D1737	96
Flexibility (1/ 8 “ Mandrel)	ASTM D1737	Pass
Flashpoint (°F)	ASTM Pensky-Martin	>200
Taber Abrasion (mg loss)	ASTM D4060	25
CS18 WHEEL 1 kg per 1000 cycles		
Viscosity B Side	CPS	500
Viscosity A Side	CPS	450
Ratio A / B	PBV	1 : 1

**Typical Processing Properties:**

	<u>Fast /Slow</u>
Gel Time seconds	9/ 22
Tack Free Time seconds	16/ 35
Open to Foot Traffic minutes	5/ 60
Open to Industrial Traffic minutes	60 /120

**RECOMMENDED EQUIPMENT SETTINGS:**

A-Side Hose Temperature	°F	150
B-Side Hose Temperature	°F	150
Block Temperature	°F	50
Spray Pressure (PSI) Gusmer, GX-7		2000
Spray Pressure (PSI) GlasCraft, Probler		1500

**SHELF LIFE AND STORAGE: (OF RAW MATERIAL)**

Six months in factory delivered unopened drums. Keep away from extreme heat, cold, and moisture. Maintain at a proper storage temperature of 60°F - 100°F.

**PRIMER REQUIREMENTS:**

EP Primer.

**TOP COATING:**

*EP RAP.*

**D-FEND**

### **APPLICATION EQUIPMENT:**

This material must be applied utilizing a high-pressure plural component pump (1:1 by Volume) such as a GlasCraft-MX<sup>®</sup> equipped with a Prober<sup>®</sup> Gun or a Gusmer<sup>®</sup> H-2035 proportioning unit and a Gusmer<sup>®</sup> GX-7 (400 Series) or GX-8 spray gun. This proportioning unit must be capable of supplying the correct pressure and heat for the required hose length on a consistent basis. This characteristic is mandatory to apply this elastomer in a consistent, efficient manner.

### **INSTALLATION RECOMMENDATIONS:**

Substrate surfaces should be free of loose particles, rusts, voids and spills. Chloride, moisture and pH levels should be checked prior to application. Always agitate the B-side before using.

**Old Concrete** – Sandblasting, shot blasting or water blasting is highly recommended to remove surface contaminants. Any oils or fats must be removed prior to product application. Acid etching may be required (followed by a thorough rinsing) to open the pores of the concrete to accept a primer coat. *EP Primer* is recommended for **D-FEND**. A minimum 40-mil coating of **D-FEND** is generally recommended for chemical and abrasion resistance.

**New Concrete** – The concrete should be allowed to cure for a minimum of 30 days. Shot - blasting, sand blasting or acid etching (15% muriatic acid / 85% H<sub>2</sub>O) is required to remove the surface lattice that appeared during the curing process. *EP Primer* should be applied to reduce out gassing.

**Carbon Steel** – The steel must be prepared to a “near white metal,” equivalent to SSPC 10 or NACE 2. For immersion service, a 3-mil blast profile is recommended. A 2-mil blast profile is generally accepted. A 10 – 40 mil coat of **D-FEND** is generally recommended based on chemical resistance issues.

**Substrate Repairs** – All spalls and cracks should be repaired to ICRI standards. Expansion joints should be honored. Horizontal control joints can be filled with *Joint Seal (JS)* prior to the application of **D-FEND**.

### **COVERAGE CALCULATIONS:**

<b>Thickness</b>	<b>Sq.Ft /gal</b>	<b>Thickness</b>	<b>Sq.Ft /gal</b>
20 mils	70	30 mils	48
40 mils	36	50 mils	29
60 mils	24	80 mils	18
100 mils	14	250 mils	5.5

## **D-FEND**

### **ADHESION RESULTS:**

ASTM D-4541 Elcometer  
Concrete (No primer) 400 psi → Concrete Failure  
Concrete (Epoxy) 300 psi → Concrete Failure  
Steel (No primer) >1500 psi → Substrate Failure  
Steel (Epoxy primer) > 900 psi → Primer Failure  
Wood (No primer) > 250 psi → Delamination

### **Chemical Resistance:**

<b><u>Chemical</u></b>	<b><u>Result (25°C)</u></b>
Acetic Acid (100%)	RC
Acetone	RC
Ammonium Hydroxide (50%)	R
Benzene	RC
Brine-Saturated H <sub>2</sub> O (310g/l)	R
Chlorinated H <sub>2</sub> O	R
Clorox <sup>®</sup> (10%) H <sub>2</sub> O	R
Diesel Fuel	RC
Gasoline	RC
Gasoline / 5 % MTBE	RC
Gasoline / 5% Methanol	RC
Hydrochloric Acid (20%)	R
Hydrofluoric Acid (50%)	R
Hydraulic Fluid (oil)	RC
Isopropyl Alcohol	R
Lactic Acid	RC
MEK	RC
Methanol	R
Methylene Chloride	C
Mineral Spirits	RC
Motor Oil	R
MTBE	C
Muriatic Acid (10%)	R
NaCl / H <sub>2</sub> O (10%)	R
Nitric Acid (50%)	R
Phosphoric Acid (10%) & (50%)	R
Potassium Hydroxide (10%)	R
Potassium Hydroxide (20%)	R, Dis
Propylene Carbonate	RC

## **D-FEND**

<b>Chemical</b>	<b>Result (25°C)</b>
Skydrol <sup>®</sup>	C
Sodium Hydroxide (25%) & (50%)	R
Sodium Hypochlorite (10%)	R
Sodium Bicarbonate	R
Stearic Acid	R
Sugar / H <sub>2</sub> O	R
Sulfuric Acid (10%)	R
Sulfuric Acid (>50%)	RC
Toluene	R
1,1,1-Trichlorethane	C
Trisodium Phosphate	R
Vinegar / H <sub>2</sub> O (5%)	R
H <sub>2</sub> O	R
H <sub>2</sub> O (14 days @ 82°C)	R
Xylene	RC

R	Recommended	Little or no visible damage
RC	Recommended - Conditional	Some effect, swelling, discoloration
C	Conditional	Crackling-wash down with in 1 hour of spillage to avoid effects
NR		Not Recommended
Dis		Discoloration

**WARRANTY:**

***D-FEND*** conforms to in-house quality control procedures and should be considered free of defects. Due to the wide range of applications of this product, it is impossible to assume responsibility for any errors in regard to application, coverage, workmanship, over-spray or injuries resulting from the use of ***D-FEND***. Dorf Ketal Chemicals India(Pvt) Ltd makes no warranty, expressed or implied, of its products and shall not be liable for indirect or consequential damage in any event.

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