

# ELASTUFF 110

## High Durometer Rigid Polyurethane

### Technical Data

#### PRODUCT DESCRIPTION

**ELASTUFF 110** is a two-component, 100% solids rigid polyurethane coating, designed to withstand a wide variety of solvents, petroleum and sour crude oil. It was especially formulated to achieve a unique balance of hardness, high tensile strength, flexibility and chemical resistance.

**ELASTUFF 110** is a highly crosslinked polymer coating exhibiting a dense, high durometer finish. This non-porous surface, coupled with excellent hydrolytic stability and resistance to cathodic disbondment, make **ELASTUFF 110** an excellent barrier to corrosion.

The high tensile strength of **ELASTUFF 110** contributes to its resistance to abrasion and tearing. This toughness, along with its elongation properties, results in outstanding flexibility and impact resistance.

**ELASTUFF 110** can be applied to virtually unlimited thickness. Typical application thickness is between 15 and 50 mils (381 and 1270 microns).

#### BASIC USES

**ELASTUFF 110** is used for coating interior and exterior pipe, interior tank lining, valves, and all areas subject to solvents, oils and other hydrocarbons. It is an outstanding barrier to aromatic as well as aliphatic solvents.

The vertical hold attained by **ELASTUFF 110** gives it the ability to uniformly cover weld seams, bolts, angles and edges.

**ELASTUFF 110** can be applied at temperatures from 40°F to 150°F (4°C to 66°C).

In-service temperature limits of **ELASTUFF 110** for dry heat exposure range from 210°F (99°C) to a minimum of -60°F (-51°C). For wet exposure limits contact UNITED'S Technical Service Department for recommendations on specific liquids.

#### TYPICAL PROPERTIES

- Solids By Weight:**  
100% [ASTM D1644]
- Solids By Volume:**  
100% [ASTM D2697]
- Mixing Ratio:**  
1 Part A to 1 Part B by Volume (1A:1B)
- Flash Point:**  
Part A >200°F (93°C)  
Part B >200°F (93°C)  
[ASTM D93]
- Dry Time to Touch:**  
20 minutes @ 75°F (24°C)
- Cure Time:**  
75% after 24 hours @ 75°F (24°C) 50% RH.  
90% after 7 days 75°F (24°C) 50% R.H.  
[ASTM D1640]
- Tensile Strength:**  
2,550 psi (±200) (17.6 MPa)  
[ASTM D412]
- Elongation:**  
15% (±10) at 75°F (24°C)  
[ASTM D412]
- Hardness:**  
60 to 65 Shore D  
[ASTM D2240]
- Permeance:**  
0.79 Perms @ 30 dry mil (762 microns)  
[ASTM E96]
- Abrasion Resistance:**  
5-10 mg wt. loss with CS-17 wheels  
20-30 mg wt. loss with H-10 wheels  
1000 g weights at 1,000 revolutions  
[ASTM D4060]
- Flexibility:**  
Passes ½ inch mandrel bend @ -5°F (-21°C)  
[ASTM D522]
- Impact Resistance:**  
Passes 160 inch pounds direct @ 16°F (-11°C)  
[ASTM D2794]

## CHEMICAL RESISTANCE

Vapor and Immersion Tests  
(NACE TM-01-74)

### 30 Day Exposure

### Results

Sour Crude @ 200°F (93°C)	Moderate Discoloration
Gasoline, unleaded @ 75°F (24°C)	No Effect
Gasohol @ 75°F (24°C)	No Effect
Methanol @ 75°F (24°C)	No Effect
Sea Water (ASTM D1141) @ 125°F (52°C)	No Effect
Sodium Hydroxide, 10% @ 75°F (24°C)	No Effect
Sulfuric Acid, 10% @ 125°F (52°C)	Slight Discoloration
Hydrochloric Acid, 10% @ 75°F (24°C) 10% @ 125°F (52°C)	Slight Discoloration Moderate Discoloration

### 1 Year Exposure

### Results

Gasoline regular grade @ 75°F (24°C)	Moderate Discoloration
Diesel @ 75°F (24°C)	Moderate Discoloration
Jet Fuel, JP-4 @ 75°F	Moderate Discoloration

#### **Caution:**

*Chemical reagents are often very selective in their effects on elastomers. Do not assume chemical resistance of unlisted chemical reagents or unlisted temperature conditions without prior testing. UNITED SUPPLIES immersion panels for in-field testing.*

## PACKAGING

ELASTUFF 110 is a two-component, 1:1 ratio material available in 5-gallon (19 liter) pails and 55-gallon (208 liter) drums.

Part A component contains the isocyanate. Part B component contains the curative solution.

## MIXING

Component B shall be thoroughly power mixed to a uniform consistency prior to placing containers under the proper transfer pump of the plural component equipment system (1/4 horsepower for 5-gallon/19 liter pails and 3/4 horsepower for 55-gallon/208 liter drums). Care should be taken to avoid sucking air into the liquid components.

Part A Isocyanate is a homogenous mixture and does **not** require mixing. Therefore, only premix Part B.



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A Subsidiary of Quest Specialty Chemicals<sup>TM</sup>  
19011 E. Cataldo Ave. • Spokane Valley, WA 99016  
(509) 926-7143 • Fax: (509) 928-1116  
(800) 541-4383 • www.unitedcoatings.com

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## EQUIPMENT

ELASTUFF 110 is applied using 1:1 ratio plural component airless spray equipment. For information on the design of the plural component equipment refer to UNITED'S Technical Report entitled Plural Component Spray Equipment or contact UNITED'S Technical Service Department.

## SURFACE PREPARATION

### STEEL SURFACES:

Steel must be dry and clean, free of excessive rust scale, pollution fallout, dirt, grease, surface chemicals or other foreign contaminants prior to blast cleaning. A careful examination must be made to ensure that these contaminants, along with any accumulated oil, smoke, wax, or any other material that could interfere with adhesion, have been removed. This should be accomplished by use of a solvent wash as defined in SSPC-SP1 Solvent Cleaning. Excessive rust-scale shall be removed by mechanical means prior to blast cleaning.

Steel surfaces must be cleaned to Near-White (SSPC-SP10) with a minimum anchor of 2.0 mils (51 microns).

Abrasive blast cleaning shall not be performed when the surface temperature of the steel is less than 5°F (3°C) above the dew point of the ambient air, when relative humidity exceeds 80%, or where there is a possibility that the blasted surface will become wet before the primer can be applied.

The blast cleaned surface shall be primed by the end of the same work day, but in any event before any visible rusting occurs. If rusting occurs after blast cleaning, the surfaces shall be reblasted before priming.

Steel surfaces shall be primed with UNITED'S **Primer 302 LV** to a minimum thickness of 1.0 to 2.0 dry mils (25 to 51 microns), depending upon surface profile. For details of application refer to separate literature entitled **Primer 302 LV** Technical Data and Application Instructions.

## STORAGE

Shelf life of Part A and Part B components in unopened containers is one (1) year. Materials must be stored in a dry area at temperatures between 50°F and 100°F (10°C and 38°C). Do not open containers until ready to use the material. Both components are affected by moisture prior to catalyzation and must be protected from moisture contamination. Keep all containers tightly closed during storage. Containers are factory sealed with an inert gas to prevent contamination. Once opened, containers must be purged with nitrogen gas or dry air and tightly sealed to protect the components from moisture contamination during further storage.

