

ELASTUFF 101/102/103

ELASTOMERIC POLYURETHANE COATING SYSTEM

Technical Data & Application Instructions

PRODUCT DESCRIPTION

ELASTUFF 101/102 is a high solids, moisture-catalyzed, single-component polyurethane coating system. The system consists of ELASTUFF 101, an aromatic polyurethane basecoat, and ELASTUFF 102, a UV-resistant, color stable aliphatic polyurethane topcoat. ELASTUFF 103, a low VOC aliphatic topcoat is also available to meet VOC regulations in specific areas. This combination provides an excellent balance of tensile strength, elongation and hardness, resulting in superior durability, dirt and mildew resistance, chemical resistance and weatherproofing. High abrasion and impact resistance also offer protection from maintenance traffic and severe weather conditions

The fire retardant chemicals are permanently locked into the cured coating and will not leach out upon extended weathering. ELASTUFF 101/102 is a "breathing" coating, allowing moisture vapor to pass through the film while remaining impervious to mass water penetration from the exterior

BASIC USES

The ELASTUFF 101/102 System is designed for protecting a wide range of substrates from the effects of weathering and moisture intrusion. It is particularly effective as a protective membrane over new or existing roof substrates, including concrete, metal and asphaltic substrates. It provides a barrier to the effects of degradation caused by normal weathering, aging and ultraviolet exposure. ELASTUFF 101/102 is also effective when used on other horizontal or vertical applications requiring a tough, abrasion and chemical resistant membrane, such as secondary containment.

For information on protection over sprayed-in-place polyurethane foam insulation, refer to separate ELASTUFF 101/102/103 Technical Data in UNITED'S Polyurethane Foam Coatings Division catalogue.

ELASTUFF 101, 102 and ELASTUFF 103 are single-component elastomers that are catalyzed through exposure to moisture in the air. They are designed for application through standard airless spray equipment, as well as brush, roller, squeegee or notched trowel.

TYPICAL PROPERTIES

- Solids By Weight:**
ELASTUFF 101 Basecoat: 82% (± 2)
ELASTUFF 102 Topcoat: 77% (± 2)
ELASTUFF 103 Topcoat: 68% (± 2) [ASTM D2369]
- Solids By Volume:**
ELASTUFF 101 Basecoat: 80% (± 2)
ELASTUFF 102 Topcoat: 65% (± 2)
ELASTUFF 103 Topcoat: 58% (± 2) [ASTM D2697]
- Flash Point:**
Basecoat: 75°F (24°C)
Topcoat: 75°F (24°C) [ASTM D3278] (Seta-Flash)
- Dry Time To Walk On:**
Basecoat: 6-8 hours @ 24 wet mils
Topcoat: 8-12 hours @ 16 wet mils with booster
Dry Times at 70°F (21°C), 50% R.H.
- Tensile Strength:**
Basecoat: 1,000 psi (± 100)
Topcoat: 2,500 psi (± 200) [ASTM D412]
- Elongation:**
Basecoat: 500% (± 50)
Topcoat: 400% (± 50) [ASTM D412]
- Tear Strength:**
Basecoat: 125 lbs. per inch (± 20)
Topcoat: 285 lbs. per inch (± 25)
[ASTM D1004]
- Hardness:**
Basecoat: 65-70 Shore A
Topcoat: 90-95 Shore A [ASTM D2240]
- Abrasion Resistance:**
Less than 35 milligrams weight loss using CS-17 abrasive wheels and 1000 gram weights after 1000 cycles on Taber Abraser. [ASTM D4060]
- Low Temperature Flexibility:**
Passes 180 degree flex over 1/8" (3 mm) mandrel at -7°F (-22°C), Federal Test Method No. 141a-6221.
- Low Temperature Impact Resistance:**
No surface cracks or breaks when impacted with 130 gram, 1 1/4" steel ball dropped from a height of 5' at -12°F (-25°C).
- Temperature Limits For Normal Service Conditions:**
Tested from -30°F to 200°F (-34°C to 93°C).
- Fire Resistance:**
UL-790 Class "A" listed system. Consult UL Building Material Directory for specifics.

COLORS

ELASTUFF 101 is available in standard Light Gray only. **ELASTUFF 102** and **103** are available in standard White, which is certified to meet ENERGY STAR®, Cool Roof Rating Council (CRRC) and LEED reflectance and emissivity criteria, as well as California Title 24 requirements. All other colors are custom matched by UNITED for the specific application. Color chips or samples must be furnished to UNITED for all customer colors.

WARRANTY

UNITED'S **Standard Warranty Programs**, issued to the Building Owner, guarantee that the **ELASTUFF 101/102** or **103** coating systems will not leak water due to deterioration as a result of ordinary weather conditions. These Standard Warranties are available for 5-year, 10-year or 15-year periods. All Standard Warranties are provided by UNITED at **no cost**. Refer to section entitled Coating Application for minimum thickness requirements to qualify for warranty programs.

ELASTUFF 101/102 or **103** also qualifies for UNITED'S **5-Year, 10-Year** and **15-Year System Warranty Programs**. Issued to the Building Owner, these guarantee the total roof membrane system (coating and labor) against water leakage as a result of deterioration from ordinary weathering. A warranty fee and independent inspection are required for issuance of these System Warranties. Consult UNITED'S System Warranty Explanation Form for details.

PACKAGING, MIXING & STORAGE

ELASTUFF 101, 102 and **103** are single component materials available in 5-gallon (19 liter) pails and 55-gallon (208 liter) drums. **ELASTUFF 102** and **103** are supplied with a separate booster unit, which must be thoroughly mixed into the topcoat to ensure optimum cured properties.

Thoroughly mix all containers using an air-driven power mixer, taking care to avoid sucking air into the coating. Once the booster unit is added to **ELASTUFF 102** or **103**, the pot life will be 3 to 5 days depending on ambient conditions. Thinning the material is not recommended.

Store material indoors at temperatures between 40°F and 90°F (4°C and 32°C). Shelf life in unopened containers is 6 months from date of shipment.

SPRAY EQUIPMENT

ELASTUFF 101/102/103 have been applied over a wide variety of substrates utilizing many different brands, types and sizes of conventional and airless equipment.

Airless equipment is best suited for field applications, although roller application can be used for confined areas or where spray application is not practical. The following minimums are recommended for spray application:

PUMP: 1 gallon per minute (3.8 l/minute) output and 2,000 psi (13,790 kPa) pressure capability.

GUN: Any airless spray gun compatible with the pump used.

SCREEN SIZE: Filter screens should be 30 mesh or larger.

TIP SIZE: A reversible, self-cleaning tip with orifice size of .021" to .035" (.5 to .9 mm) and a fan angle of 40° to 50°.

FLUID HOSE: Use 3/8" (1 cm) inside diameter, nylon high-pressure hose for lengths up to 75 ft. (23 m) from pump. From 75 ft. to 200 ft. (23 to 51 m) use 1/2" (1.3 cm) inside diameter hose added to pump side of existing 3/8" (1 cm) hose to maintain pressure and delivery. Over 200 ft. (51 m) use 5/8" to 3/4" (1.6 to 1.9 cm) inside diameter hose added to pump side of existing hose.

Larger equipment will increase production capabilities. Larger diameter spray hoses will extend distances and heights to which **ELASTUFF 101/102/103** may be pumped.

SURFACE PREPARATION

All surfaces shall be dry and clean, free from any dirt, grease, oil, pollution fallout, loose rust, form release agents, surface chemicals or other foreign contaminants that could interfere with adhesion. Previously painted or coated surfaces must have any oxidation, chalking and/or loose paint or coating removed by water blasting. Surfaces shall be free of sharp projections, ridges and loose aggregate. Any cracks, splits, tears, seams, holes, protrusions, blisters, drains, scuppers, vertical/horizontal interfaces, etc. must be reinforced using either **Roof Mate Mesh** or **Uni-Tape**, as per guidelines for each individual substrate.

BUILT-UP & MODIFIED BITUMEN – Any loose gravel or granules shall be removed by power sweeping and/or vacuuming. Remaining gravel shall be power spud to achieve the smoothest surface possible. Any areas of unsound roof, i.e. blisters, delamination deterioration, moisture saturation, etc., shall be repaired or replaced. Power sweep, vacuum or blow down roof to remove remaining dirt, dust and other contaminants prior to coating application. New asphalt shall be exposed to ambient conditions for 45 to 60 days prior to coating. Under cold, cloudy and/or rainy conditions a longer period of time may be required. Apply a tack-coat of **ELASTUFF 101** thinned 100% with Xylol over Built-Up roofs to solidify the surface.

CONCRETE – All concrete surfaces must be dry, clean, and free of dirt, oil, soapy films, surface chemicals or other foreign contaminants. Allow new concrete to cure a minimum of 28 days prior to coating. Concrete surfaces that are contaminated with oil, grease, dirt, etc., shall be cleaned using a biodegradable chemical cleaner such as UNITED'S **UCC Cleaner**. Rinse thoroughly with clean water to remove all traces of the chemical cleaner.

Thoroughly sweep, vacuum or blow down roof to remove remaining dirt, dust and other contaminants prior to coating application. Chalky, spalled or punky concrete shall be primed with **Uni-Tile Sealer LV** penetrating polyamide epoxy, applied at the rate of approximately 400 to 500 sq. ft. per gallon (9.7 to 12 m²/l).

Non-moving cracks in concrete surfaces shall be filled with a high quality urethane caulk as per manufacturer's instructions. Moving cracks, splits and/or voids must be repaired and reinforced using **Roof Mate Mesh** encapsulated into a strip-coat of **ELASTUFF 101**. Embed an appropriate length of 4", 6" or 12" (10, 15 or 30 cm) fabric – depending on the detail area – into a strip-coat of **ELASTUFF 101**, centered over the crack, while it is still wet. Apply additional material over the top of the fabric to ensure it is totally encapsulated, taking care to remove any wrinkles, gaps or air pockets.

METAL – All metal surfaces must be dry, clean and free of any dirt, oil, rust, surface films or other contamination that could interfere with proper adhesion. Deteriorated or badly corroded metal shall be replaced. Prior to coating application, thoroughly wash roof surfaces with **UCC** or other biodegradable cleaner. Rinse thoroughly using fresh water under high pressure to remove all traces of the chemical cleaner.

Steel surfaces shall be sound and free from rust scale and other contamination. Rusted areas shall be mechanically abraded to remove all loose rust. Metal roofs exhibiting sound rust shall be primed using **UNITED'S Primer 302 LV** high-grade rust inhibitive primer at approximately 300 sq. ft. per gallon (7.3 m²/l).

Steel surfaces in industrial or immersion conditions must be blast cleaned and primed with **UNITED'S Primer 302 LV** at 250 to 300 sq. ft. per gallon (6.1 to 7.3 m²/l). For additional information, consult separate primer technical data sheets or **UNITED'S** Technical Service Department.

ELASTUFF 101/102 is self-priming over most existing roof substrates. Prime bare wood surfaces with **UNITED'S Uni-Tile Sealer LV** applied at the rate of approximately 400 to 500 sq. ft. per gallon (9.7 to 12 m²/l). Contact **UNITED'S** Technical Service Department for specific primer recommendations over other substrates.

COATING APPLICATION

ELASTUFF 101, 102 and **103** can be applied by brush, roller, spray, squeegee or notched trowel. Airless spray is the preferred method.

Each coat of **ELASTUFF 101/102** or **103** must be applied in a direction perpendicular to the previous coat. The system must be applied in two or more separate coats to ensure proper coverage and cure rate, and a pinhole-free continuous film. **ELASTUFF 102** or **103** can be used with or without **ELASTUFF 101**, depending upon application requirements, over properly primed wood, metal or concrete.

ELASTUFF 101 applied at the rate of 1 gallon per 100 sq. ft. (.4 l/m) will theoretically yield 12.8 dry mils (325 microns). **ELASTUFF 102** applied at this rate will theoretically yield 10.4 dry mils (264 microns), and **ELASTUFF 103** will theoretically yield 9.3 dry mils (236 microns).

All surfaces must be uniformly coated and free of voids, blisters and pinholes. **ELASTUFF 102** or **103** shall be applied over **ELASTUFF 101** within 48 hours of its application. Successive coats of **ELASTUFF 101/102** or **103** should be applied as soon as the previous coat has dried tack free, or sufficiently to allow the applicator to walk on.

The following recommended coverage rates and dry film thickness' are minimum requirements for issuance of **UNITED'S** various Warranty Programs on typical roofing substrates and are for guideline use only. Contact **UNITED'S** Technical Service Department for recommended application rates for other specific project requirements or over other substrates:

MODIFIED BITUMEN & BUILT-UP:

5-Year Standard Warranty – 25 Dry Mil (635 Microns):

ELASTUFF 101: 2 coats @ .8 gallon/100 sq. ft. (.32 l/m²) per coat

ELASTUFF 102 or **103:** 1 coat @ 1 gallon/100 sq. ft. (.4 l/m²)

10-Year Standard or 5-Year System Warranty – 33 Dry Mil (838 Microns):

ELASTUFF 101: 2 coats @ 1 gallon/100 sq. ft. (.4 l/m²) per coat

ELASTUFF 102 or **103:** 1 coat @ 1.25 gallons/100 sq. ft. (.5 l/m²)

15-Year Standard or 10-Year System Warranty – 40 Dry Mil (1,016 Microns):

ELASTUFF 101: 2 coats at 1.2 gallons/100 sq. ft. per gallon (.48 l/m²) per coat

ELASTUFF 102 or **103:** 1 coat at 1.5 gallons/100 sq. ft. (.6 l/m²)

15-Year System Warranty – 48 Dry Mil (1,829 Microns):

ELASTUFF 101: 2 coats @ 1.4 gallons per 100 sq. ft. (.56 l/m²) per coat

ELASTUFF 102 or **103:** 2 coats @ .9 gallon per 100 sq. ft. (.36 l/m²) per coat

CONCRETE:

5-Year Standard Warranty – 25 Dry Mil (635 Microns):

ELASTUFF 101: 2 coats @ .8 gallon/100 sq. ft. (.32 l/m²) per coat

ELASTUFF 102 or **103:** 1 coat @ 1 gallon/100 sq. ft. (.4 l/m²)

10-Year Standard or 5-Year System Warranty – 33 Dry Mil (838 Microns):

ELASTUFF 101: 2 coats @ 1 gallon/100 sq. ft. (.4 l/m²) per coat

ELASTUFF 102 or **103:** 1 coat @ 1.25 gallons/100 sq. ft. (.5 l/m²)

15-Year Standard or 10-Year System Warranty – 40 Dry Mil (1,016 Microns):

ELASTUFF 101: 2 coats at 1.2 gallons/100 sq. ft. per gallon (.48 l/m²) per coat

ELASTUFF 102 or **103:** 1 coat at 1.5 gallons/100 sq. ft. (.6 l/m²)

15-Year System Warranty – 48 Dry Mil (1,829 Microns):

ELASTUFF 101: 2 coats @ 1.4 gallons per 100 sq. ft. (.56 l/m²) per coat

ELASTUFF 102 or **103:** 2 coats @ .9 gallon per 100 sq. ft. (.36 l/m²) per coat

METAL:

5-Year Standard Warranty – 20 Dry Mills (508 Microns):

ELASTUFF 101: 1 coat @ 1 gallon/100 sq. ft. (.4 l/m²) per coat

ELASTUFF 102 or 103: 1 coat @ 1 gallon/100 sq. ft. (.4 l/m²)

10-Year Standard or 5-Year System Warranty – 25 Dry Mills (635 Microns):

ELASTUFF 101: 1 coat @ 1.25 gallons/100 sq. ft. (.5 l/m²) per coat

ELASTUFF 102 or 103: 1 coat @ 1.25 gallons/100 sq. ft. (.5 l/m²)

15-Year Standard or 10-Year System Warranty – 30 Dry Mills (762 Microns):

ELASTUFF 101: 2 coats at .75 gallon/100 sq. ft. per gallon (.3 l/m²) per coat

ELASTUFF 102 or 103: 1 coat at 1.5 gallons/100 sq. ft. (.6 l/m²)

15-Year System Warranty – 35 Dry Mills (889 Microns):

ELASTUFF 101: 2 coats @ .9 gallon per 100 sq. ft. (.36 l/m²) per coat

ELASTUFF 102 or 103: 2 coats @ .9 gallon per 100 sq. ft. (.36 l/m²) per coat

As work proceeds the Applicator must periodically check the number of gallons (liters) used and compare to square feet (meters) coated. If adequate material has not been used, adjust accordingly and apply additional material to previously coated areas. Allow additional material for roofs exhibiting a rough surface profile or texture.

The **ELASTUFF 101/102** system shall extend a minimum of 4" (10 cm) up all parapet walls, vent pipes and other protrusions, creating a self-terminating flashing.

ELASTUFF 101/102/103 shall not be applied when one or more of the following conditions exist:

1. If ambient or surface temperatures are below 40°F (4°C).
2. If relative humidity is in excess of 95%.
3. If there is a threat of rain within 4 hours of application.
4. The dew point is less than 5°F (3°C) above the surface temperature.

In addition, caution must be exercised when applying **ELASTUFF 101** or topcoats in dark colors under high heat conditions. Surfaces exposed to direct sunlight should be coated with thin passes during the morning or late afternoon hours. Application of dark colors under extreme direct sunlight can cause blistering and/or excessive cellular structure within the cured coating film.

If any form of dirt, sand, pollution or other contamination is detected on any **ELASTUFF** surface, it is necessary to remove this contamination prior to applying an additional coat of **ELASTUFF**. Surfaces should be washed using **UCC** or other biodegradable cleaner only after the film has fully cured. Rinse thoroughly with clean, fresh water to remove all traces of the chemical cleaner and allow to dry.

Each coat of **ELASTUFF** must be allowed to adequately cure prior to application of any subsequent coats. Initial cure or dry time will normally require several hours, depending on temperature and humidity. Low temperatures and/or humidity will retard cure and additional cure time must be allowed under these conditions.

Clean equipment with MEK, Methylene Chloride or Xylol.

LIMITATIONS & PRECAUTIONS

ELASTUFF 101, 102 and **103** components are affected by moisture 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. For further storage after opening, containers must be purged with nitrogen gas or dry air and tightly sealed to protect from moisture contamination.

Solvents in **ELASTUFF 101, 102** and **103** are flammable. Use only in a well ventilated area. Keep away from heat, sparks, open flames or lighted cigarettes. Use explosion-proof application equipment, which has been grounded and bonded.

Avoid breathing of vapor or spray mist. For exterior applications, approved (MSHA/NIOSH) respirator must be worn by applicator and personnel in vicinity of application. Check filters frequently to ensure proper protection. If used indoors, provide mechanical exhaust ventilation. During indoor spray operations, air line masks or positive pressure hose masks must be worn. Avoid contact with eyes and contact with skin.

For additional information, refer to OSHA guidelines and **ELASTUFF 101, ELASTUFF 102** and/or **ELASTUFF 103** Material Safety Data Sheets.



LONGEVITY BY DESIGN®
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