

ELASTUFF 120

HYDROPHOBIC POLYURETHANE ELASTOMER

Classified by Underwriters Laboratories Inc.
in Accordance with ANSI/NSF Standard 61 (2003)

Technical Data & Application Instructions

PRODUCT DESCRIPTION

ELASTUFF 120 is a two-component, 100% solids polyurethane elastomer coating containing no mica or fillers, such as clay or mica. It is designed for protecting surfaces subject to abrasion in aqueous solutions or environments, including water, salt water, various slurry systems, and numerous acid and base solutions. It is equally effective under dry abrasive and/or corrosive environments.

ELASTUFF 120 is a highly crosslinked polymer coating, yielding a dense, tight finish. Its non-porous surface and excellent hydrolytic stability make **ELASTUFF 120** an excellent barrier to corrosion. The high tensile strength of **ELASTUFF 120** contributes to its resistance to abrasion and tearing. This toughness, combined with its elongation properties, also results in outstanding flexibility and impact resistance. **ELASTUFF 120** is a solventless system enabling fast, high-build coats without solvent entrapment. It is available in **Spray Grade** or **Roller Grade** versions, which, along with **ELASTUFF 120 Mastic**, are classified by UL in accordance with ANSI/NSF61, Section 5, Barrier Materials.

BASIC USES

ELASTUFF 120 is used over a wide variety of vertical and horizontal primed concrete, steel, iron, wood, fiberglass and polyurethane foam surfaces. Typical applications include interior tank lining, waste/water containment, sewer manholes, flumes, reservoirs, cooling tower basins, valves, interior pipe and other areas subjected to aqueous chemical environments.

The vertical hold attained by **ELASTUFF 120** gives it the ability to uniformly cover coarse or pitted concrete as well as weld seams, bolts, angles and edges, and other irregular surfaces. Film builds from 10 to 250 mils and beyond can be achieved in one coat using multiple pass spray technique. For surfaces exhibiting rough texture or minor spalling, as well as surfaces exposed to seismic activity, settling or other movement, **ELASTUFF 120** is available in an expanded version. **ELASTUFF 120X3** rises and cures to a thickness approximately 3 times its liquid applied thickness. For applications requiring additional hardness, **ELASTUFF 120** is available in a high durometer version, **ELASTUFF 125**, which has a hardness of 60-65 Shore D at 75°F (24°C).

TYPICAL PROPERTIES

- Mixing Ratio:**
1 Part A to 1 Part B by volume (1A:1B)
- Mixed Usable Pot Life:**
Spray Grade – 30 seconds
Roller Grade – 30 to 40 minutes
@ 75°F (24°C), 50% R.H.
- Dry Time to Walk On:**
Spray Grade – 45 minutes @ 75°F (24°C), 50% R.H.
Roller Grade – 6 hours @ 75°F (24°C), 50% R.H.
- Cure Time:**
80% after 24 hours @ 75°F (24°C), 50% R.H.
90% after 4 days @ 75°F (24°C), 50% R.H.
[ASTM D1640]
- Water Absorption:**
Less than 1% weight gain after 7 days
[ASTM D570]
- Tensile Strength:**
1,750 psi (±100) (12.1 MPa)
[ASTM D412]
- Elongation:**
150% (±20)
[ASTM D412]
- Tear Strength:**
200 lbs/in (±30) (35 kN/m)
[ASTM D 1004]
- Hardness:**
85-90 Shore A @ 75°F (24°C)
30-40 Shore D @ 75°F (24°C)
40-50 Shore D @ 35°F (2°C)
[ASTM D2240]
- Abrasion Resistance:**
20-30 mg weight loss with CS-17 wheel
50-70 mg weight loss with H-10 wheel using
1000 gm weight at 1000 revolutions
[ASTM D4060]
- Low Temperature Flexibility:**
Passes ¼" (6 mm) mandrel bend @ -4°F (-20°C)
- Low Temperature Impact Resistance:**
Passes 160 inch pounds (18.1 Joules) direct
@ -4°F (-20°C)

COLORS

ELASTUFF 120, when properly mixed, forms standard Gray color. For custom colors, consult UNITED'S Technical Service Department.

SURFACE PREPARATION

All surfaces shall be dry and clean, free from any dirt, grease, oil, pollution fallout, smoke, wax, form release agents, surface chemicals, or other foreign contaminants that could interfere with proper adhesion. Surfaces shall be free of sharp projections, ridges and loose aggregate.

The actual surface preparation procedures that are to be followed on a specific project will vary depending upon service conditions, condition of the substrate, and the presence of existing paints, coatings or other contaminants. For this reason, it is recommended that UNITED'S Technical Service Department be contacted prior to starting any work. The following surface preparation procedures and recommendations are provided for guideline use only.

STEEL SURFACES:

Steel must 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 has been removed. This should be accomplished by use of a solvent wash as defined in SSPC-SP1 Solvent Cleaning. All sharp edges, welds, weld spatter, burrs and any other sharp prominence shall be ground smooth. Excessive rust scale shall be removed by mechanical means prior to blast cleaning. On steel tank lining applications, all seams and joints must have a continuous, smooth interior weld.

Steel surfaces subject to immersion conditions must be blast cleaned to White Metal (SSPC-SP5) with a minimum anchor profile of 2+ mils (51+ microns). Steel subject to non-immersion conditions shall be cleaned to Near-White (SSPC-SP10) with a minimum anchor profile of 2.0 mils (51 microns). The proper profile is required to assure optimum adhesion of the **ELASTUFF 120** coating system.

Abrasive blast cleaning shall not be performed when surface temperature of the steel is less than 5°F (3°C) above the dew point of the ambient air, 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** to a thickness of 1.0 to 1.5 dry mils (25 to 38 microns), depending upon surface profile. For details of application refer to separate literature entitled **Primer 302** Technical Data and Application Instructions. Allow a minimum of 30 minutes dry time at 75°F (24°C) between application of **Primer 302** and the application of **ELASTUFF 120**. Primed areas should be topcoated within 48 hours, although the **Primer 302** does have an extended open time. If contamination of any kind occurs on the primed surface, it must be removed prior to applying the **ELASTUFF 120**. Spot priming or repriming may be required depending upon the length of exposure.

CONCRETE SURFACES:

Concrete that will be subject to immersion conditions must be blast cleaned. Concrete subject to non-immersion conditions can either be blast cleaned to roughen the surface or acid etched, so long as the etching provides an even profile of 5 to 8 mils (127 to 203 microns). The surface preparation utilized must remove all loose, weak or powdery concrete to expose all voids and provide the necessary profile for mechanical adhesion of the **ELASTUFF 120**.

Concrete surfaces that are contaminated with oil, grease, dirt, chemicals, etc. shall be cleaned prior to blasting or acid etching with **United Cleaning Concentrate (UCC)**, or other approved biodegradable chemical cleaner and water. Cleaning shall be accomplished using mechanical scrubbers and/or high pressure power washing equipment as necessary to remove strongly adhering contaminants. Rinse thoroughly to remove all traces of the **UCC** cleaner.

When blasting, use an abrasive grit or sand of the type and gradation required to provide a minimum surface height profile of 5 to 8 mils (127 to 203 microns). Blasting must produce an even profile. After blasting, all grit, dust, loose material, dirt and foreign objects shall be removed by sweeping or vacuuming.

Acid etching shall be accomplished using a 10% Muriatic acid solution. The diluted acid solution shall be sprinkled onto the concrete surface. After the solution has stopped bubbling or foaming (normally 5 to 10 minutes), the area shall be scrubbed thoroughly by hand or by using mechanical scrubbers. After scrubbing, all surfaces shall be thoroughly rinsed with liberal amounts of fresh water to assure complete acid removal. Surfaces may require additional rinsing or a high pressure rinse to remove all traces of the acid solution.

Any resurfacing or repairs necessary to achieve a sound, consistent surface, free of bugholes, voids, cracks or spalling shall be completed prior to priming. Use UNITED'S **Uni-Crete** to fill voids and bugholes, and to resurface spalled or rough surface areas. Blasting or acid etching is not necessary over surfaces that have been repaired with **Uni-Crete**. Refer to **Uni-Crete** Technical Data & Application Instructions for additional information. Use epoxy injection, urethane caulk or other appropriate patching material for repairing cracks and/or large voids in the concrete surface. Patching and/or crack repair shall be completed in strict accordance with manufacturer's recommendations.

After repairs are completed and adequately cured, concrete surfaces shall be primed with one (1) coat of UNITED'S **Uni-Tile Sealer**. Sealer shall be applied by airless spray or roller at the rate of 250 sq. ft. per gallon (6.1 m²/l). For details refer to **Uni-Tile Sealer** Technical Data & Application Instructions. Allow a minimum of 30 minutes dry time at 75°F (24°C) between application of **Uni-Tile Sealer** and the application of **ELASTUFF 120**. Colder temperatures will require additional dry time. Sealer should be topcoated within 24 hours, and should under no circumstances be left exposed longer than 48 hours.

COATING APPLICATION

ELASTUFF 120 Spray Grade is applied using 1:1 ratio plural component airless spray equipment. Refer to separate literature entitled **Plural Component Spray Equipment** for information on design and operation. **ELASTUFF 120 Roller Grade** can be applied using a roller, squeegee, trowel, mitt or brush.

ELASTUFF 120 shall be applied to concrete surfaces that have been previously primed with **Uni-Tile Sealer** or steel surfaces previously primed with **Primer 302**. It can also be applied to fiberglass or wood surfaces previously primed with **Uni-Tile Sealer** or to polyurethane foam or expanded polystyrene (EPS) surfaces with no primer required. All preparation work, including treatment of cracks, surface repairs, etc. must have been completed in accordance with UNITED'S published recommendations. Do not apply **ELASTUFF 120** when ambient temperature is below 40°F (4°C) or above 100°F (38°C), if rain is anticipated within 2 hours of application or if the relative humidity is over 90%.

ELASTUFF 120 Roller Grade is recommended for application over horizontal surfaces only. Apply by pouring an "S" pattern across a 3' to 6' section of the substrate, then spread evenly to the desired thickness using a roller, squeegee or trowel. On vertical surfaces, a long-nap roller or power roller are most effective. A brush or mitt can be used for application to small or confined areas.

When utilizing **ELASTUFF 120 Spray Grade**, flush Methylene Chloride or M.E.K. solvent through the pumps, hoses and spray gun prior to introducing the material components. One of these solvents should also be used to fill the solvent flush system, which must be set so as to achieve a minimum of 800 psi (5,512 kPa) fluid pressure. Set transfer pumps at the minimum pressure required to completely fill the proportioning cylinders as they cycle so that no cavitation occurs. This will typically require 200 to 300 psi (1,378 to 2,069 kPa) fluid pressure. Set main proportioning pump at 2,100 to 2,800 psi (14,469 to 19,292 kPa) fluid pressure to achieve an acceptable spray pattern, depending upon tip size, material temperature and ambient conditions.

Plural component equipment must be equipped with in-line, high pressure heaters as well as heated, insulated high pressure hose capable of developing and maintaining a minimum of 120°F (49°C) material temperature at the spray gun. In cooler ambient conditions where the material in the drum cannot be maintained at 60°F (16°C) or higher, it is recommended that drum heaters be utilized to facilitate easier pumping of the liquid components by the transfer pumps.

Utilize an approved plural component gun equipped with a static mixer, or a single component gun with a static mixer in conjunction with a manifold and up to a 20 ft. (6 m) whip to assure proper mixing and cure of the liquid components. A spray tip between .025" and .041" (.6 to 1 mm) with a 40° to 50° fan pattern is recommended.

Coverage rates and dry mils are determined by specific project requirements. The versatility of **ELASTUFF 120** allows the specifying engineer to solve a multitude of protection problems utilizing one coating system at a wide range of dry mil thickness. Contact UNITED COATINGS' Technical Service Department for specific project recommendations.

ELASTUFF 120 applied at the coverage rate of one gallon per 100 sq. ft. (.4 l/m²) of the combined Part A and Part B will theoretically yield 16.0 dry mils [406 dry microns]. The following dry mil thicknesses are provided for guideline use only for typical applications.

Light Abrasion – Dry or Immersion

32 to 40 mils (813 to 1,016 microns)

Medium Abrasion – Dry or Immersion

45 to 60 mils (1,143 to 1,524 microns)

Heavy Abrasion – Dry or Immersion

80 to 120+ mils (2,032 to 3,048+ microns)

The applicator must periodically check the number of gallons used compared to square feet coated. If adequate gallonage has not been used according to UNITED'S published recommendations or project specifications, adjust accordingly and apply additional material to previously coated areas.

ELASTUFF 120 Spray Grade is capable of rapid, high film build utilizing multiple-pass application technique. Most required film builds can be achieved in one or two applications using this method. Ultra-high film builds may require three or more separate coats. **ELASTUFF 120 Roller Grade** will require more coats than the **Spray Grade** to achieve the same millage. The number of coats required to achieve the specified film thickness will vary depending on application method, jobsite and ambient conditions. Allow each coat of **ELASTUFF 120** to dry tack free prior to applying an additional coat. This will require a minimum of ½ hour for the **Spray Grade** and 6 hours for the **Roller Grade** at 75°F (24°C).

All surfaces must be uniformly coated and free of voids, pinholes or blisters. When spray applying **ELASTUFF 120 Spray Grade** over rough concrete or other highly textured surfaces, it is often helpful to trowel or backroll the material immediately after applying it to the substrate. A void-free, monolithic film can be achieved with less material by using this technique. A polyester or fiberglass mesh can also be embedded into the first coat of **ELASTUFF 120** to help cover and reinforce large cracks, seams or voids. Open time for the **Spray Grade** material for troweling, backrolling or embedding fabric is thirty to ninety seconds depending upon jobsite conditions.

An optional method for resurfacing rough substrates, voids, minor spalling or other surface imperfections, or for achieving higher film build is to utilize **ELASTUFF 120X3**. Refer to specific section on page 4 for additional information on this expanded basecoat formulation.

ELASTUFF 120 is self-flashing at natural termination points such as expansion joints, corners, edges, counter-flashings, tank wall caps, etc. Coated areas that do not tie into a natural termination must be sawcut around the perimeter to a minimum of ¼ inch (6 mm). The coating shall then be applied so as to flow into and terminate at the saw cut.

The **ELASTUFF 120** coating must be inspected as soon as practical to ensure that all surfaces have been uniformly coated and are free of holidays.

ELASTUFF 120X3

ELASTUFF 120X3 is an effective method of obtaining a monolithic, pinhole free film over rough concrete or other textured surfaces. Because it expands and cures to approximately three times its wet film thickness, **ELASTUFF 120X3** is able to fill and cover rough textured substrates. It can also be used for bridging cracks up to ½" (1.3 cm), and for building film thickness at corners and edges, control joints, vertical/horizontal seams and transitions between dissimilar substrates or for any applications requiring a high film build.

ELASTUFF 120X3 is applied using standard plural component equipment. It is for use as a basecoat only and must always be topcoated with a minimum of 30 mils of standard **ELASTUFF 120**. Consult UNITED'S Technical Service Department for specific project recommendations. Allow **ELASTUFF 120X3** to cure 10 to 15 hours prior to topcoating, but do not exceed 48 hours.

TOPCOAT APPLICATION

ELASTUFF 120 is designed as a functional coating system and will lose its sheen and chalk slightly after extended exterior exposure. It is recommended that **ELASTUFF 120** be topcoated in areas where aesthetics are of prime importance, or when a color other than standard Gray is desired.

Uniflex 255, or **Elastuff 102, 200, 210** or **220** are typically used as topcoats. Consult separate Technical Data & Application Instructions for additional information or contact UNITED'S Technical Service Department for specific topcoat recommendations.

PACKAGING & MIXING

ELASTUFF 120 is a two-component material available in 5-gallon (19 liter) pails and 55-gallon (208 liter) drums. The Part A component is Clear, the Part B component is Gray. Mix each container with a power mixer until the material is of uniform consistency. Blend equal parts of the Part A and Part B **Roller Grade** components in a separate container. The **Spray Grade** components are blended when pumped under high pressure through the plural component equipment equipped with a static mixer. When properly metered and mixed, both formulations will yield the standard Gray color.

CLEANUP

Clean equipment with Methylene Chloride or M.E.K. Do not leave Methylene Chloride in fluid hoses or pumps for prolonged periods. It can cause swelling and deterioration of hoses and corrosion in the pump.

SHELF LIFE & STORAGE

Shelf life of Part A and Part B components in unopened containers is **6 Months** from date of shipment from UNITED'S factory. If shelf life has expired, contact UNITED'S Technical Service Department before attempting to utilize the material.

Material must be stored at temperatures between 50°F and 100°F (10°C and 38°C). Do not open containers until ready to use the material.

LIMITATIONS & PRECAUTIONS

ELASTUFF 120 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. After opening and if all components are not to be used, containers must be purged with nitrogen gas or dry air and tightly sealed to protect the components from moisture contamination.

Ambient temperature range for application is from 40°F to 100°F (4°C to 43°C). **ELASTUFF 120** may be applied in high humidity conditions up to 90% R.H. In-service temperature limits will vary depending upon the application conditions. For heat exposure limits contact UNITED'S Technical Service Department for recommendations on specific liquids.

Only **ELASTUFF 120 Spray Grade** and **Roller Grade** are classified in accordance with ANSI/NSF 61. Other components, such as primers and topcoats that may be required as part of a potable water application, must also be certified. In addition ANSI/NSF 61 certification includes application parameters regarding minimum tank size, maximum film thickness and minimum temperature (@ 50% R.H). No solvents may be used as a thinner, and if used as a solvent purge, it must not be discharged onto the lining. Refer to UL Directory or contact UNITED'S Technical Service Department for additional information.

The theoretical film thickness given at specific coverage rates is based on smooth, non-porous surfaces. Actual gallons required in the field to achieve the minimum dry film thickness will depend upon the surface texture, ambient weather conditions and spray technique of the applicator. It is the responsibility of the applicator to apply sufficient material to achieve the minimum dry film thickness.

Use only in a well ventilated area. Avoid breathing of vapor or spray mist. For exterior applications, approved (MSHA/NIOSH) chemical cartridge respirator must be worn by applicator and personnel in vicinity of application. 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 on safety requirements, refer to OSHA guidelines and **ELASTUFF 120** Material Safety Data Sheet.



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