



Corporate Offices
 1818 Miller Parkway
 Streetsboro, OH 44241
 330-562-1970
 330-562-7638 FAX
 www.dudick.com

PROTECTO-FLEX 310

**TROWEL APPLIED, GLASS
 REINFORCED, EPOXY LINING,
 100-110 MILS (2.2-2.4 mm)**

FEATURES

FDA Acceptable
 Bridges Surface Cracks in Concrete
 Flexible System
 Can be Seeded for Anti-Skid

RECOMMENDED APPLICATIONS

Thickener Tanks
 Clarifiers
 Waste Treatment Tanks
 Secondary Containment

CHEMICAL RESISTANCE

Dilute Inorganic Acids
 Mineral Oils
 Ammonium Hydroxide
 Sodium Hydroxide
 Brine Solutions

COLORS: Color Chart available upon request.

TEMPERATURE LIMITS

Immersion up to 130°F
 Splash & Spill up to 180°F

PHYSICAL PROPERTIES

Compressive Strength ASTM C-579	6,000 PSI
Tensile Strength ASTM C-307	4,5000-5,000 PSI
Shore D Hardness ASTM D-2240	70-75
Tensile Bond Strength ASTM D-7234	Cohesive Failure of Concrete

SPECIFICATIONS

Protecto-Flex 310 shall be an epoxy lining consisting of a 1/16” trowel applied basecoat, one layer of saturated fiberglass mat reinforcement, and an epoxy topcoat as manufactured by Dudick, Inc. and applied in accordance with the manufacturer’s recommended practices.

THE PROTECTO-FLEX 310 SYSTEM

Protecto-Flex 310 uses a moisture tolerant primer and 80-90 mils of fiberglass reinforced, silica filled epoxy to protect steel and concrete substrates. The added flexibility adds strength to bridge small surface cracks and increase resistance to thermal shock.

Primer 67 is designed to tolerate residual moisture within the concrete and deeply penetrate the surface to provide the “wetting out” required for good bonding.

Primer 67C is designed for applications on concrete where spark testing is required or specified.

Basecoat: Protecto-Flex 310 uses flexibilized epoxy resin and silica fillers to reduce the coefficient of expansion and provide a thixotropic base on which to embed the reinforcement.

Reinforcement: Chopped strand fiberglass mat is used to help bridge small surface cracks and provide additional strength in tension. It is applied to the wet basecoat and becomes an integral part of it, acting much the same as a reinforcing bar does in concrete.

Saturant: Flexibilized epoxy resin is used to wet out and embed the fiberglass reinforcement thus providing a mechanical and chemical bond to the basecoat.

Topcoat: The amine cured epoxy resin, and overlapping fillers in the **Protecto-Flex 310** topcoat provide the low permeability, high film integrity, and good chemical resistance required for prolonged substrate protection.



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Optional Broadcast: Sand or aluminum oxide is used for strength and surface texture; aluminum oxide provides additional chemical and abrasion resistance. Either material is broadcasted to complete saturation and the excess removed by sweeping. Broadcast the aggregate into the topcoat and seal the broadcast with a second topcoat.

ESTIMATING QUANTITIES AND ORDER BILL OF MATERIAL

APPROXIMATE SQUARE FEET PER GALLON		
	CONCRETE	STEEL
PRIMER 67	150-200 ft. ²	275-300 ft. ²
PRIMER 67C	100-150 ft. ²	
Protecto-Flex 310		
Basecoat & Saturant	25 ft. ²	
G-1 Filler	.5 lb./ ft. ²	
Reinforcement	Area + 10%	
Topcoat**	80-100 ft. ² @ 15-20 mils DFT	
S-10 Solvent	500 ft. ²	
Broadcast Options		
Aluminum Oxide	1 - 1 ³ / ₄ lbs./sq.ft.	
Sand	3/4 lb./ ft. ²	

*Quantities shown are for estimating purposes only. Actual field usage may vary.

**A second topcoat application will be required if system is broadcast with an aggregate

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Metal: Abrasive blast to a white metal finish according to SSPS SP5 or NACE #1 and a 3.0 mil minimum profile.

Concrete: Concrete must be prepared mechanically to remove surface laitance. Oils, grease or other contaminant must be removed prior to surface preparation. Concrete must be free of curing compounds and form release agents. Surface texture should be similar to 40-60-grit sandpaper or the visual standard, CSP-5 from the

International Concrete Repair Institute **with exposed pea gravel**. The prepared surface should have a nominal tensile strength of 250 PSI per ASTM D-7243.

All concrete substrates must be checked for moisture prior to product application using the Plastic Sheet Test, ASTM D-4263.

Additional surface preparation will be required if a 40-60 grit texture **with exposed pea gravel** is not achieved and the surface laitance not completely removed after a single application of acid or with the first mechanical preparation procedure.

Abrasive blasting removes laitance, exposing honeycombs or voids beneath the surface which must be filled with **Scratch Coat 300**. (Refer to separate product bulletin.)

APPLICATION SPECIFICATIONS

Substrate temperature of concrete must be between 50°F and 110°F.

Relative humidity must not exceed 90%. Substrate temperature must be 5°F above the Dew Point.

PRIMER 67/67C MIX RATIOS (BY VOLUME)

Primer 67	Component A	1 gallon
Primer 67	Component B	1 gallon
Primer 67C	Component A	1 gallon
Primer 67C	Component B	29 fl. oz.

Important: Primer 67C Component A must be mechanically mixed for 1-2 minutes prior to adding the correct amount of **Component B**.

Primer 67C must be roller applied. Use brush application for small touch-up or repair work only.



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PRIMER 67/67C POT LIFE

Temperature	Primer 67 Pot Life	Primer 67C Pot Life
50°F	90 min.	90 min.
75°F	60 min.	60 min.
90°F	30 min.	30 min.

PRIMING

The following Primers are compatible with **Protecto-Flex 310**: Primer 67, Primer 67LV, Primer 67DPLV, Primer 67DTO & Primer 60.

Pot life of the mixed **Protecto-Flex 310** will depend on the temperature. To prevent material waste, do not mix more than can be used according to the corresponding tables:

PROTECTO-FLEX 310 BASECOAT

TEMPERATURE	POT LIFE
50°F	90 min.
75°F	60 min.
90°F	30 min.

Do not attempt to store mixed material. Residual material should be properly disposed of at the end of each work period.

PROTECTO-FLEX 310 MIX RATIOS (BY VOLUME)

Basecoat and Saturant

Component A 1 gallon
Component B 1 gallon

Topcoat

Component A 1 gallon
Component B 48 fl. oz.

BASECOAT

Add the correct amount of **Component B** to **Component A**. Mix thoroughly for 1-2 minutes. Add 20-30 lbs. of **G-1 Filler** per mixed gallon of basecoat resin to achieve a mortar like consistency. The amount of **G-1 Filler** may vary due to working conditions and applications. Mix well and apply a 1/16" thick basecoat to a smooth, even finish using a plasterer's trowel.

REINFORCEMENT AND SATURANT

Before the basecoat begins to cure, press one layer of 1 ounce chopped strand fiberglass mat into the wet basecoat. Lap all edges by 1 inch. Use a stiff, natural bristle brush or roller and press the mat firmly into the basecoat, using a technique similar to hanging wallpaper, to remove all air pockets and wrinkles.

Saturate the fiberglass with the basecoat resin mixture, using a short nap paint roller. Roll vigorously until the mat has lost its white color and turns translucent. Use enough resin to "wet out" the mat, but do not allow the saturant to puddle. Immediately roll the wet fiberglass with a ribbed roller to remove any trapped air or wrinkles. Allow the basecoat and reinforcement application to cure overnight.

Before applying the topcoat, examine the fiberglass for any air bubbles or blisters. If these are present, they must be cut out and repaired, using the procedure above. It is recommended that the entire fiberglass surface should be abrasive sanded or ground to smooth overlaps and protruding fiberglass strands. The surface should be cured enough to create dust while grinding. All overlapped seams should be sanded flat. The topcoat will emphasize any imperfections in the fiberglass. If excessive blistering of the basecoat reinforcement has occurred, it may have been caused by inadequate rolling with a ribbed roller.



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Protecto-Flex 310 Topcoat

TEMPERATURE	POT LIFE
50°F	60 min.
75°F	30 min.
90°F	15 min.

TOPCOAT

Mix the **Protecto-Flex 310 topcoat Component A** for 1-2 minutes to redispense pigments and fillers. Add the correct amount of **Component B to Component A** and mix thoroughly until a uniform color is achieved. Apply at 15-20 mils WFT using a brush, roller or spray to a smooth even finish.

OPTIONAL BROADCAST

Broadcast 20-40 mesh sand or aluminum oxide into the wet topcoat to complete saturation. Once cured, remove excess with a broom.

To seal in aggregate, apply a second coat of **Protecto-Flex 310 Topcoat**.

Mix the **Protecto-Flex 310 Topcoat Component A** for 1-2 minutes to redispense pigments and fillers. Add the correct amount of **Component B to Component A** and mix thoroughly until a uniform color is achieved. Apply at 15-20 mils WFT. To reduce surface texture, an additional coat should be applied after the topcoat has cured.

Consult Dudick representative for recommendation for spray application.

Protecto-Flex 310 Cure Cycle

TEMPERATURE	Maximum Recoat Time	CURE TIME
50°F	120 hrs.	96 hrs.
75°F	72 hrs.	48 hrs.
90°F	48 hrs.	24 hrs.

If these recoat times are exceeded, consult a Dudick representative. Sanding or abrasive blasting may be required before the next coat. Recoat times are dramatically reduced when the coating is exposed to direct sunlight.

Application of **Protecto-Flex 310** in direct sunlight may lead to blistering, pinholes, or wrinkling due to outgassing of air in the concrete and high substrate temperatures. Double priming, shading, or evening application may be required. Consult a Dudick representative.

TESTING

If spark testing is required, use a DC spark/holiday tester set to the appropriate voltage to achieve a minimum 100 volts per mil of applied coating. An AC tester can be used, but is not as effective as a DC tester. Mark and repair all pinholes, using **Protecto-Flex 310** topcoat. Retest only the repairs.

CLEANING

Use **S-10 Cleaning Solvent** to clean tools and equipment.

SHIPPING

Refer to Material Safety Data Sheets.

STORAGE

Warning: All Dudick products classified by DOT with either white, yellow or red labels must not be mixed or stored together as an explosive reaction can occur.

Store all products in a cool, dry area away from open flames, sparks or other hazards.

When stored in their original, unopened containers at 50°F-75°F, **Primer 67** components and **Protect-Flex 310** components have a six-month shelf life. **Primer 67 C** components will have a thirty-day shelf life. Storage in direct sunlight or excessive heat will reduce working time and shelf life.



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SAFETY

M.S.D.S: Material Safety Data Sheets must always be read before using products. Protecto-Flex 310 systems are intended for application by experienced, professional personnel. Dudick, Inc. can supply supervision to help determine that the surface has been properly prepared, the ingredients correctly mixed, and the materials properly and safely applied.

If **Protecto-Flex 310** materials are to be applied by your own personnel or by a third party contractor, please be sure that they are aware of the following safety precautions:

- Exposure to resins and hardeners through direct skin contact and/or inhalation may cause severe dermatitis reactions in some people. Cleanliness of the skin and clothing is critical and must be of paramount concern.
- Fumes are flammable and heavier than air. Proper ventilation should be maintained to minimize breathing of concentrated fumes.
- Suitable respirators should be used during application.
- Safety glasses, gloves, and suitable protective clothing must be worn at all times during application.
- If contact with hardeners occurs, remove any clothing involved and flush the skin with flowing water. Discard the clothing. Do not attempt to wash and reuse it. **Protecto-Flex 310** liquid can be removed with **S-10 Cleaning Solvent**, MEK, or lacquer thinner.

- Keep open flames and sparks away from the area where materials are being mixed and applied.
- If a rash occurs, remove the individual from the work area and seek a physician's care for dermatitis.
- In case of eye contact, flush with water for at least 15 minutes and consult a physician.
- If swallowed, do not induce vomiting; call a physician immediately.

NOTE: Dudick, Inc. ("Dudick") warrants all goods of its manufacture to be as represented in its catalogs and that the manufacture of its products by its employees or sub-contractors shall be performed in a workmanlike manner. Dudick's sole obligation under this warranty shall be to replace any material which its examination shall disclose to be defective. Dudick makes no warranty concerning the suitability of its product for application to any surface, it being understood that the goods have been selected and the application ordered by the Purchaser. DUDICK, INC. MAKES NO WARRANTY, EXPRESS OR IMPLIED, THAT THE GOODS SHALL BE MERCHANTABLE OR THAT THE GOODS ARE FIT FOR ANY PARTICULAR PURPOSE. THE WARRANTY OF REPAIR OR REPLACEMENT SET FORTH HEREIN IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES ARISING BY LAW OR OTHERWISE; AND DUDICK INC. SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DOWN TIME, DAMAGES TO PROPERTY OF THE PURCHASER OR OTHER PERSONS, OR DAMAGES FOR WHICH THE PURCHASER MAY BE LIABLE TO OTHER PERSONS, WHETHER OR NOT OCCASIONED BY DUDICK'S NEGLIGENCE. This warranty shall not be extended, altered or varied except by written instrument signed by Dudick and Purchaser.

3/12/2021