Dudick inc.

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PROTECTO-FLEX 900

TROWEL APPLIED, GLASS REINFORCED, FLEXIBLE EPOXY LINING, WITH A FLAKE FILLED VINYL ESTER INTERMEDIATE COAT AND NOVOLAC VINYL ESTER TOPCOAT 100-110 MILS

FEATURES

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

RECOMMENDED APPLICATIONS

Food Processing Floors
Laboratories
Aisleways
Secondary Containment

CHEMICAL RESISTANCE

Organic Acids
Inorganic Acids
Mineral Oils
Ammonium Hydroxide
Sodium Hydroxide
Brine Solutions
Solvents

COLORS: Color Chart available upon request.

TEMPERATURE LIMITS

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

PHYSICAL PROPERTIES

Compressive Strength ASTM C-579	6,000 PSI
Tensile Strength ASTM C-307	4,500-5,000 PSI
Tensile Elongation ASTM C-307	12-15%
Shore D Hardness ASTM D-2240	70-75
Tensile Bond Strength ASTM D-7234	Cohesive Failure of Concrete

SPECIFICATIONS

Protecto-Flex 900 shall be an epoxy lining consisting of a 1/16" trowel applied basecoat, one layer of saturated fiberglass mat reinforcement, a flake filled vinyl ester intermediate coat and a flake filled novolac vinyl ester epoxy topcoat as manufactured by Dudick, Inc. and applied in accordance with the manufacturer's recommended practices.

THE PROTECTO-FLEX 900 SYSTEM

Protecto-Flex 900 uses a moisture tolerant primer and 100-110 mils of fiberglass reinforced, silica filled epoxy basecoat, a vinyl ester intermediate coat and a novolac vinyl ester topcoat to protect 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 900 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: One layer of one (1) ounce fiberglass mat is used to help bridge small surface cracks and isolate their movement to the basecoat. 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.

Intermediate Coat: A vinyl ester resin applied at 5-6 mils

Topcoat: The multifunctional novolac vinyl ester resin of **Protecto-Flex 900** topcoat at 15-20 mils provides high temperature & chemical resistance needed in hot process flow applications. An anti-slip finish can be achieved by the addition of sharp grit into the topcoat and then backrolled.

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
PRIMER 67	150-200 ft.²
PRIMER 67C	100-150 ft.²
Protecto-Flex 900	
Basecoat & Saturant	25 ft.²
G-1 Filler	.5 lb./ ft.²
Reinforcement	Area + 10%
Intermediate Coat	150 ft^2 @ 5-6 mils
Topcoat**	60-70 ft.²
S-10 Solvent	500 ft.²
Broadcast Options	
Aluminum Oxide	1 - 1¼ 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.

During manufacturing, some air entrapment occurs in the more viscous lining systems. During storage and transportation, settling can occur when entrapped air escapes this mix indicating less than 100% volumetric fill. All products are priced and sold by weight and not necessarily by volume

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

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 pea gravel exposed.** 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 with the first mechanical preparation procedure.
Mechanical preparation 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 50ºF and 110°F.

Relative humidity must not exceed 90%.

Substrate temperature must be 5ºF 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.

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

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The following Primers are compatible with **Protecto-Flex 900**: Primer 67, Primer 67LV, Primer 67DPLV, Primer 67DTO & Primer 60.

Important - With all epoxies after priming and before each additional coat, examine the surface for amine blush (oily film). If present, remove by washing with warm water and detergent. Pot life of the mixed **Protecto-Flex 900** will depend on the temperature. To prevent material waste, do not mix more than can be used according to the corresponding tables:

Protecto-Flex 900 Basecoat

TEMPERATURE	POT LIFE
50ºF	90 min.
75ºF	60 min.
90ºF	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 900 MIX RATIOS (BY VOLUME)

Basecoat and Saturant

Component A	1 gallon
Component B	1 gallon

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 intermediate coat, examine the fiberglass for any air bubbles or blisters. If these are present, they must be cut out and repaired, using the procedure above. 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. ***The Basecoat must be tack free prior to Intermediate Coat application.**

INTERMEDIATE COAT

TEMPERATURE	POT LIFE
50ºF	60 min.
75ºF	45 min.
90ºF	30 min.

Hardener	Substrate Temperature	PFlex-900 Intermediate	PFlex-900 Topcoat
PH-1	50°-70°F	3-4 oz	3-4 oz
PH-1	70°-90°F	2-3 oz	2-3 oz

Mix the **Intermediate Coat** separately to redisperse pigments and fillers, which have settled. Then, add the correct amount of **PH- 1 Hardener** to the **Intermediate Coat** and mix thoroughly until a uniform color is achieved.

Apply at 5-6 mils WFT using a brush, spray or roller to an even, smooth finish. Allow the intermediate coat to cure until "firm" or slightly "tacky" before applying the topcoat.

Cure Cycle For Intermediate Coat

TEMPERATURE	RECOAT TIME MIN.	MAX.	CURE TIME
50ºF	12 hrs.	120 hrs.	96 hrs.
75ºF	4 hrs.	96 hrs.	24 hrs.
90ºF	3 hrs.	72 hrs.	10 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.

Protecto-Flex 900 Topcoat

TEMPERATURE	POT LIFE
50ºF	60 min.
75ºF	40 min.
90ºF	25 min.

TOPCOAT

Mix the **Protecto-Flex 900 topcoat Component A** for 1-2 minutes to re-disperse pigments and fillers. Add the correct amount of **PH-1 Hardener 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 900 Topcoat.**

Mix the **Protecto-Flex 900** topcoat **Component A** for 1-2 minutes to redisperse 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 top coat has cured.

Airless spray is recommended using a 30:1 pump equipped with a 60 mesh filter. The nozzle should be tungsten carbide with a 0.017-0.035-inch diameter opening and a 25º-60º fan. Suggested output pressure (depending on temperature) is 1,500 PSI.

Protecto-Flex 900 Topcoat Cure Cycle

TEMPERATURE	Maximum Recoat Time	CURE TIME
50ºF	120 hrs.	96 hrs.
75ºF	96 hrs.	24 hrs.
90ºF	72 hrs.	10 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 900** in direct sunlight may lead to blistering, pinholes, or wrinkling due to out-gassing 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 the topcoat material.

Concrete: The lining can be spark tested provided **Primer 27C** was used to prime the concrete.

CLEANING

Use **S-10 Cleaning Solvent** to clean tools and equipment. **DO NOT USE ACETONE.**

SHIPPING

Refer to Material Safety Data Sheets.

STORAGE

Warning: All Dudick products classified by DOT with 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 900** components will have a six-month shelf life. **Protecto-Flex 900** intermediate coat and topcoat will have a three 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.

SAFETY

M.S.D.S: Material Safety Data Sheets must always be read before using products. Protecto-Flex 900 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 900** 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 900** liquid can be removed with **S-10 Cleaning Solvent**, MEK, or lacquer thinner. **DO NOT USE ACETONE.**
- 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.
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