



Corporate Offices  
 1818 Miller Parkway  
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**PROTECTO-GLASS 960/965**

**TROWEL APPLIED, REINFORCED,  
 NOVOLAC, VINYL ESTER LINING  
 & FLOOR TOPPING, 90 MILS (2.3 mm)**

**FEATURES**

Excellent Chemical Resistance  
 Bridges Small Concrete Cracks

**RECOMMENDED APPLICATIONS**

Secondary Containment Areas  
 Concrete Dike Areas  
 Concentrated Acid Spills  
 Floors (Splash & Spillage)  
 Acid Neutralization

**CHEMICAL RESISTANCE**

Organic Acids	Salts
Inorganic Acids	Oils
Fluorides (965)	Solvents
Alkali Solutions	

**TEMPERATURE LIMITS  
 (STEEL)**

Immersion up to 160°F  
 Dry – 200°F Continuous  
 250°F Intermittent

**PHYSICAL PROPERTIES**

Compressive Strength ASTM C-579	12,500 PSI
Tensile Strength ASTM C-307	2,400 PSI
Flexural Strength ASTM C-580	8,600 PSI
Coefficient of Expansion ASTM D-696	12-15 x10 <sup>-6</sup> in./in./°F
Shore D Hardness ASTM D-2240	75-80
<b>Protecto-Glass 965</b> Electrical Properties ASTM F- 150 NFPA #99	1.5-2.0 Megaohms

**SPECIFICATIONS**

**Protecto-Glass 960** shall be a 70-90 mil thick silica filled, novolac vinyl ester resin consisting of a deep penetrating primer, a 1/16” silica filled basecoat, one layer of fiberglass mat and a 15-20 mil flake filled topcoat as manufactured by Dudick, Inc. Material shall be applied in accordance with the manufacturer’s recommended practices.

**Protecto-Glass 965** is identical to the **Protecto-Glass 960** with the exception of a graphite filled topcoat for fluoride protection and conductivity.

**THE PROTECTO-GLASS 960/965 SYSTEM**

**Protecto-Glass 960/965** uses several layers of filled, thermosetting novolac vinyl ester resin to build up the protection that steel and concrete need in chemical manufacturing or processing operations. When fully cured, the separate elements lose their individual identity and become a single, monolithic topping.

**Primer 27** is designed to prevent abrasive blasted metal from developing rust bloom prior to the application of a **Protecto-Glass 960/965** system. Concrete must always be primed to aid in the “wetting out” required for good bonding.

**Primer 27C** is designed for applications on concrete where spark testing is required or specified.

**Basecoat: Protecto-Glass 960/965** uses novolac vinyl ester resin and silica fillers to reduce the coefficient of expansion and provide a thixotropic base on which to embed the fiberglass mat.

**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:** Catalyzed resin is used to wet out and embed the fiberglass reinforcement, thus providing a mechanical and chemical bond to the basecoat.

**Topcoat: Protecto-Glass 960/965** resins, filled with flake or graphite fillers, provide an abrasion and chemical resistant barrier. The overlapping leaf arrangement of flakes reduces water vapor permeation and permits chemical exposure at higher temperatures without increasing the thickness of the coating.

**ESTIMATING QUANTITIES  
ORDER BILL OF MATERIAL**

APPROXIMATE SQUARE FEET PER GALLON		
	CONCRETE	STEEL
PRIMER 27	150-200 ft. <sup>2</sup>	250-300 ft. <sup>2</sup>
PRIMER 27C	100-150 ft. <sup>2</sup>	-----
Protecto-Glass 960/965		
Basecoat & Saturant	25 ft. <sup>2</sup>	
G-1 Filler	.5 lb./ ft. <sup>2</sup>	
Reinforcement	Area + 10%	
Topcoat	60-70 ft. <sup>2</sup>	
S-10 Solvent	500 ft. <sup>2</sup>	

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

**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**

**Metal:** Abrasive blast to a white metal finish according to SSPC 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-4541.

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 800**. (Refer to separate product bulletin)

**APPLICATION SPECIFICATIONS**

Substrate temperature for both concrete and metal must be between 50°F and 110°F.

Relative humidity must not exceed 90%.

Substrate temperature must be 5°F above the Dew Point.

**Important: Primer 27C** must be mechanically mixed for 1-2 minutes prior to adding the correct amount of **PH-1 Hardener**.

**Primer 27C** must be roller applied. Use brush application for small touch-up or repair work only.

Pot life of the mixed **Protecto-Glass 960/965** materials will depend on the temperature.

To prevent material waste, do not mix more than can be used according to the following table:

PH-1 HARDENER		
	SUBSTRATE TEMPERATURE	
	50°F-70°F	70°F-90°F
Primer 27	3-4 oz.	2-3 oz.
Primer 27C	4-5 oz.	3-4 oz.
Protecto-Glass 960 Basecoat, Topcoat & Saturant	3-4 oz.	2-3 oz.
Protecto-Glass 965 Basecoat, Topcoat & Saturant	4-5 oz.	2-3 oz.
Pot Life, Minutes	40-50 min.	20-30 min.



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**PRIMING**

**Metal:** For maximum performance, prime all metal surfaces with **Primer 27** at 3-4 mils WFT, mixed with the correct amount of **PH-1 Hardener** using a brush, roller or spray.

**Concrete:** Concrete must always be primed to aid in the “wetting out” required for good bonding. Mix **Primer 27** or **27C** with the correct amount of **PH-1 Hardener** for 2-3 minutes and apply with brush, roller or spray to a WFT of 3-4 mils. We recommend the basecoat be applied over tacky primer. Do not allow the primer to puddle. If application is not expected over tacky primer a light sand broadcast will provide better troweling properties.

**Primer 27C** should not be seeded, and allowed to achieve a tack-free cure to maintain conductive properties.

**BASECOAT**

Add the correct amount of **PH-1 Hardener** for each gallon of **Protecto-Glass 960/965** basecoat liquid and mix thoroughly for 1-2 minutes. Add 18-25 lbs. of **G-1 Filler** to achieve a mortar-like consistency. Using a plasterer’s trowel, apply a 1/16” thick basecoat to a smooth, even finish.

**REINFORCEMENT AND SATURANT**

Press one layer of 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. 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.

**TOPCOAT**

Add the correct amount of **PH-1 Hardener** for each gallon of **Protecto-Glass 960/965** topcoat and mix thoroughly until a uniform color is achieved.

Apply a 15-20 mil thick topcoat using a brush, roller or spray, to a smooth finish. Roller application may require more than one coat.

For application of the **Protecto-Glass 960/965 Topcoat** using spray equipment, use conventional spray equipment with a pressure pot. Binks #18 Spray Gun with #68 fluid nozzles and #68 air nozzles, or Binks #62 Spray Gun with #68 fluid nozzles and #68 air nozzle are recommended.

Plural component spray applications can be made with a Binks 8 to 1 Pump. A Binks Model 18NC spray gun 59BSSX9-47 with a 102-3430 ACI valve.

The catalyst should be supplied by a 101-5202 catalyst tank; 1/2” ID material supply hose is recommended.

**Cure Cycle for Protecto-Glass 960/965:**

TEMPERATURE	RECOAT TIME		CURE TIME
	MIN.	MAX.	
50°F	12 hrs.	120 hrs.	96 hrs.
75°F	4 hrs.	96 hrs.	48 hrs.
90°F	3 hrs.	72 hrs.	24 hrs.

*Protecto-Glass 960/965 basecoat must be recoated within 6 hours when exposed to direct sunlight.*

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

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-Glass 960/965** 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.

**In order to prevent curing problems with styrenated products, air movement and/or ventilation must be maintained not only during application but also after application until the system has totally cured. This will prevent high concentration of styrene inhibiting/retarding the cure of the system.**

#### TESTING

Where immersion service is required, spark test the lining with a 10,000 Volt AC spark tester.

Mark and repair all pinholes, using the appropriate topcoat. Retest only the repairs. *\*965 cannot be spark tested.*

#### 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 either white, yellow or red labels must not be mixed or stored together as an explosive reaction may occur.

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

When properly stored in their original, unopened containers at 50°F-75°F, **Primer 27 and Protecto-Glass**

**960/965** components will have a three-month shelf life or less. At temperatures above 75°F, two-months or less. **Primer 27C** will have a thirty-day shelf life. **PH-1 Hardener** has a six-month shelf life at 50°F-75°F. Exposure to excessive heat may cause premature gelling, reduce working time and shelf life.

#### SAFETY

**M.S.D.S: Material Safety Data Sheets must always be read before using products. Protecto-Glass 960/965** 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-Glass 960/965** 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-Glass 960/965** liquids 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.
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- 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.

4/27/10