Dudick inc.

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

PROTECTO-LINE 700/705/700AR

TROWEL APPLIED, REINFORCED, POLYESTER LINING AND FLOOR TOPPING. 1/8" (3.17 mm)

FEATURES

Low Permeability
Conductive Version Available

RECOMMENDED APPLICATIONS

Plating Room Floors
Concentrated Acid Spills
Acid Neutralization

CHEMICAL RESISTANCE

Inorganic Acids	Organic Acids
Oils	Salts
Fluorides (705/700AR)	

TEMPERATURE LIMITS (METAL APPLICATION)

Immersion up to 180º F
Dry - 220ºF Continuous
- 250ºF Intermittent

PHYSICAL PROPERTIES

Compressive Strength ASTM C-579	12,500 PSI
Coefficient of Expansion ASTM D-696	12-15 x 10^{-6} in./in./ºF
Tensile Strength ASTM C-307	2,400 PSI
Taber Abrasion, CS-17 wheel, 1000 cycles, 1000 gram load ASTM D-4060	40 mg. (G-1) 20 mg. (AR)
Flame Spread ASTM D-635	<5 mm
WVT ASTM E-96	0.0017 perm. in.

Protecto-Line 705

Electrical Properties ASTM F-150 NFPA #99	10^4-10^6 Ohms

SPECIFICATIONS

Protecto-Line 700 shall be a nominal 1/8" thick, silica filled polyester lining, consisting of a penetrating primer, 1/16" basecoat, woven fiberglass roving and 1/16" topcoat as manufactured by Dudick, Inc. Materials shall be trowel applied in accordance with manuals recommended practices.

Protecto-line 705 is a polyester based system identical to **Protecto-Line 700,** but utilizes a carbon filler and synthetic fabric in place of the silica filler and glass roving for resistance to fluorides. The carbon filler also provides conductivity.

Protecto-Line 700AR shall be a nominal 1/8" thick polyester lining consisting of a penetrating primer, 1/16" silica filled basecoat, woven fiberglass roving and a 1/ 16" aluminum oxide filled topcoat. Inert aluminum oxide fillers are used to significantly increase resistance to abrasion, fluorides, and strong caustics. A synthetic fabric can be substituted for the glass woven roving for strong fluoride and caustic solutions.

THE PROTECTO-LINE 700/705/700AR SYSTEM

Protecto-Line 700/705/700AR uses several layers of thermosetting, filled polyester resin to build up the protection that metal and concrete need in chemical manufacturing or processing operations. When fully cured, the separate elements lose their individual identity and become a single, monolithic lining.

Dudick inc.

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

PROTECTO-LINE 700/705/700AR

TROWEL APPLIED, REINFORCED, POLYESTER LINING AND FLOOR TOPPING. 1/8" (3.17 mm)

Primer 27 is designed to prevent abrasive blasted metal from developing rust bloom prior to the application of the **Protecto-Line 700/705/700AR**. For maximum performance, all metal surfaces should be primed. Concrete must 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-Line 700/705/700AR** polyester resins are filled with graded silica or carbon depending on the chemical environment involved to reduce the coefficient of expansion and provide a thixotropic base on which to embed the fiberglass roving or synthetic fabric.

Reinforcement: A woven fiberglass roving or synthetic fabric is used to help bridge small surface cracks and provides additional strength to resist thermal shock. 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 **Protecto-Line 700/705/ 700AR** polyester resin is used to wet out the reinforcement, thus providing a mechanical and chemical bond.

Topcoat: Protecto-Line 700 systems are aluminum oxide, carbon or silica filled to provide an abrasion and chemical resistant barrier.

ESTIMATING QUANTITIES AND ORDER BILL OF MATERIAL

Note: Resin includes 3 ozs. hardener/gallon as standard and 6 ozs. for carbon filled.

SQUARE FEET PER GALLON		
	CONCRETE	**STEEL**
PRIMER 27	150-200 ft.²	250-300 ft.²
PRIMER 27C	100-150 ft.²	----------
	P-Line 700	**P-Line 705**
Basecoat Saturant & Topcoat	16 ft.²	18 ft.²
Roving/Fabric	Area + 10%	Area + 10%
G-1 Filler (Silica)	1 lb./ft.²	----------
G-9 Filler (Carbon)	----------	.7 lb./sq. ft.
S-30 Liquid	150 ft.²	150 ft.²
S-10 Solvent	500 ft.²	500 ft.²

For **Protecto-Line 700AR** use **AR Filler** at .65 lbs./ft.² for topcoat.

*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 # l and a 3.0 mil minimum profile.

Concrete: Concrete must be abrasive blasted or etched with muriatic acid (Solution of l part 20º Be HCL and l part water) to remove surface laitance and other contaminants. Concrete must be free of curing compounds and form release agents. Surface texture should be similar to 40-60-grit sandpaper **with exposed pea gravel.** The prepared surface should have a minimum 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 after a single application of acid or with the first mechanical preparation procedure.

Abrasive blasting removes laitance, exposing honeycombs or voids beneath the surface that must be filled with **Scratch Coat 800.** (Refer to separate product bulletin.)

APPLICATION SPECIFICATIONS

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

Relative humidity must not exceed 90%.

Substrate temperature must be 5ºF above the Dew Point.

Hardener Amount/Gallon Resin:

Hardener	Substrate Temp.	Primer		PL-700/AR B-Coat T-Coat	PL-705 B-Coat T-Coat
		27	27C		
PH-1	60°-70°F	3-4 oz.	4-5 oz.	----------	----------
PH-1	70°-90°F	2-3 oz.	3-4 oz.	----------	----------
PH-2	60º-70ºF	-----	-----	2-3 oz.	3-4 oz.
PH-2	70º-90ºF	-----	-----	1-1/2 oz.	1.5-2.0 oz.

Pot life of the mixed **Protecto-Line 700** systems will depend on the temperature. To prevent material waste and avoid damage to equipment, do not mix more material than can be used according to the following table:

TEMPERATURE	POT LIFE
50°F	60 min.
75°F	40 min.
90°F	25 min.

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

PRIMING

Metal: Mix **Primer 27** with the correct amount of **PH- l Hardener** for 2-3 minutes and apply with a roller, brush or spray at 3-4 mils WFT.

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-l Hardener** for 2-3 minutes and apply with a brush, roller or spray. Do not allow the primer to puddle.

Always examine the primed surface before beginning the basecoat application. If any dry areas appear, they must be re-primed to insure proper concrete wet out before the lining is applied.

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.

Consult Dudick representative for recommendation for spray application.

BASECOAT

Add the correct amount of **PH- 2 Hardener** to the resin. Mix thoroughly for 2-3 minutes. For **Protecto-Line 700/700AR**, add 18-25 lbs. of **G-1 Filler**/gal. For **Protecto-Line 705** add 10-15 lbs. of G9 carbon filler/gal. Mix well and apply a 1/16" thick basecoat, using a plasterer's trowel. Apply to an even finish.

Dudick inc.

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

REINFORCEMENT AND SATURANT

Press the reinforcement into the wet basecoat. Lap all edges by 1 inch. Saturate the reinforcement with catalyzed **Protecto-Line 700/705/700AR** resin using a short nap paint roller. Roll vigorously until the reinforcement has lost its white color and turns translucent. Use enough resin to "wet out" the reinforcement but do not allow the saturant to drip or puddle. It is highly recommended, for good adhesion, that a clean dry sand be lightly broadcast into the wet saturant.

TOPCOAT

Before applying the topcoat, examine the overall application and grind any sharp glass protrusions and fill any voids with catalyzed saturant resin.

Add the correct amount of **PH- 2 Hardener** to the resin. Mix thoroughly for 2-3 minutes. For **Protecto-Line 700,** add 18-25 lbs. **G-1 Filler**/gal. For **Protecto-Line 705**, add 10-15 lbs. **G-9** carbon filler/gal. For **Protecto-Line 700AR**, add 18-20 lbs. **AR Filler**/gallon. Mix well and apply a 1/16" thick topcoat, using a plasterer's trowel. Apply to an even finish.

SMOOTHING

Immediately after the trowel application and before the topcoat has cured, dampen a natural bristle brush (thick bristle 4" wide) or roller with **S-30 Smoothing Liquid.** Lightly brush or roll the wet topcoat to remove trowel marks and pinholes. Never allow **S-30 Smoothing Liquid** to puddle on the topcoat.

Cure Cycle for Protecto-Line 700 Systems:

TEMPERATURE	RECOAT TIME MIN.	RECOAT TIME MAX.	CURE TIME
50ºF	12 hrs.	120 hrs.	96 hrs.
75ºF	4 hrs.	96 hrs.	24 hrs.
90ºF	3 hrs.	72 hrs.	20 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-Line 700** systems 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

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. Retest only the repairs. Testing of **Protecto-Line 705** is limited to a visual inspection because the lining is conductive.
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.**

Dudick inc.

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

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.

All products should be stored in a cool, dry area away from open flames, sparks or other hazards.

When properly stored in their original, unopened containers, **Primer 27**, **Protecto-Line 700/705/700AR**, **PH-1 and PH-2 Hardener** components will have a six-month shelf life. **Primer 27C** will have a thirty-day shelf life. Storage in direct sunlight or excessive heat will reduce working time.

SAFETY

M.S.D.S: Material Safety Data Sheets must always be read before using products. Protecto-Line 700 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-Line 700** 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-Line 700** 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.

11/11/20