Surrounding You with Exceptional Protection

TL-405 HT

125-150 mil Woven Roving

High-Temperature, Glass Reinforced, Novolac Vinyl Ester Lining System

PRODUCT DESCRIPTION

TL-405 HT tank lining system is a high temperature, high performance, heavily reinforced, Novolac Vinyl Ester lining system. TL-405 HT is specially formulated with a unique Novolac Vinyl Ester resin to withstand high temperatures, wet gas and chemical exposures. This formulation is suitable for service up to 425 °F, depending on the chemicals and exposure conditions. The TL-405 HT system consists of a primer (optional on steel), a trowel applied mortar basecoat, a layer of woven roving reinforcing glass saturated with TL-405 HT, and a trowel applied TL-405 HT mortar topcoat.

TYPICAL USES

TL-405 HT is a heavy duty, reinforced lining system that is crack resistant, impact resistant and is resistant to a wide variety of aggressive chemicals found in industrial plants. TL-405 HT is typically used to line steel and concrete tanks holding or processing various chemicals. Because of the system's wear resistance, impact resistance and crack bridging qualities it is also ideally suited for protecting concrete floors, walls, trenches and sumps exposed to aggressive chemicals.

HANDLING CHARACTERISTICS

The basecoat and topcoat mortar of the TL-405 HT is applied by trowel. A medium nap roller is used to apply the saturant for the woven glass reinforcement.

TYPICAL PROPERTIES

PROPERTY	TL-405 HT
Tensile strength (filled) (ASTM C-307)	3000 psi
Compressive strength (filled) (ASTM C-579)	16,000 psi
Flexural Strength (filled) (ASTM C-580)	6,500 psi
Coefficient of thermal expansion (ASTM C-531)	17.5 x 10^{-6} in/in/°F
Permeability (perm-inch) ASTM E-96	0.0009
Temperature Resistance, Dry – Continuous/Excursions	425F/500F
Temperature Resistance, Wet	Varies*
Abrasion Resistance, mg lost (ASTM D-4060 - CS17 wheel, 1000g load, 1000 cycles)	17
Bond Strength (ASTM D-4541)	Greater than the strength of concrete
Hardness, Shore D (ASTM D-2240)	>80
Color	Gray (Carbon filled is black)

*****Wet temperature resistance is dependent on chemical conditions and is highly variable. Contact Blome International for specific wet service resistance vs. chemistry.

PACKAGING & COVERAGE

TL-405 HT is a multi-component system consisting of part A (resin) and part B (hardener), Blome 410 Filler, 10oz woven roving. TL-405 HT components are packaged as follows:

Component	Packaging Size	Coverage
TL-405 HT Resin & Catalyst Use for basecoat, saturant and top coat (includes 3 oz. Catalyst/gallon resin)	1 gallon can 5 gallon pail	16 sq. ft./gallon
410 Filler Powder Use for basecoat and top coat	50 lb. Bag (add 20-30 lbs./gal.)	100 sq. ft./bag (for 60 mil top/basecoat)
410C Filler Powder (carbon) Use for carbon-filled basecoat and topcoat	50 lb. Bag (add 14-20 lbs./gal.)	130 sq. ft./bag (for 60 mil top/basecoat)
450 Woven Roving Reinforcement	Rolls	Area + 10%
443 Synthetic Cloth Reinforcement (for use with carbon filled systems)	Rolls	Area + 10%

POT LIFE AND CURE SCHEDULE @ 75°F*

Product	Pot life	Recoat	Chemical service
Primer 205 (optional on steel)	15-20 minutes	Min. 4 hrs, max. 48 hrs	N/A
TL-405 HT (basecoat, saturant and top coat)	20-30 MINUTES	Basecoat: min. N/A** max. 30 – 40 min. Saturant: min. 5 hrs, max. 48 hrs. Topcoat: min. 4 hrs max. 24 hrs	FINISHED SYSTEM: 48 HOURS

*These materials may be applied between 50 – 90°F. The pot life will be longer at the lower temperature range and much shorter at the higher temperature range.

** Basecoat must be covered with glass reinforcement and glass reinforcement must be saturated before basecoat begins to gel.

BID SPECIFICATION GUIDE

Use Blome TL-405 HT System consisting of a 50-60 mil basecoat mortar applied by trowel, one layer of 10 ounce woven roving glass saturated with TL-405 HT catalyzed resin and a 50-60 mil, trowel applied TL-405 HT Vinyl Ester mortar top coat. Finished thickness of the system should be 125-150 mils.

APPLICATION GUIDELINES STORAGE OF MATERIALS

Proper storage of these materials is critical to handling characteristics and performance. Store all components in unopened containers in a dry place, at 50-75°F, out of direct sunlight, and protect from the elements. Keep away from heat and flame. 24 hours before use, narrow the storage temperature to 70-80°F to facilitate handling of the product. This product has a shelf life of 3 months when properly stored.

JOB SITE ENVIRONMENTAL CONDITIONS

The temperature of the surface to be lined and the ambient air temperature must be at least 50°F while applying this product and as it cures. Monitor weather conditions and dew point. Stop the application if the temperature falls within 5°F of the dew point. Use dehumidification and/or temperature control if necessary to meet this requirement.

SURFACE PREPARATION

STEEL: Steel surfaces intended for lining application must be clean and free of oil, grease, dirt, rust, mill scale, salts, other coatings, corrosion products and other deleterious substances. Welds and weld splatter must be ground smooth. Avoid skip welds. Grind all sharp projections and round all corners to a 1/8" radius. All steel to be lined must be abrasive blasted to white metal finish (NACE no. 1, SSPC SP5) with a 2-4-mil sharp anchor profile. Mask all areas that are not to be lined.

CONCRETE: New concrete must cure a minimum of 28 days. Concrete surfaces should be abrasive blasted to provide a sound surface with a texture similar to medium grit sandpaper. Surfaces must be dry.

PRIMING/SURFACE REPAIR:

Mix and apply Primer 205 primer by brush, roller or spray (Note – Primer is optional on properly prepared steel). Apply at 6-8 mils. Do not allow primer to puddle. Coverage rate should be 150-175 square feet per gallon. Allow primer to cure tack free before proceeding with application of TL-405 HT.

When priming concrete, it is important to apply the primer when ambient and substrate temperatures are declining. Apply sufficient amount of primer to seal the surface of the concrete without creating puddles. This may require more than one coat of primer depending on the porosity of the concrete. If more than one coat is necessary, allow each coat to cure tack free before applying the next coat.

After the last coat of primer has cured tack free, fill any voids in the concrete surface using Blome TL-405 HT basecoat material and allow to cure tack free before proceeding with application of the TL-405 HT lining system.

MIXING AND APPLICATION

Important note: Plan your work carefully. Pre-cut reinforcing glass into easy to handle pieces. It's a good idea to have at least a couple of pair of metal spiked shoes such as golf shoes on hand so that crew members can walk onto the wet basecoat without disturbing it and address minor problems that cannot otherwise be reached. Cover just enough area with basecoat that can be finished with glass and saturant before the basecoat begins to set. Areas in direct sunlight and in a warm environment will set much faster than shaded, cool areas. Also, working in direct sunlight may cause pinholes and bubbles to form in the basecoat.

TL-405 HT basecoat is a mortar mix. To make it you will need an empty, clean five-gallon pail and a mixing drill with a mixing paddle attached. Mix TL-405 HT resin and hardener together for 1-2 minutes; slowly add the 410 Filler Powder to the mixed resin and hardener and blend thoroughly. Immediately apply to prepared and primed surface using a notched trowel, dry wall blade or plaster trowel. Apply at an even thickness of 50-60 mils. As soon as an area is covered with the basecoat and before it begins to set up or gel, imbed a layer of **#450 woven roving reinforcement** using a dry short nap or a ribbed roller to press the glass into the wet basecoat. Overlap seams of glass a min. of two inches.

TL-405 HT Saturant: Mix the Part A resin and Part B catalyst in a clean 5-gallon pail. Immediately apply saturant to the glass reinforcement using a medium nap roller. Apply saturant coat at an approximate rate of 0.3 lbs per square foot. Work from the pail dipping the roller into the resin and applying in even coats to saturate the glass. Apply liberal coat between overlapped glass mats. DO NOT pour the resin onto the surface, as this will greatly reduce coverage rates.

Glass reinforcement is saturated when the silver color of the glass disappears. Allow to cure until hard, usually about 12 hours at 75°F or above.

TL-405 HT Topcoat: Roughen the surface of the saturant coat and grind away any protrusions and imperfections. Remove all dust and debris by vacuuming and wiping with a clean cloth. Mix topcoat mortar material as described for the basecoat (Part A, Part B and #410 powder) for 2-3 minutes. Apply topcoat material by trowel at 50-60 mils thick. Check the thickness with a wet film gauge. A stiff bristle brush works well to remove trowel marks and aid in closing the surface of the mortar. A **smoothing liquid** is available from Blome and should be used sparingly so as not to create puddles. Allow to cure for 48 hours at above 75°F before placing in service.

TOUCH UP OR RE-COATING

Inter-coat prep for touch up or re-coating requires that the surface be clean, dry and roughened by sanding, grinding or abrasive blasting. Touch up or recoat as needed using TL-405 HT materials.

CLEANUP

Clean tools and equipment with nonflammable solvents before material begins to set.

SAFETY PRECAUTIONS

The various components of TL-405 HT products present health and safety hazards if they are handled improperly. Do not store, mix or use near open flame, sparks or heat source. Keep all containers closed when not in use. Always wear safety glasses, proper respirator, protective clothing and rubber gloves while mixing or applying these products. Refer to Material Safety Data Sheet prior to using these products.

CAUTION

TL-405 HT may cause skin irritation with prolonged or repeated contact. Handle with care and read the material safety data sheet, which is available for each product.

WARRANTY

We warrant that our goods will conform to the description contained in the order and that we have good title to all goods sold. Our material data sheets and other literature are to be considered accurate and reliable, but are used as guides only. WE GIVE NO WARRANTY OR GUARANTEE, WHETHER OF MERCHANTABILITY OR FITNESS OF PURPOSE OR OTHERWISE, AND WE ASSUME NO LIABILITY IN CONNECTION THEREWITH. We are happy to give suggestions for applications; however, the user assumes all risks and liabilities in connection therewith regardless of any suggestion, we may give. We assume no liability for consequential or incidental damages. Our liability, in law and equity, shall be expressly limited to the replacement of non-conforming goods at our factory, or at our sole option, to repayment of the purchase price of the non-conforming goods.

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