BLOME INTERNATIONAL

Surrounding You with Exceptional Protection

TANK LINING SYSTEMS

TL-45-S MR SYSTEM

100% Solids Reinforced Novolac Epoxy Tank Lining System

DESCRIPTIONS AND USES

Blome International's TL-45-S MR System is a Reinforced Novolac Epoxy tank lining system is formulated to offer superior resistance to many chemicals found in the petrochemical industry. Blome TL-45-S MR exhibits excellent resistance to crude oil, gasoline, diesel fuel and jet fuel.

TL-45-S MR System is a high performance, reinforced, novolac epoxy tank lining for immersion service. TL-45-S MR system is applied at a nominal 100-125 mils DFT. It consists of a primer, single or multiple reinforced layers of chopped strand fiberglass mat (CSM) plus saturant, and a topcoat. This versatile system can be applied as a roller/spray system. It can also be used in conjunction with a trowel-applied 1/16 in. thick (40-80 mils) novolac mortar.

TL-45-S MR System possesses the following properties:

Excellent chemical resistance;
Thermal shock, impact and wear resistance;
100% solids;
Long Pot Life for airless spray application;
Excellent bond strength;
Resistance to chipping and cracking due to torsional twisting;
Superior edge coat properties;
High cohesive strength;
Low permeability;
Low odor;
Meets the requirements of API 652

Typical uses include:
Tank Linings, Reinforced Crude Oil Tank Bottoms, External Tank Coatings, Coating Structural Steel in harsh environments

PACKAGING/COVERAGE

TL-45-S MR System is a multi-component system consisting of TL-45-S Part A (resin) and Part B (hardener) chopped strand mat, TL-495 resin and hardener and 410 powder (optional for a trowel-applied basecoat). TL-45-S MR System liquid components are available in 1-gallon, 5-gallon, and 25-gallon units. Each unit consists of pre-measured Part A and Part B components.

Application thickness will vary depending on expected service conditions. Consult Blome International's Tank Lining Systems Guide or contact our technical service group for specific lining recommendations.

Coverage rates will be affected by the condition of surface being coated (degraded vs. smooth, steel vs. concrete, etc.). To calculate theoretical coverage per gallon of resin-hardener mixes, divide desired mil thickness into 1,604. (For example, theoretical coverage for a 30 mil thickness is: 1,604 divided by 30 = 53.46 square feet per gallon.) For practical coverage, make necessary allowances for condition of the substrate, temperatures, jobsite conditions, waste, overspray, etc.

TYPICAL PROPERTIES -WET

Solids by Volume:	100%
Weight per Mixed Gallon:	10 LB
Mix Ratio (Resin:hardener) – by volume	4:1
Pot Life @ 75°F:	45 to 60 min (TL-45-S)*
Cure Times @ 75°F:	Dry to Touch: 12 hrs
Firm @ 75°F:	24 hrs
Chemical Service @ 75°F:	5 days**
Primer (steel):	Not required on properly prepared steel. Primer 75 may be used when a blast holding primer is desired.
Primer (concrete):	Primer 75
Flammability:	Non-flammable

*Significantly less at elevated temperatures. Pot life may be extended to 75 to 90 minutes with the use of Blome Additive #7 Pot Life Extender. TL-495 Rein-hardener saturant has a pot life of 20-30 minutes and cannot/must not be extended by thinning.

**Service time may be shortened by applying warmer temperatures. Consult Blome International for details.

TYPICAL PROPERTIES -CURED

Color:	Medium Grey or Red
Hardness- ASTM D-2240 Shore D:	74
Compressive Strength -ASTM C-579:	15,000 psi
Tensile Strength -ASTM D-638:	7,900 psi
Flexural Strength -ASTM D-790:	13,500 psi
Flexural Modulus of Elasticity -ASTM D-790:	7.7 psi x 10^5
Bond Strength -ASTM D-4541:	Concrete: concrete failure Steel: 1 ,500 psi
Water Vapor Transmission -ASTM E-96:	0.0120 grain per hr ft^2
Permeability:	0.0036 perm. - in.

STORAGE AND SHELF LIFE

Keep TL-45-S MR System components tightly sealed in their original containers until ready for use. Store at 50°F to 75°F out of direct sunlight.

APPLICATION GUIDELINES

For applications on vertical surfaces, use TL-45-S MR System components within four months of its date of manufacture (this may be extended with the incorporation of additional thixotrope at the time of application. Consult Blome for more information). Otherwise, Blome TL-45-S MR System components have a shelf life of one year, when properly stored.

TEMPERATURE CONSIDERATIONS

The temperature of the surface to be coated and the ambient air temperature should be at least 50°F while applying TL-45-S MR System and while it cures. If you attempt to apply the TL-45-S MR System in cooler temperatures, tarp and heat the area to be coated to maintain the minimum 50°F conditions.

Stop application if the temperature falls within 5°F of the dew point, and is falling.

Outgassing bubbles may appear in the TL-45-S MR System if it is applied over concrete, particularly in direct sunlight, or when air and substrate temperatures are rising. This is due to the expansion of air and/or moisture trapped in the concrete. It is especially true of air entrained concrete. For best results, shade the work area and apply TL-45-S MR System when the temperature of the concrete substrate is falling. A surface thermometer must be used to frequently monitor substrate temperature.

Twenty-four hours before application, all materials (components A and B) should be stored at a 75°F to 85°F, to facilitate handling and spraying.

SURFACE PREPARATION -GENERAL

Surfaces must be dry and free of dust, dirt, grease, oil, chemicals and contaminants immediately prior to applying each coat of either primer or TL-45-S MR System components.

SURFACE PREPARATION OF STEEL

1. Steel in Immersion Service
   Abrasive blast steel surfaces to a minimum white metal finish with a 3 to 5 mil angular anchor profile. (Ref. SSPC-SP-5)

2. All welds should be continuous and should be ground to remove all sharp edges, laps, under cuts and other surface irregularities. Relatively smooth, ripple finished welds are acceptable. Stripe coat all welds just prior to applying coating.

3. Steel in Non-Immersion Service
   Abrasive blast steel surfaces to a near white metal finish with 2 to 4 mil angular anchor profile. (Ref. SSPC-SP-10)

SURFACE PREPARATION OF CONCRETE

New concrete must cure a minimum of 28 days or achieve a minimum compressive strength of 3000 psi prior to coating. Concrete surfaces should be abrasive blasted to provide a sound surface with a texture similar to medium grit sandpaper. Surfaces must be dry.

MASKING

Mask surfaces that are not to be coated. TL-45-S MR is difficult to remove, once cured.

PRIMING

Priming is not required when applying the TL-45-S MR System to freshly prepared steel surfaces unless a holding primer is desired. For concrete or for a blasted steel holding primer, mix and apply Primer 75 by brush, roller or spray. Apply at 6-8 mils. Do not allow primer to puddle. Coverage rate should be 150-175 square feet per gallon for concrete and 200 – 250 square feet per gallon for steel. Allow primer to cure tack free before proceeding with application of TL-45-S MR.

APPLICATION EQUIPMENT

TL-45-S MR System may be applied using a spray rig or roller. Use Graco 56:1 King airless spray rig with hopper feed or Graco Hydro-Cat fixed at a 4:1 volumetric ratio. TL-495 saturant should be applied by roller (it can be sprayed, but it must be back rolled to ensure full coverage of the glass reinforcement.)

CARE OF SPRAY RIG HOSES

Take care to prevent the mixed material from setting up in your hoses. For best results, keep hoses as short as possible, purge hoses immediately if work is interrupted. Keep hoses out of direct sunlight and insulated or away from hot surfaces.

MIXING AND APPLICATION

TL-45-S MR System consists of the following steps:

- Primer 75 at 5 – 6 mils DFT (on concrete – optional on steel)
- TL-45-S base coat at 40 – 45 mils DFT.
- Embed Blome 441 1oz. CSM
- Saturate CSM with TL-495 Resin/Hardener at 40 mils DFT.
- Sand and warm soapy water wash (to remove blush if present)
- Apply TL-45-S topcoat at 16 – 20 mils DFT.
- Cure for service

TL-45-S component of the TL-45-S MR System may be thinned for certain applications. However, when used in an MR system, thinning should be avoided unless absolutely necessary. Consult Blome International prior to thinning for additional details. DO NOT THIN TL-495 saturant. The mix ratio of Part A to Part B is 4:1 A to B by volume.

Important note: Plan your work carefully. Pre-cut reinforcing mat 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 coat 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-45-S MR System Base Coat: Mix TL-45-S resin and catalyst together for 1-2 minutes, and blend thoroughly. Immediately apply to prepared and primed surface using a roller or brush. Apply at an even thickness of 40-45 mils (approximately 35-40 square feet per gallon). As soon as an area is covered with the TL-45-S and before it begins to set up or gel, imbed a layer of Blome chopped strand mat using a dry short nap or a ribbed roller to press the glass into the wet basecoat. Overlap seams of glass a minimum of two inches. (Consult Blome for installation guidelines if a trowel-applied, mortar coat using TL-45-S resin and 410 powder is required).

TL-495 Saturant: Mix the Part A resin and Part B catalyst in a clean 5-gallon pail. Immediately apply saturant to the glass reinforcement with TL-495 resin-hardener mix using a medium nap roller. Apply saturant coat at an approximate rate of 40 square feet per gallon (40 mils DFT for 1 oz. CSM). Note – 1.5 oz. CSM will require more saturant and reduce the coverage rate to approximately 25-30 square feet per gallon.

Work from the pail dipping the roller into the resin and applying in even coats to saturate the glass. DO NOT pour the resin onto the surface as this will greatly reduce coverage rates. Spray application is acceptable, but must be backrolled. Glass reinforcement is saturated when the silver color of the glass disappears and the glass appears clear/translucent. Allow to cure. Remove any irregularities, protrusions or blush before proceeding to the next step.

TL-45-S MR System Topcoat: Mix TL-45-S Part A resin and Part B catalyst in a clean 5-gallon pail. Apply mixed TL-45-S using a medium nap roller (this coat may also be applied by spray). Apply topcoat at an approximate rate of 80-100 square feet per gallon (16-20 mils DFT). Allow to cure.

TL-45-S MR System application notes:

Surfaces that have cured beyond 72 hours (12 hours in direct sunlight) need to be lightly abraded (sanded) and wiped clean before continuing.

If work is interrupted, or at the end of the day, terminate the coating in a straight line.

TL-45-S MR System will sometimes develop a thin, oily film on its surface (blush). This film must be removed by washing with soap and warm water. Ensure surface is dry before continuing.

CLEANUP

Before material gels, tools and equipment should be cleaned using hot, soapy water. After TL-45-S MR System begins to cure, thinners will be required. Chlorinated solvents may be used if flammable solvents are prohibited. Consult supplier MSDSs before using solvents.

SAFETY PRECAUTIONS

FOR INDUSTRIAL
USE ONLY

Avoid contact with skin and eyes; do not ingest material or inhale vapors. When working with TL-45-S MR System, always wear chemical goggles, appropriate rubber gloves, and other appropriate safety clothing. When spraying in confined areas, wear a fresh air hood and make provisions for forced air ventilation. When spraying in open areas, a NIOSH approved respirator suitable for organic vapors can replace fresh air hood. Prolonged or repeated exposure to the Part A and Part B components of TL-45-S MR System may cause skin irritation and/or allergic reactions. Refer to Blome Material Safety Data Sheets for individual components.

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 MERCHANT ABILITY 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 there with 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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