

## **TL-222-S** **High Temperature, Graphite Filled, Vinyl Ester Tank Lining System**

### **PRODUCT DESCRIPTIONS**

Blome TL-222-S is a high performance, high temperature-resistant, graphite filled, sprayable vinyl ester lining system. TL-222-S utilizes carefully selected and sized graphite reinforcement which maximizes permeation resistance and physical properties. TL-222-S is used as a coating in very demanding applications where enhanced performance and resistance to hot alkaline chemistry is required. Use TL-222-S HMW for acidic fluoride service.

### **TYPICAL USES**

Linings for steel and concrete tanks used for a wide variety of food processing (non-food contact surfaces), chemical processing, chemical storage, and wastewater applications. Well suited for lining of Stock Chests, Bleach Towers and FGD Tanks and Ductwork.

### **APPLICATION METHODS**

Spray (catalyst injection rig preferred), brush, roller

### **PRIMER**

Steel: Primer 205 (optional)  
Concrete: Primer 205

### **SURFACE AND COVING MATERIALS**

CP-100, CP-110HB

### **TYPICAL RECOMMENDED THICKNESS**

40-60 mils WFT applied in two coats (Optional – Blome Vinyl Ester Paraffin Gel Coat is available as a finish coat to provide a smooth, low friction surface)

### **ENVIRONMENTAL CONDITIONS CLIMATE CONDITIONS**

Work area must be dry. Work must be stopped if temperature drops within 5 degrees of dew point. Temperature in work area must be maintained at between 50°F – 90°F. The ideal temperature for application is 75°F.

## TECHNICAL DATA

TL-222-S Cure times (Note – Curing time varies with temperature, air movement, humidity and lining thickness.)

<u>Temperature</u>	<u>Pot Life</u>	<u>Re-coat</u>	<u>Service</u>
75 °F	35-45 minutes	Min – 5 hours Max – 72 hours	48 hours
50 °F	45-60 minutes	Min – 12 hours Max – 7 days	72 hours

## TYPICAL PROPERTIES –CURED

<b>Property</b>	<b>Result</b>
Hardness, Shore D (ASTM D-2240):	80-85
Tensile Strength (ASTM D-638):	4000 psi (27.6 MPa)
Tensile Elongation (ASTM D-638):	0.6%, average
Flexural Strength (ASTM D-790):	12500 psi (86.2 MPa)
Bond Strength to Steel (ASTM D-4541):	1850 psi (12.8 MPa)
Bond Strength to Primed Concrete (ASTM D-4541):	>Strength of Concrete
Abrasion Resistance (CS17, 1000g, 1000 cycles) (ASTM D-4060):	25-30 mg lost
Water Vapor Transmission/Permeability (ASTM E-96):	0.0008 Perm-Inch
Heat Deflection Temperature (HDT) ASTM D-648):	325 °F

## COVERAGE, STORAGE AND PACKAGING

Theoretical coverage:	1331 sq. ft./gal/mil (83 ± 2% volume solids)
Color:	Black
Storage conditions:	Store between 35 °°F and 75 F
Shelf life:	3 months at 75 °F*
Packaging:	1-gallon and 5-gallon units, drums
Weight per gallon:	10.2 lbs.

\*Shelf life can be prolonged with refrigeration

Keep TL-222-S components tightly sealed in their original containers until ready for use. Store out of direct sunlight.

## JOB SITE ENVIRONMENTAL CONDITIONS

The temperature of the surface to be coated 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.

All surfaces to be lined must be free of all dirt, oil, grease, chemical contamination, salts, incompatible coatings and other deleterious substances.

## **JOB SITE STORAGE OF MATERIAL**

Proper storage of these materials is critical to handling characteristics and performance.

Store all components at job site in unopened containers in a dry place, at 50-75°F (cooler for longer term storage), out of direct sunlight, and protect from the elements. Keep away from heat and flame.

24 hours before use, narrow the temperature of the storage conditions to 75-85°F to facilitate handling and sprayability of the product.

## **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-222-S.

## **SURFACE PREPARATION OF STEEL**

1. Abrasive blast steel surfaces to a minimum near white metal finish with a 3.5 to 5 mil anchor profile. (Ref. SSPC-SP-10)
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. Avoid skip welds. Grind all sharp projections and round all corners to a 1/8" radius.
3. Stripe-coat all welds just prior to applying coating.
4. Steel in Non -Immersion Service  
Abrasive blast steel surfaces to a near white metal finish with 2 to 4 mil anchor profile. (Ref. SSPC-SP-10)

## **SURFACE PREPARATION OF 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. Prime concrete surfaces with Primer 205. All voids, pits, rock pockets, and honeycombed surfaces should be filled with Blome CP-100 or CP-110HB vinyl ester mortar prior to application of TL-222-S.

## **MASKING**

Mask surfaces that are not to be coated. TL-222-S is difficult to remove, once cured.

## **PRIMING**

Note - Priming of steel is optional.

Mix and apply primer by brush, roller or spray. Apply at 6-8 mils. Do not allow primer to puddle. Coverage rate should be 200 – 250 square feet per gallon. Allow primer to cure tack free before proceeding with application of TL-222-S.

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 CP-100/CP-110HB vinyl ester mortar and allow to cure tack free before application of TL-222-S.

## APPLICATION

Blome TL-222-S is a high viscosity material and requires special measures to be taken during application. Application methods include conventional airless and plural component (catalyst injection – **PREFERRED application method**). Use multidirectional passes to ensure positive coverage and proper film build.

Apply TL-222-S in a minimum of two coats allowing each coat to cure tack free before applying the next coat. The maximum thickness of a single coat on a vertical surface will be 30 mils at 75-85°F.

## MIXING

### Conventional (Single Component) Spray Equipment

Using a Jiffy-type mixer, stir Part A for 1-2 minutes until a smooth, uniform consistency and color is achieved.

For every gallon of Part A, add 2-4 ounces of Part B (catalyst), and mix thoroughly for 2-3 minutes (note: catalyst is supplied in pre-measured containers in quantities of 3 oz. catalyst per gallon of resin). Be sure to scrape the sides and bottom of the mixing pail to ensure thorough mixing. Do not whip air into mix.

Pot life of the mixture using 2 ounces of Part B per gallon of resin will be approximately 35-45 minutes at 75°F (significantly less at elevated temperatures). The longer the material is in the pail after mixing, the shorter the pot-life will be...USE IMMEDIATELY. Do not mix more material than can be used in 25-35 minutes at 75°F. Material that has begun to set cannot be thinned with additional resin or solvent.

All tools, mixing equipment, gloves and application equipment should be cleaned up immediately using a citrus or biodegradable cleanser, with hot water, while material is still wet. If material begins to cure, solvent-based cleaners will be required for removal.

### Catalyst Injection Spray Equipment

Stir Part A to a smooth, uniform consistency and color using a Jiffy type mixer. (Note – Resin and Catalyst are not premixed when using catalyst injection equipment).

## SINGLE COMPONENT SPRAY

### Conventional airless heavy-duty spray equipment:

Pump ratio:	min 60:1 (See Note below)
Pump output:	min. 12 litres/minute (theoretical)
Input pressure:	min. 6 bar/90 psi
Spray hoses:	max. 50 metres/150 feet, 3/8" internal diameter, nylon lined
	max. 3 metres/10 feet, 1/4" internal diameter
Nozzle pressure:	2800 psi at 25°C/77°F
Regular surfaces:	
Nozzle size:.	.033" through .039" reversible tip
Fan angle:	40-60°

(Airless spray data are indicative and subject to adjustment)

**Filter:** Surge tank filter and tip filter should be removed.

**Note:** Avoid the use of a suction hose. Use an interchangeable pipe, which makes it possible to remove cured paint.

The pump should preferably be fitted with leather seals although Teflon (PTFE) seals are acceptable for small jobs.

Pump ratio 60:1 is recommended, however, if only 45:1 is available, it is recommended to shorten the hoses to 15 metres/50 feet (Min. 1/2" internal diameter). Before application starts, the filter should be removed and hoses should be washed with MEK.

## CATALYST INJECTION

### Catalyst Injection Rig: RECOMMENDED APPLICATION METHOD

The use of a High Production Catalyst Injection Spray Unit is highly recommended. CI pump should be equipped with a 7.5 gal S.S material hopper/w cover and inline material heater. The use of insulated/heated hose set is recommended for spray applications in cool weather. (For optimal atomization, warm TL-280 base resin to 90F prior to spray application.) Pump should be capable of maintaining 2,800 to 3,200 psi at the spray tip. A Century AA gun w/tungsten carbide needle and seat w/ 4409 fluid nozzle, .028 external catalyst injector works well for spraying TL-222-S.

Typical nozzle sizes range from 3609 to 4409

### SPRAY METHOD

Use multidirectional passes to ensure positive coverage and proper film build. Apply TL-222-S in a minimum of two coats allowing each coat to cure tack free before applying next coat. The base coat should be applied at 25-30 mils.

## **INSPECTING FOR PINHOLES**

Spark test cured lining at 100 volts per mil. Mark all pinholes and repair using the following touch-up procedure. Retest only the areas that have been repaired.

## **TOUCH UP/RECOATING**

Allow material to cure firm to the touch. If surface is not contaminated and has not cured beyond 72 hours at an average temperature of 75°F, no intercoat prep is required. If surface has been exposed to contamination or has cured beyond 72 hours or has been exposed to direct sunlight for over 12 hours do the following: Remove any contamination and mechanically abrade. Apply lining material and allow to cure.

## **CLEANUP**

Before material gels, tools and equipment should be cleaned solvents such as MEK or toluene. Chlorinated solvents may be used if flammable solvents are prohibited.

## **SAFETY PRECAUTIONS FOR INDUSTRIAL USE ONLY**

The various components of TL-222-S 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, and protective clothing and rubber gloves while mixing or applying these products. Refer to Material Safety Data Sheet prior to using these products.

## **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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