

TL-191

High Performance, High Temperature, Novolac Epoxy Lining and Coating System

PRODUCT DESCRIPTION

TL-191 is a 100% solids, Novolac epoxy for demanding tank lining applications that require high film builds and short cure times at low temperatures. It can be applied at thickness' ranging from 15 mils to 60 mils in single or multiple coats. TL-191 has a typical immersion temperature resistance of 180 °F (consult Blome Technical Service Department for specific temperature recommendations). TL-191 is also suited for coating structural steel in harsh fume or vapor service. Blome TL-191 has excellent resistance to splash & spills of many corrosive chemicals.

TL-191 is a two component product with a 4:1 volumetric mix ratio. It is typically applied by plural component spray equipment, brush or roller at thicknesses of 15 to 60 mils in one or two coats. TL-191 offers excellent resistance to crude oil and brine water. TL-191 offers high impact resistance, resistance to cracking when exposed to torsional twisting, excellent edge coat properties, good surface tolerance, and superior bond strength to steel and concrete.

GENERAL USES

TL-191 is suitable for a variety of lining and coating applications including:
 Crude Oil Production Storage Tanks (interior and exterior)
 Produced (Brine) Water Storage Tanks
 Fuel and Oil Storage Tanks
 Rail Car "center bands"
 Structural Steel

HANDLING CHARACTERISTICS

TL-191 may be applied using a spray rig as directed by the manufacturer. Blome International recommends using a plural component spray rig equipped with a 4:1 volumetric ratio apparatus. TL-191 may be applied using brush or rollers. Application thickness will vary dependent upon service conditions. Consult Blome Tank Lining Systems Guide or Blome Technical Service for specific thickness recommendations.

TYPICAL PROPERTIES-WET

Solids by Volume:	100%
Weight per Mixed Gallon:	9.5
Pot-life: 35°F:	40-50 min
75°F:	20-25 min
Cure Time (approximate): Dry To Touch: 35°F:	8 hrs
75°F:	5 hrs
Firm: 35°F:	24 hrs
75°F:	12 hrs
Chemical Service: 35°F:	72 hrs
75°F:	36 hrs
Primer:	Steel: optional
Flammability:	Nonflammable

TYPICAL PROPERTIES –CURED

Color:	Gray & Red
Hardness –ASTM D-2240 Shore D:	78
Compressive Strength -ASTM C-579:	15,800 psi
Tensile Strength –ASTM D-638:	8,000 – 8,500 psi
Flexural Strength –ASTM D-790:	9,750 – 10,250 psi
Permeability:	0.003 perm. – in.
Bond Strength – Steel:	2000 - 2200 psi

PACKAGING & STORAGE

TL-191 is packaged in 1-gallon, 5-gallon, and 25-gallon units. Each unit consists of a premeasured Part A and Part B components.

Keep TL-191 tightly sealed in original containers until ready for use. Store at 50°F to 75°F, out of direct sunlight. Properly stored, TL-191 products have a minimum shelf life of one year. Refer to lot number printed on label for date of manufacture.

BID SPECIFICATION GUIDE

Use TL-191 100% solids, aliphatic/cycloaliphatic/aromatic amine cured, Novolac epoxy tank lining system as manufactured by Blome International, O'Fallon MO.

APPLICATION GUIDELINES

ENVIRONMENTAL CONDITIONS

Weather conditions, especially dew point, should be constantly monitored during the work being done. Final blast cleaning and application of tank lining system must only be performed when the temperature of the steel substrate will not fall within 5°F of the dew point. Dehumidification and/or temperature control may be necessary to meet this requirement. Use a surface thermometer to frequently monitor the temperature of the steel substrate before and during application.

JOBSITE STORAGE OF MATERIALS

Proper storage of Blome International products is important to a successful application. Store components (Part A and Part B) unopened, in a dry place, at 50°F to 75°F, out of direct sunlight, and protected from the elements. Keep away from heat and flame. For the 24 to 36 hours just prior to use adjust the storage temperature to 75°F to 85°F to facilitate handling.

SURFACE PREPARATION

Immediately prior to application of the product:

The steel substrate must be clean of all oil, grease, dirt, dust, mill scale, rust, flash rust, corrosion product, salts, solvents, chlorides, other chemicals, and existing coatings. All welds must be smooth and continuous. All weld splatter, buckshot, laminations, and slivers must be removed and ground smooth; undercuts and pinholes must be ground smooth and filled with weld metal. All projections, high points, sharp edges, and fillets must be ground smooth to a radius of at least 1/8 inch and all corners must be rounded. All pitting, scratches, gouges, and other defects must be repaired either by welding or by filling with Blome 83MP repair materials that are compatible with TL-191 and suitable for the intended service conditions. All surfaces to be coated or lined must be readily accessible. For tank linings, the steel must be blasted to a White Metal Finish (NACE No. 1, SSPC SP 5) with a 3 to 5 mil dense, sharp anchor profile. For exterior coatings, the steel must be blasted to a Near White Metal Finish (NACE No.2, SSPC SP 10) with a 2 to 3 mil dense, sharp anchor profile.

MASKING & PROTECTION

Mask or remove adjacent surfaces and equipment that are not to be lined. Protect nearby equipment from spent abrasive exiting the tank while blasting.

APPLICATION EQUIPMENT

TL-191 may be applied using a plural component spray rig. Brush, roller or conventional spray can be used for touch up/repair work. Spraying TL-191 (Plural component application is recommended):

1. Use a plural component airless spray rig with a fixed ratio of 4:1 such as a Graco "King" Hydro-Cat or equal.
2. Always use spray equipment in accordance with equipment manufacturer's instructions.
3. Care of Spray Rig Hoses:
Take care to prevent the mixed material from setting up in your hoses. Keep hoses as short as possible, purge them immediately if work is interrupted, keep them out of direct sunlight and insulated, or away from hot surfaces.

The mix ratio of Part A to Part B is 4:1 A to B by volume.

MIXING TECHNIQUE

Use Jiffy type mixers for all mixing. When operating the mixer avoid plunging it up and down in the bucket. This will fold air into the resin, causing bubbles to form after the coating has been applied.

WORKING TIME

The working time for mixed material is short. If work is delayed, even momentarily, immediately flush the whip hose and gun.

The warmer the components are when mixed, the shorter the working time will be. But, materials should be at least 90°F to spray properly. If possible, shade the spray rig.

Keep hoses as short as possible. Keep hoses out of direct sunlight and insulated, or away from hot surfaces. Purge hoses immediately if work is interrupted.

Stripe all welds and edges with a brush coat to assure adequate protection of these areas.

All spot welds should be puttied before applying final coats. Refer to project specifications and/or Blome International for putty material recommendations.

MIXING & APPLICATION

1. Individually stir Part A and Part B components to a smooth, uniform consistency and color. Any settling in the containers must be thoroughly scraped up and remixed prior to mixing or application (do not mix together unless making a small batch).
2. For application by plural component spray (recommended): Pour the pre-mixed Part A & Part B components into their respective hoppers on the rig. Circulate the separate components through their hoses until both reach the correct working temperature. Part A should be at least 100°F (ideally, 105-110 °F), and Part B should be at least 90°F (ideally 90-100 °F.)
3. For small batches (e.g., touching up with a brush or conventional spray equipment. Pour the entire contents of Part B into the container holding the Part A, and mix thoroughly for 2 minutes. The pot life of the mixture will be approximately 20 to 25 minutes

at 75°F (Significantly less at higher temperatures). The longer the material is in the bucket after mixing, the shorter its pot life will be. Use it immediately once mixed.

4. Apply the TL-191 at the specified mil thickness and allow to cure. Use a wet mil thickness gauge and frequently monitor lining thickness.

Note: Post curing may be desirable in certain circumstances, such as extremely aggressive environments. Contact Blome International for additional information.

TOUCH UP OR RE-COATING

Before any touch-up or re-coat material can be applied; the first coat must be properly prepared for maximum inter-coat adhesion.

- 1) The first coat must be cured firm to the touch, clean, dry and free of blush or surface contaminants.
- 2) If the lining materials to be recoated has cured beyond 24-hours or has been in direct sunlight for more than 12 hours, the surface must be cleaned and abraded to remove gloss prior to application of the recoat material.

CLEAN UP

The following tips will be helpful in cleaning hand tools and equipment after use:

Before TL-191 gels, it can be cleaned from hand tools and equipment using hot, soapy water.

Spray equipment should be cleaned and flushed with solvents before coating material begins to gel.

Follow equipment manufacturer's recommendations for proper cleaning and care instructions.

After TL-191 gels, solvents will be required for cleaning. Chlorinated solvents may be used if flammable solvents are prohibited.

CAUTION

TL-191 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.

Revised: December 7, 2012
Supersedes: December 7, 2012