**Product Code:**
**PBS (regular)**
**PBS-F (fast)**

**TECHNICAL DATA SHEET**

# Liquid Metal

A low viscosity, metal-filled, two-part compound which can be applied by brush to provide a protective coating to steel and other metals from corrosion and chemical attack. Liquid Metal is ideal for the maintenance and repair of pumps, impellers, flange faces, water box ends, valves, metal castings, pipe elbows and tanks. It can be used on metal and most plastics and can be easily machined.

When used for pipe-reinforcement, Liquid Metal is used as a corrosion resistant coating and as a load-transfer layer when applied prior to overwrapping with SylWrap pipe repair bandages.

In factories and on vehicles, Liquid Metal is used to bond silicon carbide grit to foot plates, ramps and floors to provide a non-slip, especially in wet conditions. It is also used as an adhesive when re-gritting potato peeler drums. In the automotive industry, Liquid Metal is used for radiator core, Intercooler, condenser & fuel tank repairs.

**Description**
Liquid Metal provides a corrosion-protective, wear-resistant, low friction finish. The light consistency makes it easy to mix and apply with a brush, with little sag. In addition, Liquid Metal is virtually odourless, with no unpleasant smell.

The resin container has enough room to dispense all of the hardener into the resin so that Liquid Metal can be applied with a brush straight from the pack. The regular version has a 90 minute gel time allows larger quantities to be mixed in one go, meaning:
- enough time to complete the job - no need to worry that the paste will cure before completion
- longer pot-life at higher ambient temperatures, making Liquid Metal suitable for warm climates with less chance of premature curing.

**Applications**
- Pumps, impellers, flange faces, water box ends, valves, metal castings, pipe elbows, tanks etc.
- Applications requiring protection against corrosion and chemical attack.
- Moulding into casts
- Bedding in/ anchoring of bolts into concrete

**Advantages**
- Easy to apply with a brush.
- Solvent free
- Excellent adhesion
- Does not shrink
- Long working time

**Directions for Use**
**Surface Preparation**
- Surfaces must be prepared prior to application.
- All surfaces must be dry and free from grease. Clean and roughen surface for optimum adhesion.
- Remove all paint, rust and grime from the surface by abrasive blasting or with sandpaper.
- Aluminium: remove oxidation from surface for optimal adhesion.
- Roughen the surface first, ideally by grit blasting (8-40 mesh grit), or through grinding with a coarse wheel or abrasive disc pad. An abrasive disc may be used, provided white metal is revealed. Roughening the surface creates a “key” which improve the grip of the coating to the substrate.
- Metal which has been in contact with seawater or other salt solutions should be grit blasted and high pressure water blasted, and then left overnight to allow salts in the metal to 'sweat' to the surface. Repeat this process if necessary to 'sweat out' all of the soluble salts.
  - Test for chloride contamination before application.
  - The maximum soluble salts left on the substrate should be no more than 40 ppm.
- Use a solvent cleaner to remove all traces of sandblasting, grit, oil, grease, dust or other foreign substances.
- In cold working conditions, it is recommended that the repair area is heated to 37ºC - 43º C prior to application. This will dry off any moisture, contamination or solvents for maximum adhesion.
- Apply as soon as possible after preparation of the substrate to avoid oxidation or rusting.

**Application Method**
- Apply using a paintbrush.
- Each coat should be 0.5-1.0mm per coat. Apply at least two coats to ensure a pinhole-free coating.
- Re-coat time between coats is approximately 4-8 hours after applying

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- A tack-free finish will be achieved about 4 hours after applying
- Functional cure is reached in about 24 hours at 22ºC.
- Cure can be accelerated using heat after the coating has been allowed to harden at ambient temperature. Material will fully cure at 100ºC in 2 hours.

**Technical Data**
***Values for Fast version in brackets***

MINIMUM SHELF LIFE (months @ 24°C,) .....24
MIX RATIO (WEIGHT) .....5:1
MIX RATIO (VOLUME) .....3:1
GEL TIME (minutes).....90 (fast: 45)
RECOAT TIME (hours).....4 - 8 (fast: 4 - 6)
FULL CURE (hours).....24 - 48
THICKNESS PER COAT (mm) .....0.5 - 1.0
HARDNESS, SHORE D (full cure, 24 hrs.).....>80
TENSILE STRENGTH (MPa).....28
COMPRESSIVE STRENGTH (MPa) .....59
FLEXURAL STRENGTH (MPa) .....58
DENSITY (gm/cm$^3$) .....1.55
SHRINKAGE (%) .....<1
NON-VOLATILE CONTENT (%) .....100
HEAT DISTORTION
Cured at room temperature (°C) .....50
Post cured (°C).....117
MAXIMUM SERVICE TEMPERATURE (°C).....150
COVERAGE (per kg)
0.5mm thick (m²) .....1.2
0.020in thick (ft²) .....13
*(values are typical and should only be used as a guideline)*

**Post Curing**
Heat resistance can be as high as 150°C. In order to achieve maximum temperature resistance, it should be post-cured for maximum performance.
**Post-Cure Instructions:**
1. Cure at room temperature for 24 hours
2. Heat at 80°C for 2 hours
3. Heat at 150°C for 3 hours
4. Allow to cool.

**Packaging**

| Code | Name | Size |
|---|---|---|
| PBS/500g | Liquid Metal | 500g |
| PBS/4x500g | Liquid Metal | 4x500g |
| PBS/2kg | Liquid Metal | 2kg |
| PBS/5kg | Liquid Metal | 5kg |
| | | |
| PBS-F/500g | FAST Liquid Metal | 500g |
| PBS-F/4x500g | FAST Liquid Metal | 4x500g |
| PBS-F/2kg | FAST Liquid Metal | 2kg |
| PBS-F/5kg | FAST Liquid Metal | 5kg |

*Bulk sizes sizes available on request*

**Storage**
Sylmasta epoxy products should be stored out of direct sunlight in dry, frost free conditions at temperatures between 15° and 25°C. Under such conditions shelf life will be 2 years from the date of manufacture.

**Health & Safety**
Consists of epoxy resins and hardener systems, please consult the individual Safety Data Sheet for hazard information. Wear eye protection and rubber or plastic coated gloves, and wash hands with soap and water immediately after use.