

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

TECHNICAL DATA SHEET

Liquid Metal

A low viscosity, metal-filled, two-part compound that 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. Liquid Metal is used extensively in the Automotive Industry for Radiator core/ Intercooler, Condenser & Fuel Tank repairs. Also used for re-gritting of Potato Peeler drums and Base Plates.

Description

Liquid Metal provides 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 improves 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 37°C - 43°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 coating.
- Re-coat time between coats is approximately 4-8 hours after applying
- A tack-free finish will be achieved about 4 hours after applying
- Functional cure is reached in about 24 hours at 22°C.
- Cure can be accelerated using heat after the coating has been allowed to harden at ambient temperature. Material will fully cure at 100°C 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 (m ²)	1.2
0.020in thick (ft ²)	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 available on request

Storage

Sylmasta Epoxy Pastes 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

Sylmasta Epoxy Paste consists of epoxy resins and hardener systems, please consult the individual Material 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.