



Unique Polymer Systems

ADVANCED POLYMER SURFACE ENGINEERING TECHNOLOGY

Unique Polymer Systems - 'Plastic Steel'



Unique Polymer Systems - 'Plastic Steel' is a high performance, rapid-curing, synthetic metal repair compound specifically developed for on site repairs to metal components such as castings, worn threads, jigs and mould patterns.

Unique Polymer Systems - 'Plastic Steel' is based on a unique epoxy resin system co-reacted with an organo-sulphur / amine blend which are then interspersed with specially chosen pigments and fillers which allow the base and activator components to be packed in intimate contact with each other. The reaction only occurs when the two components are hand mixed and the resultant blend produces a repair material with high physical and mechanical strength.

Unique Polymer Systems - 'Plastic Steel' also has the ability to set underwater which makes it highly suitable for submerged conditions.

Before proceeding, please read the following information carefully to ensure that the correct application procedure is fully understood.

SURFACE PREPARATION

Heavy contamination due to oil or grease must be removed using **Unique Polymer Systems Cleaner**.

All loose material, rust and surface contaminants, including existing coatings, must be removed and the surface roughened by using an angle grinder, needle gun or abrasive blasting. Where grinding is used, the surface should be cross-scored to improve adhesion. Care must be taken, when angle grinding, to avoid polishing rather than roughening metal surfaces.

Surfaces should be carefully degreased again using **Unique Polymer Systems Cleaner**. Cloths should be frequently changed to avoid spreading contamination. On deeply pitted surfaces or porous castings, **Unique Polymer Systems Cleaner** should be worked into the surface by brush and washed off using excess cleaner.

MIXING

Before mixing, hands should be treated with barrier cream or lightweight disposable gloves should be worn.

Sufficient product to complete the repair should be cut or broken from the stick. This should then be twisted and kneaded until a uniform colour is achieved with no streaks. The two components are colour coded to ensure complete mixing is achieved when the colour is uniform.

Unique Polymer Systems 'Plastic Steel' should be used within 6 minutes of mixing at 20°C (68°F). This time will be reduced at higher temperatures or extended at lower temperatures.

APPLICATION

Prepared surfaces should be dry. The mixed material should be pressed firmly onto the prepared area, working the material into any cracks and surface defects.

When **Unique Polymer Systems 'Plastic Steel'** is being used to repair leaking pipes, the flow through the pipe should be discontinued until the repair is made and the **Unique Polymer Systems 'Plastic Steel'** is set. Any leaking fluid must be wiped from the prepared surface to render the surface as dry as possible before undertaking the repair.

When being used underwater it is important that **Unique Polymer Systems 'Plastic Steel'** is applied direct to the parent material and not to a film of water. This can be achieved by applying finger pressure to the centre of the repair and moving the pressure progressively outwards towards the periphery, thereby excluding the moisture film between the repair and the parent material.

Volume Capacity: 66 cc (4 cu. in) per unit.

TECHNICAL DATASHEET UPS19060

Unique Polymer Systems - 'Plastic Steel'

PHYSICAL CONSTANTS

Mixing Ratio - Supplied ready to use

Appearance

Concentric coloured stick of putty consistency.

Drying & Cure times at 20°C (68°F)

Usable Life	6 minutes
Initial Set	15 minutes
Machining	30 minutes
Full Mechanical	2 hours

Volume Solids

100%

V.O.C

Nil

Shelf Life

Use within 5 years of purchase. Store in original sealed containers at temperatures between 5°C (40°F) and 30°C (86°F).

Food Contact

Meets USDA requirements for incidental food contact.
Meets FDA requirements CFR 21.175.300 for food contact.

Operating Temperature

	Maximum	Continuous
Dry Heat	250°C (480°F)	120°C (248°F)
Wet Heat	120°C (248°F)	70°C (158°F)

PHYSICAL PROPERTIES

Compressive Strength 350 kg per cm² (5000psi)
ASTM D695

Tensile Shear Adhesion 45 kg per cm² (5000psi)
ASTM D1002
(Grit Blasted Steel)

Flexural Strength 230 kg per cm² (3250psi)
ASTM D790

Heat Distortion Temperature 40°C (96°F)
ASTM D648

Hardness (Shore D) 85
ASTM D785

Corrosion Resistance 5000 hours
ASTMB117

HEALTH AND SAFETY

As long as normal good practice is observed **Unique Polymer Systems - 'Plastic Steel'** can be safely used. Keep skin contact to a minimum. Use barrier cream or disposable gloves. Wash off areas of contact with soap and water.

A fully detailed **Material Safety Data Sheet** is either included with the material or is available on request.

PACKAGING

Supplied in 0.125kg packs.

FOR FURTHER INFORMATION PLEASE CONTACT

The information provided in this Product Data Sheet is intended as a general guide only and should not be used for specification purposes. The information is given in good faith but we assume no responsibility for the use made of the product of this information because this is outside the control of the company. Users should determine the suitability of the product for their own particular purposes by their own tests.



Unique Polymer Systems

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