

## PES-CHEM 511 UCEN

**PES-CHEM 511 UCEN** is a high build solvent-free epoxy novalac coating designed to provide outstanding chemical and corrosion protection of steel and concrete structures. The coating is particularly resistant to attack by strong acids including 98% sulphuric acid.

### Typical applications

Chemical containment and bund areas, tanks, pumps, chemical drains and channels and pipework.

### Characteristics

#### Appearance

Base: Red/Grey Paste  
Activator: Amber liquid  
Mixed: Red/Grey thixotropic liquid

#### Mixing Ratio

By weight: 4:1  
By volume: 3:1

#### Density

Base: 1.41  
Activator: 1.02  
Mixed: 1.32

#### Solids content

100%

#### Sag Resistance

Nil at 20 mils (500 microns)

#### Useable Life

54°F (12°C) 50-60 minutes  
68°F (20°C) 30-40 minutes  
86°F (30°C) 15-20 minutes

### Coverage

Apply the mixed material onto the prepared surface by brush or roller. This should be in two coats at a target thickness of 10 Mils. (250 microns), per coat using a practical coverage rate of 37 sq. ft. (3.5 sq. metres) per litre per coat. On rough concrete surfaces the coverage rate of the first layer in particular will be significantly reduced.

### Cure Times

At 68°F (20°C) the applied materials should be allowed to harden for the times indicated below before being subjected to the conditions indicated. These times will be extended at lower temperatures and reduced at higher temperatures:

Movement without load or immersion	6 hours
Light loading	12 hours
Full loading/water immersion days	4
Chemical Contact days	7

For optimum performance, after an initial curing period of at least 12 hours at 68°F (20°C), raising the cure temperature progressively to 140-176°F(60 - 80°C) for up to 8 hours will result in improved chemical resistance properties.

### Storage life

5 years if unopened and stored in normal dry conditions 59-86°F (15-30°C)

## Mechanical Properties

### Adhesion

Tensile Shear to ASTM D1002 on abrasive blasted mild steel with 3-4 Mils. (75 micron) profile

(2950 psi) 208 kg/cm<sup>2</sup>

### Compressive strength

Tested to ASTM D 695  
(13,950 psi) 984kg/cm<sup>2</sup>

### Corrosion Resistance

Tested to ASTM B117

Minimum 5000 hours

### Flexural Strength

Tested to ASTM D790  
(12,300 psi) 871 kg/cm<sup>2</sup>

### Hardness

Shore D to ASTM D2240  
68°F (20°C) 85  
212°F (100°C) 50

### Heat Distortion

Tested to ASTM D648 at 264psi fibre stress.  
68°F (20°C) Cure 126°F(52°C)  
100°C Cure 167°F (75°C)

### Heat Resistance

Suitable for use in immersed conditions at temperatures up to 140°F (60°C) dependent on chemical contact.

## Chemical Resistance

PES-CHEM 511 UCEN offers excellent resistance to the following chemicals when tested at 68°F (20°C):

### Inorganic Acids

Chromic 10%

# Product Specification



Hydrobromic	40%
Hydrochloric	36%
Nitric	10%
Nitrous	10%
Phosphoric	40%
Sulphuric	98%

## Organic Acids

Acetic	10%
Carbonic	30%
Citric	30%
Folic	20%
Formic	10%
Lactic	10%

## Alkalis

Ammonium hydroxide	30%
Potassium hydroxide	20%
Sodium hydroxide	40%

## Alcohols

Butanol	100%
Ethanol	100%
Ethylene glycol	100%
Hexanol	100%
Propylene glycol	100%

## Amines

Aniline	100%
Diethanolamine	100%
Hydrazine	100%
Methylamine	40%

## Aliphatic Hydrocarbons

Cyclohexane	100%
Hexane	100%
Octane	100%

## Aromatic Hydrocarbons

Benzene	100%
Naphtha	100%
Toluene	100%
Xylene	100%

## Quality

All Polymeric Engineered Solutions Products are supplied under the scope of the company's fully documented quality system.

## Warranty

Polymeric Engineered Solutions warrants that the performance of the product supplied will conform

to the typical descriptions quoted within this specification provided material is stored correctly and used according to the procedures detailed in the Technical Data Sheet for the material.

Sheet

**Legal Notice:** The data contained within this Product Specification is furnished for information only and is believed to be reliable at the time of issue. We cannot assume responsibility for results obtained by others over whose methods we have no control. It is the responsibility of the customer to determine the products suitability for use. Polymeric Engineered Solutions accepts no liability arising out of the use of this information or the product described herein.

## Health and safety

Please ensure good practice is observed at all times during the mixing and application of this product. Protective gloves and other recommended personal Protective equipment must be worn during the mixing and application of this product. Before mixing and applying the material please ensure you have read and fully understood the detailed Material Safety Data