

Technical Data Sheet

Epox-7311

(Epoxy adhesive with mechanical strength and high fatigue resistance)

Product Description

A two component fatigue resistant adhesive, optimized for structural bonding applications requiring high mechanical strength, cleavage and shear resistance. Suitable for typical wet and dry service applications up to 60 C (140 F). for use in original equipment manufacture or repair situations.

Application areas

When mixed and applied as detailed in the instruction for use, the system is ideally suited for application to the following

Plate bonding	returning strength to structure	load bearing clips
Bonding of brackets	rudder bearing installation	bonding vessel furniture
Support installation	housing bonding	bonding of composite plates

Typical Properties

Property	part A	part B	mixed system
Appearance	soft paste	soft past	soft paste
Colour	blue	cream	blue
Density (g/cm3)	1.2	1.2	1.2
Pot life at 25°C, 100 g, min			40 min

Processing

Mix ratio Product	by weight
Part A resin	100
Part B hardener	33

Pretreatment

The strength and durability of a bonded joint are dependent on proper treatment of the surfaces to be bonded. At the very least, joint surfaces should be cleaned with a good degreasing agent such as acetone, isopropanol (for plastics) or other proprietary degreasing agents in order to remove all traces of oil, grease and dirt. Low-grade alcohol, gasoline, or paint thinners should never be used. The strongest and most durable joints are obtained by either mechanically abrading or chemically etching the degreased surfaces. Abrading should be followed by a second degreasing treatment.

Instructions for use

1. to ensure an effective molecular weld

metallic surfaces – apply only to blast cleaned surfaces

- a. brush away loose contamination and degrease with a rag soaked in (cleaner/degreaser) or any other effective cleaner which does not leave a residue e.g. methyl ethyl ketone (MEK).
- b. Select an abrasive to give the necessary standard of cleanliness and minimum depth of profile of 3 mils. use only an angular abrasive.
- c. Blast clean the metal surface to achieve the following standard of cleanliness
Iso 8501-1 sa 2 ½ very thorough blast cleaning
- d. To ensure the surface is clean after blasting, remove any residual dust or debris using dry compressed air suitable vacuum equipment.
Alternatively, should it be practical to do so e.g. for smaller component or external articles, an additional solvent wash/clean can be carried out to remove residuals from the blast process.
- e. After blasting, metal surfaces should be coated before any oxidation of the surface takes place
- f. Brush away loose contamination and if required, degrease with solvent /cleaner which is suitable for the substrate.
- g. Roughen surfaces by blast cleaning, deeply scoring or grinding.
- h. To ensure the surface is clean after roughening, remove any residual dust or debris using dry compressed or suitable vacuum equipment.

Alternatively, should it be practical to do so e.g. for smaller component or external articles, an additional solvent clean can be carried out to remove residuals from the roughening process using suitable solvent for the substrate.



2. Applying

For the best results

Do not apply when

- a. The temperature is below 41 F(5 C),above 60 C or the relative humidity is above 90%
- b. rain, snow, fog or mist is present
- c. there is moisture on the metal surface or is likely to be deposited by subsequent condensation.
- d. The working environment is likely to be contaminated by oil/grease from adjacent equipment or smoke from kerosene heaters or tobacco smoking.

2-1 Apply the Epox-7311 directly on to the prepared surface with applicator our spatula provided

2-2 If required, use a suitable tape to define the bonding area, ensuring it can be easily removed without disturbing the joint.

2-3 On both prepared surfaces of the adhesive joint, using a short bristled brush or suitable application tool, apply a thin layer of Epox-7311 ensuring is fully wets out the blast profile.

2-4 Apply additional Epox-7311 onto the center of one of the previously prepared surfaces and build up into a peak. This ensures there is sufficient product in the bonded joint and trapped air is squeezed out during step.

2-5 Ensure the bond joint is correctly aligned

2-6 To confirm maximum contact Epox-7311 must exude from all corners and edges of the bonded geometry, the bond line be void free.

2-7 Excess Epox-7311 beyond the adhesive joint, must be chamfered, prior to cure using the plastic applicator

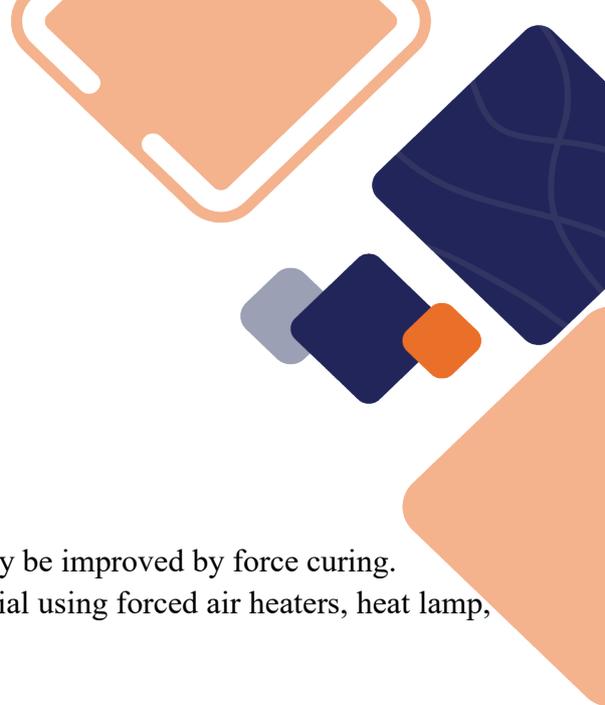
2-8 Ensure any tape used is removed while the product is still wet.

2-9 If required, apply bonding support to hold the plate in place and allow Epox-7311 to cure.

3. Completion of the molecular reaction

Allow Epox-7311 to solidify as below subjecting it to the condition indicated.

Substrate temperature	Minimum self-supporting time	Time to achieve at least 50% adhesive strength	Time to achieve full adhesive strength
5 C/ 41 F	24 hours	48 hours	28 day
10 C/ 50 F	18 hours	24 hours	21 day
20 C/ 68 F	6 hours	6 hours	48 hours
30 C/ 86 F	4 hours	4 hours	24 hours
40 C/ 104 F	2 hours	2 hours	4 hours
50 C/ 122 F	1 hours	1 hours	2 hours
60 C/ 140 F	20 minutes	30 minutes	1 hours



4. Effecting the secondary molecular reaction

The mechanical properties, heat resistance of Epox-7311 may be improved by force curing. Immediately after applying Epox-7311, force cure the material using forced air heaters, heat lamp, ect. For minimum of 1 hour at 60 C.

Equipment maintenance

All tools should be cleaned with hot soapy water before the adhesive residue dries. Removing cooked debris is a difficult and time consuming operation. If solvents such as acetone are used for cleaning, staff should take appropriate precautions and, in addition, avoid skin and eye contact.

Typical Physical Properties

Property	value	test method
Tensile shear		
Mild steel	3600 psi (24.8 mpa)	ASTM D1002
Pull of adhesion	3600 psi(25 mpa)	ASTM D4541
Compressive strength	7680 psi(53 mpa)	ASTM D695
Tensile strength	4790 psi(33 mpa)	ASTM D638
Flexural strength	8410 psi(58 mpa)	ASTM D790
Hardness		
Shore D	78	ASTM D2240
Heat resistance	-40C-200C	ASTM D648
Impact resistance	150 j/m	ASTM D256

health and safety

The adhesive should be stored in closed containers at a temperature of 25 degrees.

After using the material, close the lid of the remaining material tightly.

Before using the material on the surface, make sure that there is no dust, damp or moisture on the surface.

Before using the material, clean the surface from any grease and dirt.

Wear industrial gloves and a mask when using materials.