

# ERS™480

## Epoxy Resin Saturant for Underwater Applications



Building  
&  
Transportation



Oil, Gas  
&  
Industrial



Offshore  
&  
Onshore



Water  
&  
Wastewater



### PRODUCT DESCRIPTION

The CTech-LLC® Under-Water Epoxy (ERS™480) is a high-strength, two-component epoxy consisting of epoxy resins, hardeners and designed for under-water application. It is a 100% solids formulation with low toxicity and low odor during cure and features a unique 12-hour turnaround to service without force cure or specialized equipment.

### ADVANTAGES

- High strength, modulus and structural paste adhesive.
- Fully compatible and excellent adhesion.
- Extremely durable and resistant to temperature and moisture. They also have high fatigue strength.
- High mechanical and chemical resistance.
- Tolerant of salts in concrete and groundwater
- Paste consistency ideal for under-water applications.
- 100% solvent free.
- 12 hour full cure.
- ERS™480 is easy to install.
- Creates watertight construction joints
- Solves detailing problems.
- High final compressive strength.
- Environmentally sound.

### TYPICAL USES

ERS™480 under-water epoxy is formulated for use as the patching and bonding material, primer and adhesive in fiber wrap and carbon or glass laminates applications.

ERS™480 epoxies are high-performance adhesives which are widely used in strengthening and retrofitting of different types of structures such as concrete, masonry, wood, stone, steel and manufacturing composite products.

Under-water epoxy can also be used to coat or repair concrete and steel materials in under-water and splash zone applications providing protection against corrosion, erosion and deterioration from salt or fresh water.

### INSTALLATION PROCEDURE

#### SURFACE PREPARATION

For retrofitting applications, substrate preparation can highly effect on the systems. All the surfaces must be cleaned from dirt, grime, dust, curing compounds, oils, grease, waxes, spalling concrete and all the other contaminated materials which may cause voids behind the composites.

All the surfaces need grinding, sandblasting, shot-blasting, pressure wash or other common mechanical methods to reach an even concrete substrate. one of the most commonly ways to remove dust and dirt is the use of high pressure water, which drives the surface of the concrete and removes the damaged layer. In this case, steel beams are cleaned without cutting with water pressure. Application of CTech-LLC® ERS™480 should begin promptly after surface preparation to reduce possibility of surface contamination.

#### MIXING

Under-water Epoxy has a high viscosity and, thorough mixing is necessary. Epoxy compounds are usually supplied in two different containers. Before pouring the contents of component B into contents of component A, each part should be stirred separately to avoid deposit in container. Then part A and B should be mixed together depending on the required quantity. Process of mixing should take 3-5 minutes. Mix with a slow speed mixer (350 rpm) or by hand. Continue until an

even color is developed.

After mixing resin and hardener, ERS™480 should be used in 25-30 minutes. Clean mixing tools with a proper towel to reuse them.

#### APPLICATION

Surface of all the contaminated elements must be cleaned thoroughly. ERS™480 epoxy resins are compatible with all types of CTech-LLC® fabrics. Mix part A and B together with a low speed mixer.

Apply ERS™480 resin directly to the prepared substrate for surface embedded bars (NSM application), fill surface grooves using caulk gun or by pouring directly into the groove.

#### TYPICAL MATERIAL PROPERTIES

Mixing ratio, by wt	100:50
Specific Gravity	1.6
Viscosity A & B mixed, cps	14,000 - 18,000
Gel Time, -7° C, hours	2.5 - 3.5
ASTM D695, 7 day compressive strength, MPa	48-55
ASTM D695, 7 day compressive strength, mortar, MPa (gel/uw: sand – 1:1 by volume)	55-62
ASTM D2240	80 - 85
Shore D hardness	

Data presented is typical laboratory values at 24° C.

These products are for professional and industrial use only and are only installed by trained and qualified applicators. Trained applicators must follow installation instructions.

Due to the many variables which can exist in under-water applications, a test application under job site conditions is recommended prior to the start of every project to evaluate both application techniques and adhesion properties.

Do not thin or dilute ERS™480 and do not mix or apply below 4°C. Agitation of the product once under water should be minimized.

#### STORAGE & SHELF LIFE

- ERS™480 under-water epoxy should be stored in a dry and cool place at 4° to 40°. Avoid freezing the product and keep it away from direct sunlight, flame or other hazards.
- Under-water epoxy can be stored for 2 years from the date of manufacture when stored in unopened containers and under appropriate conditions.

#### CAUTION

The epoxy resins and hardeners used in CTech-LLC® Under-Water Epoxy are considerably less toxic than used in most structural epoxy formulations.

However, it is recommended that the products be handled with due care and personal protection equipment should be worn at all times. Some people become sensitized when working with epoxy systems. The sensitization may appear in the form of skin or respiratory reactions. Avoid breathing vapors.

#### CTech-LLC®

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#### IMPORTANT NOTE:

Before using any CTech-LLC® product, the user must review the most recent version of the product's technical data sheet, material safety data sheet and other applicable documents, available at [www.ctech-llc.com](http://www.ctech-llc.com).

#### WARANTY:

CTech-LLC® warrants its products to be free from manufacturing defects. Buyer determines suitability of product for use and assumes all risks. Buyer's sole remedy shall be limited to replacement of product. Any claim for breach of this warranty must be brought within one month of the 'date of purchase. CTech-LLC® shall not be liable for any consequential or special damages of any kind, resulting from any claim or breach of warranty, breach of contract, negligence or any legal theory. The Buyer, by accepting the products described herein, agrees to be responsible for thoroughly testing any application to determine its suitability before utilizing.