

PRODUCT DESCRIPTION

The CTech-LLC® Under-Water Epoxy (UWE™40) 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.

Some of the benefits of using UWE™40 under-water epoxy in strengthening and retrofitting of structures:

- 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.
- Under-water Epoxy is easy to install
- Creates watertight construction joints
- Solves detailing problems
- High final compressive strength
- Environmentally sound

USEE

UWE™40 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.

UWE™40 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.

SHELF LIFE

Under-water epoxy can be stored for 2 years from the date of manufacture when stored in unopened containers and under appropriate conditions.

STORAGE CONDITIONS

UWE™40 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.

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, UWE™40 should be used in 25-30 minutes. Clean mixing tools with a proper towel to reuse them.

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 Shore D hardness	80 - 85

Data presented is typical laboratory values at 24° C.

HOW TO USE

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, shotblasting, 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® UWE™40 should begin promptly after surface preparation to reduce possibility of surface contamination

APPLICATION

Surface of all the contaminated elements must be cleaned thoroughly. UWE™40 epoxy resins are compatible with all types of CTech-LLC® fabrics. Mix part A and B together with a low speed mixer.

Apply UWE™40 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.

LIMITATIONS

Do not mix more material than can be applied within the work

time period. Available work time, temperature and complexity of the application will effect on the process of mixing.

Keep material cool and in shaded area, away from direct sunlight in warm weather. During hot weather, work time can be extended by keeping the material cool before and after mixing or by immersing the pot in ice water.

Minimum application temperature of the epoxy is 20° C.

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.

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 UWE™40 and do not mix or apply below 4°C. Agitation of the product once under water should be minimized.

SAFETY PRECAUTIONS

- Avoid eye contact.
- Do not allow resin contact with skin.
- Use safety gloves and glasses.
- Wear rubber boots and protective suits.
- Do not eat, drink or smoke when using the products.
- Vapor may be harmful, use an approved air mask.
- Utilize adequate safety precautions to prevent fire or explosion.

If any symptoms happened, go to open air and get medical attention.

FIRST AID

If eye contact happened, Flush eyes with large amounts of water and obtain medical attention. In case of skin contact, wash your skin with soap and water and get medical attention if irritation persists. If there is cough or difficulty in breathing, go to open air and get medical attention if it persists. Wash clothing before reuse.

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.