

ERS[™]400

Thixotropic Epoxy Resin Saturant



Building
&
Transportation



Oil, Gas
&
Industrial



Offshore
&
Onshore



Water
&
Wastewater



PRODUCT DESCRIPTION

The CTech-LLC[®] thixotropic Epoxy Resin Saturant (**ERS[™]400**) is epoxy matrix materials for saturating composite fibers and bonding applications. ERS[™]400 is available in forms of gel. The reaction of epoxy with hardener results an outstanding durability material which is a proper matrix for all of the composite systems and structural strengthening works. CTech-LLC[®] epoxy resins offer a wide range of high performance properties like excellent chemical and mechanical resistance and strong adhesion. ERS[™]400 epoxy resins can be used in different fields like strengthening and retrofitting of structural members. These resins are used for saturating of carbon and glass wrap and bonding FRP plates and FRP anchors (in NSM Methods).

ADVANTAGES

- ERS[™]400 epoxy resins have good strength compared with other epoxies.
- ERS[™]400 epoxy resins are extremely durable and resistant to temperature and moisture. They also have high fatigue strength.
- ERS[™]400 epoxy resins have good mechanical and chemical resistance.
- ERS[™]400 epoxy resins have high adhesive strength and in addition to high saturation capability can be used for bonding an extended range of elements and materials like FRP laminates, metal elements, plastics and many other types of materials and elements.
- ERS[™]400 epoxy resin is easy to use and can be known as an eco-friendly product.
- ERS[™]400 epoxy resins have high dielectric performance and are resistant to electricity.
- Curing of ERS[™]400 epoxy resin is very slow and has long pot life.

TYPICAL USES

- ERS[™]400 epoxy resins are high-performance adhesives which are widely used in strengthening and retrofitting of different types of structures and manufacturing composite products.
- Epoxy resins are electrical insulators, so they are highly used in electrical industry. ERS[™]400 epoxy resins can be used in many of the electrical components.
- Epoxy resins are widely used in aerospace industry. We can use these powerful resins to assemble or repair interior and exterior

aircraft components.

- In addition to ERS[™]400 standard series, other series (including S & W, etc.) are available to meet your specific requirements. Please contact the supplier for more information.

INSTALLATION PROCEDURE

SURFACE PREPARATION

- For retrofitting applications, substrate preparation can highly effect on the quality of the performance of CFRP and GFRP composite systems.
- All the surfaces must be cleaned from dirt, grime, dust, curing compounds, oils, grease, waxes and all the other contaminated materials which may cause voids behind the CTech-LLC[®] composites.
- Repair mortar must be used to repair all the eroded or damaged concrete surfaces.
- An industrial vacuum cleaner must be used to remove dust and dirt.
- All the surfaces need grinding, sandblasting, shot blasting, pressure wash or other common mechanical methods to reach an even concrete substrate.
- The sharp edges must be smooth and rounded to a minimum radius of 30 mm.
- Note that concrete surfaces must be fully dried or cured so adhesive can properly dry.

MIXING

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 with a low speed mixer. After mixing resin and hardener, you'll have about 90 minutes time (at temperature 21°C) to apply the material. Clean mixing tools with a proper towel to reuse them.

PHYSICAL PROPERTIES

| | |
|-------------------------------|---|
| Chemical Base | Epoxy resin |
| Mixing Ratio | 100:50 Part A: 100 Part B: 50 |
| Color* | Component A is grey paste Component B is white paste Mixed resin and hardener is grey paste |
| Pot Life | 90 Minutes at 21° C |
| Density at 21° C ASTM D792 | Component A = 1.30kg/L Component B = 1.20kg/L Mixed product =1.26kg/L |
| Application Methods | Hand lay-up |
| Shelf Time | 18 month |
| Storage Condition | Store dry and away from direct sunlight 5° -35° C |

*Different Colors are available by customer's order

MECHANICAL PROPERTIES

| Property | ASTM Method | Test Value* |
|----------------------|-------------|-------------|
| Tg | D4065 | 70° C |
| Tensile Strength | D638 Type1 | <25 MPa |
| Tensile Modulus | D638 Type1 | <2.1 GPa |
| Elongation Percent | D638 Type1 | <1.0 % |
| Compressive Strength | D695 | <30 MPa |
| Compressive Modulus | D695 | <2.1 GPa |

* Curing schedule 72 hours post cure at 60° C.

* Testing temperature: 21°C

APPLICATION

Surface of all the contaminated elements must be cleaned thoroughly. Prime the surface with a suitable type of CTech-LLC® primer. ERS™400 epoxy resins are compatible with all types of CTech-LLC® fabrics, primers and mortars. Mix part A and B together with a low speed mixer.

You can use saturators for impregnating fabrics or apply hand methods for some of the smaller projects. Using a roller can help to eliminate air bubbles in the resin and substrate, it can also ensure that there is a good bonding between them.

STORAGE & SHELF LIFE

- ERS™400 must be stored in a dry and cool place. Temperature should be between 5° to 35° C. Avoid freezing the product and keep it away from direct sunlight, flame or other hazards.
- ERS™400 must be stored in its original packaging. Lid of the container should be kept closed. Moisture can decrease shelf life of epoxy resins. With proper storage, resin and hardeners remain usable for at least 18 months.

CAUTION

All components of FRP composite systems may cause skin irritation and sensitization. Use of chemical resistant gloves is recommended.

Avoid breathing vapors and dust. Get medical attention if you are breathing with difficulty.

Resin products can cause strong eye irritation. Avoiding eye contact and using safety goggles is necessary.

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.

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.