

PRODUCT DESCRIPTION

The CTech-LLC® Vacuum Epoxy Sleeve (VES™200) employs a more optimum sleeve structure, and more importantly, VES™200 adopts the CTech-LLC® patented on-site installation process-vacuum adhesive perfusion.

The process utilizes the negative pressure created by vacuuming to perfuse the adhesive, instead of using the traditional perfusion process which injects the adhesive with positive pressure. This improvement grants a much more stable performance to the system. In the field, the operators will just need to use the vacuum pump to suck the evenly mixed high strength adhesive and perfuse it into the gap between the walls of the pipeline and the steel sleeve. Under the effect of vacuum negative pressure, the adhesive will be able to enter any tiny gaps and leave no cavity behind. The thoroughly filled adhesive offers good adhesion and compressive strength. Once it is cured, the pipelines and the sleeve will become a single one piece structure, and the stress on the pipelines will be effectively shared, therefore, a reliable reinforcement performance will be guaranteed.

Advantages

- Adhesive perfusion by vacuum negative pressure-more stable installation performance.
- Extremely durable and resistant to temperature and moisture. They also have high fatigue strength.
- Stress sharing up to 50%, bending moment sharing up to 85%, more reliable repair.
- Start to share 50% of the pipeline stress when operating pressure reaches 2 MPA, avoid the failure or extension of the existing defects.
- High mechanical and chemical resistance.
- Easy to use and can be known as an eco-friendly product.
- Stress sharing up to 50% , bending moment sharing up to 85% More stable installation performance
- Start to share 50% of the structure stress when operating pressure reaches 2Mpa, avoid the failure of extension of the existing defects.
- Very cost effective method.

USES

- VES™200 vacuum epoxy sleeve are high-performance sleeves which are widely used in strengthening and retrofitting of different types of structures and manufacturing composite products.
- Vacuum epoxies are electrical insulators, so they are highly used in electrical industry. VES™200 epoxy resins can be used in manufacturing many of the electrical components.
- VES™200 can be useful in repairing the crack defects.
- VES™200 can be used in reinforcement for the corrosion defects with a depth of more than 50% wall thickness.
- Vacuum epoxy can be used in the scalded wall thickness loss.

VACUUM EPOXY SLEEVE PROPERTIES

Test Item	Test Value	Test Standards
Service temperature	-30°C – +80°C	-
Application temperature	0°C – +40°C	-
Working pressure	<15Mpa	-

HIGH STRENGTH PERFUSION ADHESIVE

Impact strength	>8 KJ/m ²	ISO 179-1
Compressive strength	70 Mpa	ISO 604
Curing shrinkage	<0.01 %	ASTM D2566

SHELF LIFE

VES™200 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 24 months.

STORAGE CONDITIONS

VES™ must be stored in a dry and cool place. Temperature should be between 10° to 35° C. Avoid freezing the product and keep it away from direct sunlight, flame or other hazards.

MIXING

When mixing by hand, combine Part A (Resin) and Part B (Hardener) in equal parts for correct ratio. Mix thoroughly until the color and consistency are uniform. Tube Kits have been designed so that squeezing equal length beads of part A and part B will give the proper ratio.

Mixing the adhesive just prior to use is recommended. The temperature of the separate components prior to mixing is not critical, but they should be close to room temperature.

HOW TO USE

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.
- 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.

APPLICATION

Surface of all the contaminated elements must be cleaned thoroughly. Prime the surface with a suitable type of primer.

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.

Mix part A and B together with a low speed mixer. Each compound is designed to meet specific performance requirements and is available for use in small to large.

LIMITATIONS

Proper temperature for applying epoxies is between 0° C to 40° C. for applying them must use adequate ventilation. They should not be used in cold and humid weather.

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.

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.

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.

CTech-LLC
 CYTEC's Composite Technology
 technical@ctech-llc.com
 info@ctech-llc.com
 www.CTech-LLC.com



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.

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Germany - Berlin
 CTech, LLC
 info@ctech-llc.com

USA - New York
 CTech USA, LLC
 info.usa@ctech-llc.com

China - Shenzhen
 CTech Shenzhen Co., Ltd
 info.china@ctech-llc.com

India - Surat
 CTech India Private Limited
 info.india@ctech-llc.com

Portugal - Lisboa
 CTech Portugal, Unipessoal Lda
 info.portugal@ctech-llc.com

South Africa - Paarl
 CTech South Africa (PTY) Ltd
 info.rsa@ctech-llc.com

Brazil - Indaiatuba
 CTech Tecidos Brasil Ltda
 info.brasil@ctech-llc.com

China - Shenzhen
 CTech Shenzhen Co., Ltd
 info.china@ctech-llc.com