

## This issue:

- Epoxy Winterizing
- Accessories you need for injection
- Good stuff to know
- Where to use Epoxy Healer/Sealer

## Winter Epoxy Tips

What happens when the temperature drops 18°F (10°C)? You smart guys know that the pot life and cure time of epoxies **doubles** for temperature drops of this interval. This means that if the data sheet says the geltime is 25 minutes at 73°F, you will have to wait about 100 minutes at 37°F to observe the first thickening.

Since not all of you are blessed to work in a warm climate year round (like those ballot counting champions in Florida), what can you do to get epoxy to perform when it's cold?

### KEEPING WARM

The first step when cold weather strikes is a little advance planning. The night before the project, bring your epoxy containers into your office where

the heat stays on. When transporting, leave the containers in the cab (if this can be done safely) rather than in the unheated pickup bed. Another option is to deliver the epoxy the day before to the jobsite and bring a portable electric heater to warm a small room or closet. For larger jobs, one of our customers tows a work trailer with baseboard heaters and a generator to keep his epoxy a toasty 85°F and he leaves it at the site.

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### SEE THE LIGHT

Infrared heat lamps are useful to keep small quantities warm and a 60 watt standard

light bulb can be hung inside your injection pump to keep the reservoirs warm (keep the bulb away from internal wiring and hoses). If your glue is in 5 gallon pails, you can get an external heater which clamps around the bucket regulated to 160°F maximum from Grainger (specify the model for poly containers and don't forget to vent the bucket).

### TOOTHPICKS

For cold weather crack injection using taped ports, it may be difficult to precisely locate the crack under the injection nozzle and this problem is magnified when the resin viscosity is higher due to the cold. An alternative is to install our small rubber tips on the cracks located with toothpicks and then spread the surface seal. Pull the toothpick to inject into the sealed-in tip. The seal can also be cured a bit faster using a hot air gun at its low setting (if you see smoke, it's too hot).

### WATCH OUT FOR

Frozen water in cracks is a known frustration. Also, you will have longer waiting times for the surface seal cure and for injection resin cure so don't inject too soon and don't strip the seal too soon.

For coatings, remember to look for less than 85% humidity and air temperature 4°F or more above the dewpoint.

Generally, you need not worry if the temperature drops overnight, because the epoxy will go dormant below 35-40°F, but will begin to cure again once the temperature rises.

## Useful Injection Accessories

We ChemCo guys are occasionally accused of not being the best communicators. Also, we sometimes assume that all of our customers have an intuitive knowledge of our special gizmos to get the most out of your crack repair equipment. So we have included some pin-ups of these handy items for your consideration.

Everyone performing crack injection should have



the first two items. The first is a clamp-on test rig for pressure and ratio testing.

The second is a flush kit for acetone washing the injection mixhead. We can make you one or tell you how to make it yourselves. The third item is a chair for holding the mixhead against a floor or on an overhead and it can be used with a pogo stick.



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## CONCRETE REPAIR TRAINING

If you are considering crack injection and concrete repair skills training and want to join the finest group of applicators, please notify us.

The free training takes 1-1/2 to 2 days and is held about 3-4 times per year. We try to accommodate out-of-towners with Mon-Tues or Thurs-Fri sessions. **Next session: late January, 2001.**

## Did you know?

Look here to find out stuff you'll never see on a data sheet

- ◇ What is the best way to clean up an epoxy spill? That depends on whether it is a fresh or cured. If it is fresh, you can contain it with sand or kitty litter (you should always have a bag on hand), then shovel the absorbed material and wash the residue with water. Any remnants can be emulsified with liquid soap of the kind used for hand washing dishes. If it is cured, but not a big quantity, a propane torch or hot air gun will often be enough heat to soften the epoxy so that it can be pried loose with a putty knife or trowel.
- ◇ Doing a critical crack repair on an architectural surface? We make CCS Grout, Standard and Lo Viscosity in special clear versions to better hide the injected crack. Occasionally, Strip-SEAL may have a slight darkening effect on very light concrete surfaces (including the open pores of a sand-blasted precast panel). To remove any traces of this light stain, bring along some vinegar (weak acetic acid) to the jobsite and rub or brush it over the previously sealed area and flush with lots of water.
- ◇ Need to fix a thinly spalled floor, deck or road section with heavy usage? Cut out the spall's perimeter walls vertically and remove any loose material in the center by shot blast, sand blast or high pressure jet. If the area is subject to high impact or extreme temperature fluctuations, our best product is the CCS Binder, Patch, Nosing, Slurry. Premix the adhesive, then add 3-4 volumes of 20 or 30# mesh **kiln-dried** sand to get either a self-leveling or trowelable consistency. For small jobs, hand mixing the sand is OK, but for large projects, you will need a mortar mixer to get sufficient shear and throughput (don't use a concrete mixer). If you need a maximum strength finished mortar, call Chris Olson for suggestions on the best gap graded mix for your application. He has compressive and tensile results on several mixes.

## Epoxy Healer/Sealer: Interesting Uses

CCS Epoxy Healer/Sealer ranks #1 as our fastest growing product and is gaining fans internationally as far away as Thailand and Brazil! So we thought you might be interested how some folks are using it.

### PRIME AWAY

Epoxy Healer/Sealer is an excellent wetting material and bonds to challenging substrates like polyester based polymer concrete overlays and patches. It also makes a very fast sealing primer for our CCS Polyurea



Membrane, if you need to re-open a deck, ramp or floor quickly but still want to roller apply a coating. It will also penetrate fine spider cracks as small as 2 mils and help bond your favorite polyurethane deck coating for use on parking deck repairs.

### BUILDING REHAB

Epoxy Healer/Sealer has been used on several historical landmarks including the General Vallejo house and Stanford University's Green Library. In the latter case, it was flood applied over cracked Mexican paver masonry joints on the main floor to protect rare books in the basement if water was spilled on the main floor.

One of the most popular uses is to repair elevated slabs on pan in buildings being reconfigured for new



uses: computer networking, offices, and even warehouses. One contractor estimates he can do 500-600 lineal feet of cracks per man-day by crack-chasing and hand flooding and still get 95% penetration in his cores, thus saving the owner considerably over injection. So if the linear footage and pattern of cracks is unsuitable for cost-effective injection, Epoxy Healer/Sealer might be the answer.

American Airlines Super-Bay Maintenance Center at SFO reports no new cracks in slab-on-pan areas treated a year ago by surface flooding.

American used only sweeping for their surface preparation.

Due to its low odor and non-flammable rating, Epoxy Healer/Sealer can generally be used in commercial applications where other materials cause occupancy concerns.

### CIVIL and DOTs

We think Caltrans set the high temperature application record last year: 117°F air and 144°F surface on a viaduct deck near Redding, CA. The product worked fine but Chris and John had to seek the medicinal assistance of mucho brews. Just remember to get the product out of the bulk mix container and onto the deck promptly in hot weather.

