

Proper Field Application Procedures for 100% Solid 2 Part Liquid Epoxies

Barton Community College NACE Conference
March 25, 2025

Presented By
Jacob Anderson

100% Solids Liquid Epoxy Coatings



100% Solids Liquid Epoxy Coatings

Advantages:

- Excellent adhesion (3,000 psi +)
- Resistant to soil stresses
- Does not shield cathodic protection
- High abrasion and gouge resistance
- Fast cure (2 to 3 hours at 77F)
- High Build (up to 50 mils in 1 coat)
- Environmentally friendly (VOC Free)
- Brush or Spray Applied

100 % Solids Epoxy

Fast Cure, High Build Pipeline Coating

Uses

- Girth Weld Coating
- Tie-ins & Bore joints
- Holiday repairs
- Rehabilitation of existing pipelines
- Sacrificial coating for bore pipe
- Fittings and fabrication
- Station piping
- Soil-to-air interface areas

Important Factors

- Ambient, Product & Pipe Temperature
- Dew Point Temperature
- Clean & Proper Blast Media
- Compressed Air Cleanliness
- Surface Cleanliness and Anchor Profile
- Mixing Procedures
- Application Procedures
- Coating Thickness
- Recoat Times
- Holiday Testing

Thermometers

It is always helpful to know the product, surface and air temperature prior to application



Product & Temperatures

Product &

<u>Product/Surface</u>	<u>Pot-Life</u>	<u>Cure Time</u>
------------------------	-----------------	------------------

Liquid	50°F	35 min.	8 hrs
Epoxy	70°F	17 min.	4 hrs
2-Part	90°F	8 min.	2 hrs
	110°F	4 min.	1 hr

Dew Point

The pipe surface temperature shall be a minimum 5°F (3°C) above the dew point temperature throughout the cure process. This will ensure that there is no moisture present on the pipe surface.

Measure with Sling or Electronic Psychrometer.

Verify every 4 hours (more often if necessary).

Surface Pre-Heat (if necessary)

If surface temp falls below 50F and/or moisture is present, pre-heating to a range of 100F to 150F is recommended prior to application of most Epoxy coatings.



Surface Preparation

Weld Joint Blasted to SSPC SP10 Near-White Finish



Surface Profile

Verify angular surface profile of 2.5 to 5.0 mils with Press-O-Film Tape or equal and Spring Micrometer



Surface Cleaning

Remove surface contaminants with solvent rag



Mixing

Mix Part A and Part B separately first, then Pour Part B into Part A and mix with stir stick or power drill w/ mixing paddle for approx. 2 minutes or until no streaking. Scrape sides and bottom of tubs.



Pot Life

In hot temperatures (above 90°F), the Pot Life of the product can be extended by placing the Part “A” and “B” tubs in a cooler for approx. 15 minutes. Also, placing a tarp over the product during storage will reflect sunlight and reduce product temperature, and therefore increase pot-life/workable time.

In cold temperatures (below 50 °F) the product can be placed in the floor board of trucks or coolers, with heater running, for approx. 15 minutes. This will lower the viscosity and allow the material to mix and apply more easily.

Striping the Weld Bead



Brush Application



Applied at 25 to 30 mils DFT



Checking Thickness with Wet Film Gage



Weld Joint Brush Application



Apply with Applicator Pad



Apply with 9" Mohair Roller



larger diameter pipe (24"
to 48")
3/16" Nap

Roller Application Using 2-ltr Kits

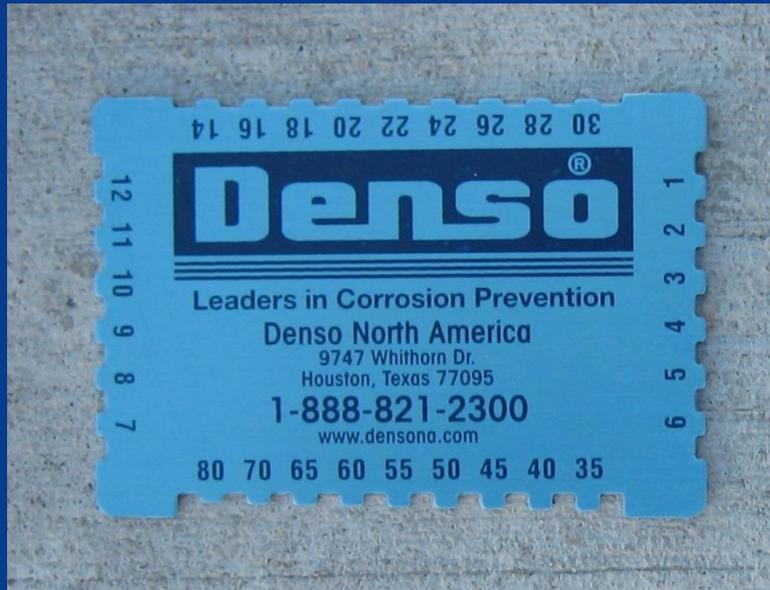


Recoat Window

For example, the recoat window may be approximately 4 hours at 70°F. This means that the coating has not achieved a shore D hardness of approx. 70. This can be verified with a Durometer gage or “The Thumbnail Test”. If one can indent the coating with one’s thumbnail, the coating can be topcoated without roughening.

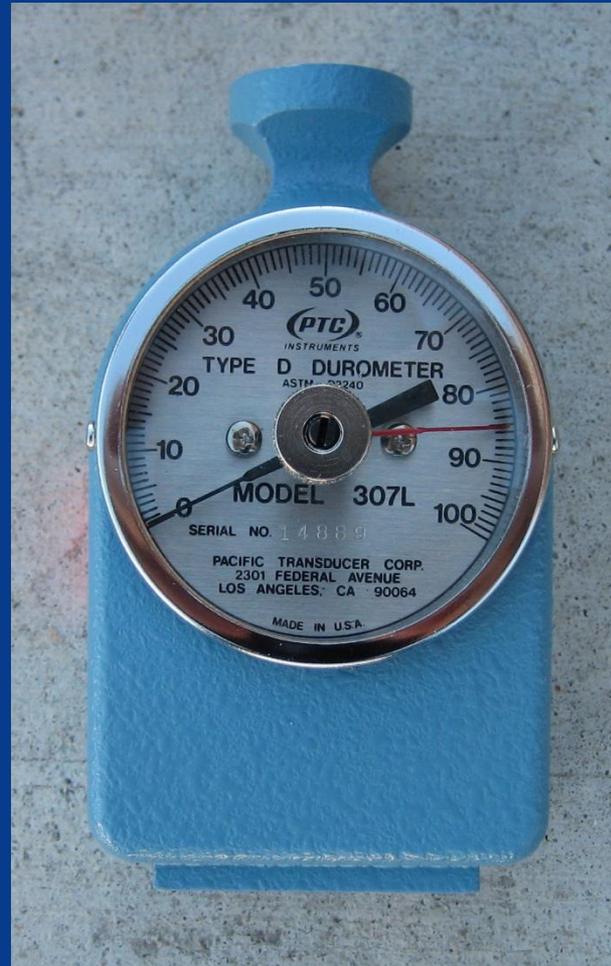
If the coating has gone past the recoat window (above a shore D of 70), the coating should be roughened prior to the second coat.

WFT & DFT Gauges



Shore D Durometer

for verifying hardness/cure (75 to 90)



Holiday Detection

- Field applied liquid epoxies are typically checked at 125 volts/mil or using NACE SP0188
- *Example:*
 - Coating Spec calls for a minimum of 20 mils DFT.
 - (20 mils x 125 volts/mil = 2,500 volts)
 - Voltage should be set to 2,500 volts

Holiday Repair Application

Roughen with 80 Grit Sandpaper and Wipe Clean



Repair Cartridge Applied to Same Thickness as FBE



Spray Cartridge Application

For smaller projects where coating
by hand may be difficult

- Tie-ins
- Pipeline Rehabilitation
- Flanges & Valves
- Fittings and fabrication
- Station piping





Heating the cartridge to reduce viscosity for proper mix and atomization.



Shaking the cartridge to ensure even heat throughout cartridge prior to spraying

Purging the Cartridge



Extremely important to ensure a proper mix is being applied to the substrate



Thank You