


Key Points

Benefit from reduced return to service (RTS) time, and safety risk, using ERS epoxy polymer compound systems that offer:

- Excellent adhesion and cold bonding
- Corrosion resistance over a broad range of chemicals
- Abrasion and wear resistance
- Extension of critical metal asset service life

ERS systems offer proven solutions for repair, restoration, and protection from the harsh operating conditions for a wide range of processing and production conditions.

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Cold Repair and Rebuilding Solutions

Adhesive Paste/Caulk


- Trowel grade novolac epoxy
- Designed for abrasion resistance
- Application and cure at room temperature
- High strength structural adhesive

Repair solution for:

- Anchor adhesive
- Plate bonding
- Pitted metal parts
- Tank leak repair
- Chime repair



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Metal Bonding Cold

Install insulation anchors to heated production equipment

- Adhesion testing conducted in accordance with ASTM D4541 at 347°F (175°C) and 68°F (20°C)
- Applied to blasted stainless steel panels free of any rusting
- Both samples tested displayed excellent adhesion to prepared stainless steel
- ERS 306 Metal Build Adhesive Paste/Caulk is a machinable novolac epoxy
- ERS Ceramic Paste is a machinable novolac epoxy

Results of ASTM D4541 test

347°F (175°C)	68°F (20°C)
ERS 306 2,478 psi (17.1 MPa)	ERS 306 2,850 psi (19.7 MPa)
ERS Ceramic Paster 2,899 psi (20.0 MPa)	ERS Ceramic Paste 2,800 psi (19.3 MPa)

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Metal Tank Emergency Cold Repair ERS 306 and 406

- ERS 406 Leak Quick Repair fast cure metal repair paste
- Machinable
- Designed for emergency repairs
- 7-minute pot life, 30-minute total cure
- ASME PCC-2 Part 4 Article 4.1 Long-Term Repair compliant

Repair solution for:

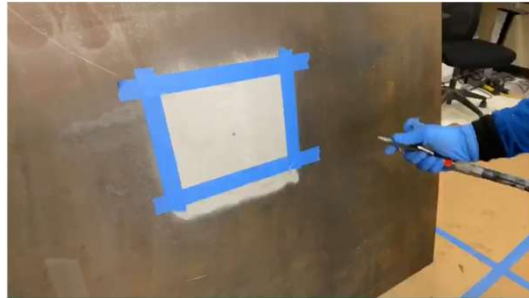
- Leaking tanks and piping
- Electrical bushings
- Setting keyways or taper fits



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Metal Tank Cold Repair ERS 306 and ERS 406



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Fast Cure Metal Pipe Wrap Cold Repair Quick Repair ERS 406 LEAK REPAIR



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Emergency Metal Pipe Cold Repair ERS 7000R Quick Repair

Features:

- Stops active and inactive leaks in minutes
- No special tools required
- No hot work permit needed
- For pipe rated up to 400 psi (2.76 MPa)
- Temperature resistant up to 250°F (121°C)
- Pipe diameters ranging from 1/2 to 5 inch (1.27 to 12.7 cm)


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Emergency Metal Pipe Cold Repair R7000 Quick Repair



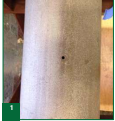
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Metal Pipe Cold Repair


ERS 2000R




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1. Four (4) identical pipe spools produced with a 195 mil (5 mm) hole.
2. Hole filled with Quick Repair epoxy repair compound.
3. Pipe wrapped with fiberglass wetted out with ERS 2000R Flex Guard
4. Pipe spools joined together for hydro testing at 1,450 psi (10 MPa) for 1,000 hours.
5. Pipe pressure holding at 1,900 psi (13.1 MPa) with no leaks.
6. After 1,000-hour test; gaskets leaked at 4,600 psi (31.7 MPa), repair patches remained strong.


• Tested for compliance with ASME PCC-2




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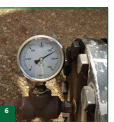
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ERS 2000R Pipe Wrap Systems







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ERS 2000R Pipe Wrap System

DIGESTER GAS LINE



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Tank/Pipe Protection

ERS 2000R, ERS 3300 ACID GUARD & ERS 5400

- Large range of temperature resistance
- ICCP tolerant
- Spray, roll or brush a high film build in single coat

• Repair solution for:

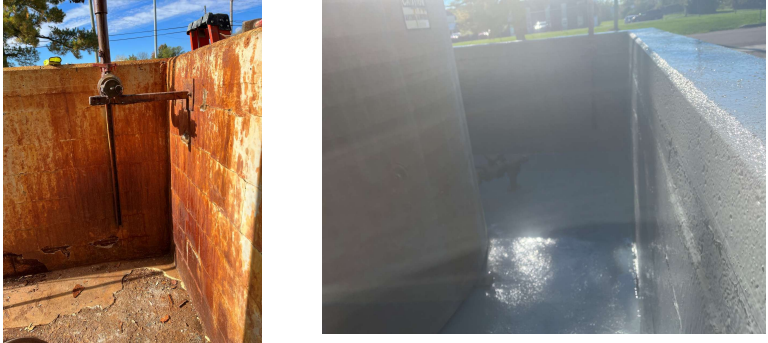
- Tanks and storage vessels (internal/external)
- Flooring and secondary containment
- Ducts and piping (internal/external)






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PIPE, CONTAINMENT AND TANK LINING



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Cold Repair and Rebuilding Solutions

Ceramic Carbide repair paste

- Trowel grade novolac epoxy
- Designed for abrasion resistance
- Heat resistance up to 250°F (121°C)

Repair solution for:

- Heat exchanger components
- Pitted metal parts
- Metal tanks and piping



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Cold Repair and Rebuilding Solutions

ERS 306 Metal Build - Machinable Paste

- Excellent UV stability
- Machinable rebuild material for metal parts and surfaces
- Smooth consistency for ease of application

Repair solution for:

- Metal tanks and piping
- Tube sheet
- Shaft, bearing housings, pump casing



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Common Abrasion Protection Needs

Corrosion and Erosion

- MIC
- Abrasion
- Cavitation

- Mechanical damage
- General wear and tear
- Combination of the above



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Common Abrasion Protection Applications

- Pump and valve restoration
- Impeller blade resurfacing and restoration
- Pipe repair and lining
- Keyway and taper fit repair
- Silo, chute, and pulverizer repair and lining
- Wear tile adhesive
- Chiller and heat exchanger resurfacing and restoration

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Abrasion Protection Solutions

Ceramic Carbide

- Trowel grade ceramic novolac epoxy wear compound
- Designed abrasion resistance
- Heat resistance up to 360°F (182°C)
- Low permeation rate and quick RTS in 24 hours
- Topcoat with 5400 Lining



Repair solution for:

- Floors and secondary containment
- Ducts and piping
- Vessels and storage tanks
- Tube sheets
- Shafts, bearing houses, pump casings



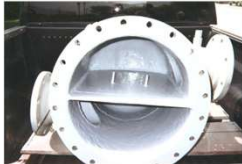
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Abrasion Protection Solutions

Ceramic Carbide

- Trowel grade ceramic novolac epoxy wear compound
- Designed for abrasion resistance
- Heat resistance up to 250°F (121°C)
- Low permeation rate for immersion service
- Abrasion Resistant topcoat high film build in one coat
- Improves efficiency and lowers energy costs



Repair solution for:

- Floors and secondary containment
- Ducts and piping
- Vessels and storage tanks
- Tube sheets
- Shafts, bearing houses, and pump casings

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ERS Ceramic Carbide Repair Material



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Abrasion Protection Solutions

**Ceramic Coating
Abrasion resistant overcoat
(ARO)**

- Improves efficiency of pipes, pumps, and valves
- Strong protection against abrasion and erosion over extended periods
- Heat resistance up to 180°F (82°C)
- Less than 24 mg loss on ASTM D4060



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Abrasion Protection Solutions



MIXING BLADES





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Abrasion Protection Solutions






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Abrasion Protection Solutions

ERS 2000AR - Ceramic Paste

- Trowel grade large bead ceramic novolac epoxy wear compound. Outstanding abrasion resistance
- 25-minute pot life, 6.5-hour RTS @ 25°C (77°F)
- Room temperature application and cure.
- Tolerates less than optimal substrate conditions

Repair solution for:

- Chutes, hoppers, and silos
- Crushers and ball mills
- Dry baghouse
- Adhesive for wear tiles



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**QUESTIONS AND
COMMENTS**