

Concrete Epoxy Crack Injection JHA

Worked instructional example

Work and worksite

A repair crew will inject an engineer-designated nonstructural crack in a cured ground-level interior concrete wall with a metered two-component epoxy system. The room is isolated from normal occupancy. This fictional learning example records planned controls; it supplies no actual inspections or work authorization.

- The repair specification determines whether injection is appropriate and provides the permitted pressure and sequence.
- Ventilation and chemical protection must be selected for the actual resin and hardener.
- This excludes structural crack diagnosis, overhead work, polyurethane water-stop injection and pressurized connected systems.

Questions before work

- Who confirms crack suitability and the permitted injection method?
- Which resin and hardener hazards require separate controls?
- How will pressure be relieved and a blocked port managed?

Task Hazard Control

1 Confirm the crack and repair release

Hazard: A crack can signal unresolved movement or conceal an unsuitable repair location.

Control: Foreperson checks the repair specification and engineering determination, marks the approved limits and holds work when the crack or surrounding condition differs.

Verification: Repair lead compares the actual crack with the released repair record.

Reasoning: The JHA cannot diagnose a structural defect.

2 Prepare the area and ports

Hazard: Surface preparation can release dust or expose workers to uncured adhesive and sharp fittings.

Control: Separate occupancy, protect the work area and use the specified surface and port preparation method. Apply the employer's dust controls where material is disturbed.

Verification: Lead checks ventilation, preparation controls and the planned port positions before sealing.

Reasoning: Preparation hazards depend on the method actually chosen.

3 Set up and meter the components

Hazard: Resin or hardener can contact skin and eyes; incorrect mixing can create excessive heat or waste.

Control: Review both component SDSs and use the specified metering equipment, compatible protection and product limits. Keep containers identified and prepare only quantities permitted by the instructions.

Verification: Operator confirms product identities, ratio settings and equipment condition before connecting.

Reasoning: Each component needs its own hazard review.

Complete the work and hand over

4 Inject within the permitted sequence

Hazard: Pressure can eject material or fittings; leaks can expose the operator to uncured epoxy.

Control: Operate within the repair and equipment limits from a position clear of potential spray. Maintain the sequence and stop for leaks, unexpected resistance or uncontrolled flow.

Verification: Operator monitors the specified indicators and port behavior; lead checks the boundary remains intact.

Reasoning: Do not overcome a blocked port by improvising a higher pressure.

5 Relieve pressure and deal with a blockage

Hazard: Opening a loaded hose or port can release pressurized resin into the face or skin.

Control: Stop pumping and follow the unit's pressure-release and energy-control procedure before disconnecting. Use the specified blockage method after the safe state is verified.

Verification: Authorized operator confirms pressure release under the equipment procedure before touching a fitting.

Reasoning: A stopped pump can leave pressure trapped in the line.

6 Secure cure and remove residue

Hazard: Uncured residue, contaminated tools or removed fittings can expose the next crew.

Control: Maintain product-specific cure and access restrictions. Collect chemical waste in compatible identified containers and remove ports only by the specified method after release.

Verification: Lead checks residue, waste and repair-access status before handover.

Reasoning: Cure time and cleanup requirements are product-specific.

Pause and reassess

- Crack condition differs from the repair release.
- A component, ratio, pressure limit or ventilation arrangement changes.
- Leaks, blocked ports or unexpected material flow occur.

Improve the controls

Needs improvement: Be careful around the equipment.

More useful: Review both component SDSs and use the specified metering equipment, compatible protection and product limits. Keep containers identified and prepare only quantities permitted by the instructions.

Needs improvement: Check the area before starting.

More useful: Foreperson checks the repair specification and engineering determination, marks the approved limits and holds work when the crack or surrounding condition differs.

Decisions that change the analysis

Can more pressure solve a port that will not accept resin?

Pause and use the repair specification and equipment blockage procedure. Additional pressure may rupture fittings or force material into an unintended path. The published example supplies no universal pressure limit.

What must be recorded before this example is used on a job?

Replace the scenario with the actual work, identify additional hazards with the crew, and record the applicable instructions, responsible people, inspection findings, unresolved actions and required authorization. A planned verification is not an inspection result.

Training needs

- Component hazards, metering, pressure release and product-specific first aid.
- Recognizing a deviation from the released repair method.

Confirm applicable qualifications and actual training evidence for the people assigned. Related toolbox talks support discussion; they do not establish competence.

References and adaptation

OSHA 1910.1200 Hazard communication

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200>

OSHA 1926.59 Hazard communication in construction

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.59>

OSHA 1926.300 Hand and power tools

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.300>

OSHA 1926.21 Safety training and education

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.21>

References reviewed October 9, 2026. Use actual equipment and product instructions, project design and site requirements. This instructional example supplies no actual inspection results, signatures or work approval.