



METHOD STATEMENT

Power-Protect W-70

Water-based Polyurethane Gel Injection Resin

1-PURPOSE

To provide guidance on use of injection to repair cracks in concrete.

2- DESCRIPTION

This method can be used to repair cracks as narrow as 0.1 mm. The method generally consists of drilling holes at close intervals along the cracks, in some cases installing Packers, and injecting the concrete under pressure.

3-EQUIPMENT, TOOLS, AND PERSONNEL REQUIREMENTS

a concrete drill, injection machine (we recommend the **SMART-X** or **COMPACT 6** injection machine), a means of cleaning holes and cracks, and normal hand tools are required. One man can repair cracks using this method, but a two- or three-man operation is more efficient. concrete injection requires personnel with a high degree of skill for satisfactory execution.

4-PREPARATION

1- Clean the cracks. The first step is to clean cracks that have been contaminated. Oil, grease, dirt, or fine particles of concrete prevent epoxy penetration and bonding.

2- contamination should be removed by flushing with water or some other specially effective solvent. The solvent is then blown out using compressed air or adequate time is provided for air-drying.

5- DRILLING & FIXING

1-Use a high quality rotary hammer drill to make injection holes with a varied distance from 15-50 cm to each other, according to the width of crack.

The drilling angle should be approximately 45 degrees or less to concrete surface and intersecting the crack, at a distance of ½ the depth of the concrete element from the crack. Then clean all the holes from dust using air blower .

2-Install injection packers into drilled holes ensuring that top of the sleeve is just below the surface of the concrete to secure sealing of the injector.



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6-INJECTION

- 1- Power-Protect W-70 is to be applied using the Injection machine (Ex. Smart X).
- 2-Make sure that the delivery line and all the fitting are connected tightly and in new condition at all time. Also ensure that no contamination has entered the delivery system.
- 3-Start the Injection machine with low speed to start the pumping process and increase gradually.
- 4-Once the desired working pressure is obtained set the switch of the machine so that this pressure will both be exceeded. In a regular injection the injection pressure will be well below the 4 bar mark.
- 5-Continue until the crack is filled completely and resin can be seen emerging from the crack surface.
- 6-Then start the process with the next packer until all the packers are done.
- 7-Allow curing overnight and removing the packers and close the holes with special epoxy mortar that can be applied by trowel, spatula or knife.
- 8-If the water is seen at adjacent place 7 days later, the procedure should be repeated until the whole structure is dried.
- 9- Power-Protect W-70 is used to Seal the crack permanently after injected by Power-Protect O-95.
- 10- Subsequent to injection of Power-Protect O-95, the same packers shall be used for injecting Power-Protect W-70 to get a permanent seal.
- 11- Remove the packers and make good any holes or voids with any mortar and allow to cure.



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7-CLEANING

1-Resins must be cleaned up immediately before it sets using any thinner.

2-Packers must be removed within 24 - 48 hours and patched with appropriate epoxy mortar .

3-Electrical grinder can be used to remove excess cured resin that flowed out the cracks.

8- ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of any crack repair activities involving potentially hazardous and toxic chemical substances.

Manufacturer's recommendations to protect occupational Health and environmental quality should be carefully followed. In instances where the effects of a chemical substance on occupational health or environmental quality are unknown, chemical substances should be treated as potentially hazardous and toxic materials.