BUILDING CHEMISTRY INDUSTRY

Method Statement for Polyurethane Injection Resin – BC PUR Injection

1. Introduction:

This method statement outlines the procedure for the application of Building chemistry Industry made polyurethane (PU) injection resin , BC PUR Injection to seal cracks and prevent water ingress in concrete structures.

Polyurethane resins are commonly used in crack sealing due to their excellent bonding, water resistance, and flexibility.

2. Purpose:

To define the process and ensure proper application of polyurethane injection resin, achieving water-tightness and structural integrity in cracked or leaking concrete.

3.Scope:

This method statement applies to all areas of a concrete structure where cracks, joints, or voids require sealing using PUR injection resin . It covers preparation, safety, application, and inspection procedures.

4. Materials and Equipment:

BC Poxy putty 2000 , Two component epoxy resin based Surfacr putty
Polyurethane Injection Resin: BC PUR Injection , Two-component PU resin suitable for the intended purpose (hydrophobic or hydrophilic depending on water presence).
Injection Pump: Low-pressure/high-pressure pump depending on project requirements.
Injection Packers: Surface-mounted or drill-in packers.
Drill Machine: For drilling injection points into concrete.
Safety Equipment: Gloves, goggles, protective clothing, and ventilation systems.

5. Responsibilities:

Site Engineer: Supervise the work and ensure compliance with the method statement.
Workers: Execute tasks according to the method statement and safety procedures.
Quality Control Inspector: Inspect the work and ensure it meets the project specifications.

6. Procedure:

6.1. Surface Inspection and Preparation:

Step 1: Inspect the concrete surface for visible cracks, joints, or voids.
Step 2: Clean the surface of all contaminants, including dust, debris, oils, and laitance, that may hinder the adhesion of the resin.
Step 3: Mark the areas where cracks are located for resin injection

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6.2. Drilling Injection Holes:

Step 4: Drill holes at a 45° angle, spaced 10–20 cm apart along the crack's length. The depth should reach approximately about half the thickness of the concrete structure. **However drilling depths lesser than half of tank thickness will not have and adverse impact on system performance as packers are tightly placed inside the tank and has enough grip over base structure**
Step 5: Clean the drilled holes

6.3. Installation of Injection Packers:

Step 6: Insert the injection packers into the drilled holes and tighten them to ensure a snug fit. Packers should be installed securely to prevent leakage during injection.

6.4. Resin Mixing and Injection:

Step 7: Prepare the polyurethane resin by mixing the two components (resin and hardener) as per the manufacturer’s instructions. The mixing ratio and pot life must be strictly followed.

Step 8: Connect the injection pump to the packers and start injecting the polyurethane resin into the cracks.

For dry cracks, a hydrophobic polyurethane resin is typically used.

For wet or leaking cracks, a hydrophilic polyurethane resin that reacts with water to form a foam or gel is recommended.

Step 9: Start from the lowest injection point and continue injecting until the resin fills the crack and extrudes from adjacent packers or cracks.

Step 10: Once the resin has set and filled the crack, proceed to the next packer in sequence.

6.5. Finishing:

Step 11: Once injection is complete, allow the resin to cure as per the manufacturer's recommendations.

Step 12: Remove the packers and fill the injection holes with suitable repair mortar.

Step 13: Clean the surface to remove any excess resin or debris.

7. Quality Control:

Ensure that the cracks are completely filled, with no voids remaining.

Perform a visual inspection after the resin has cured.

Check for any residual water leakage after resin injection.

8. Safety Considerations:

Workers must wear appropriate PPE, including gloves, goggles, and respiratory protection.

Ensure adequate ventilation when working in confined spaces.

Follow all safety data sheet (SDS) guidelines for handling polyurethane resin components.

Proper disposal of waste materials in accordance with local environmental regulations.

9. References:

Manufacturer’s technical data sheet for polyurethane resin.

Relevant industry standards (e.g., EN 1504, ASTM