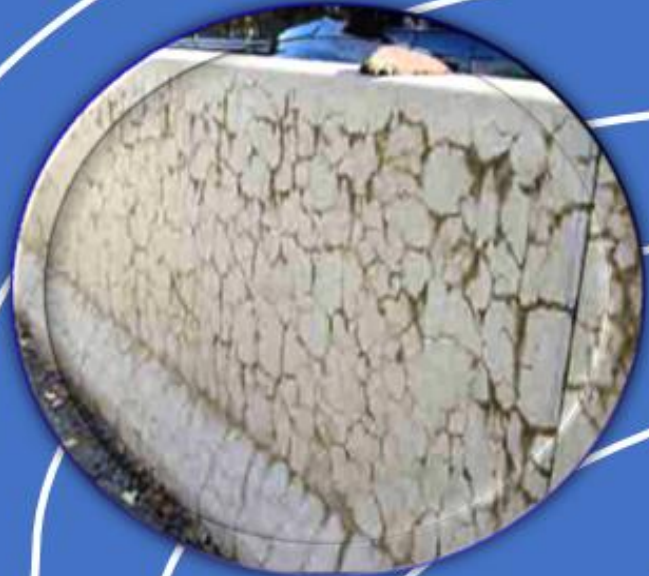








Cultiva-ASR

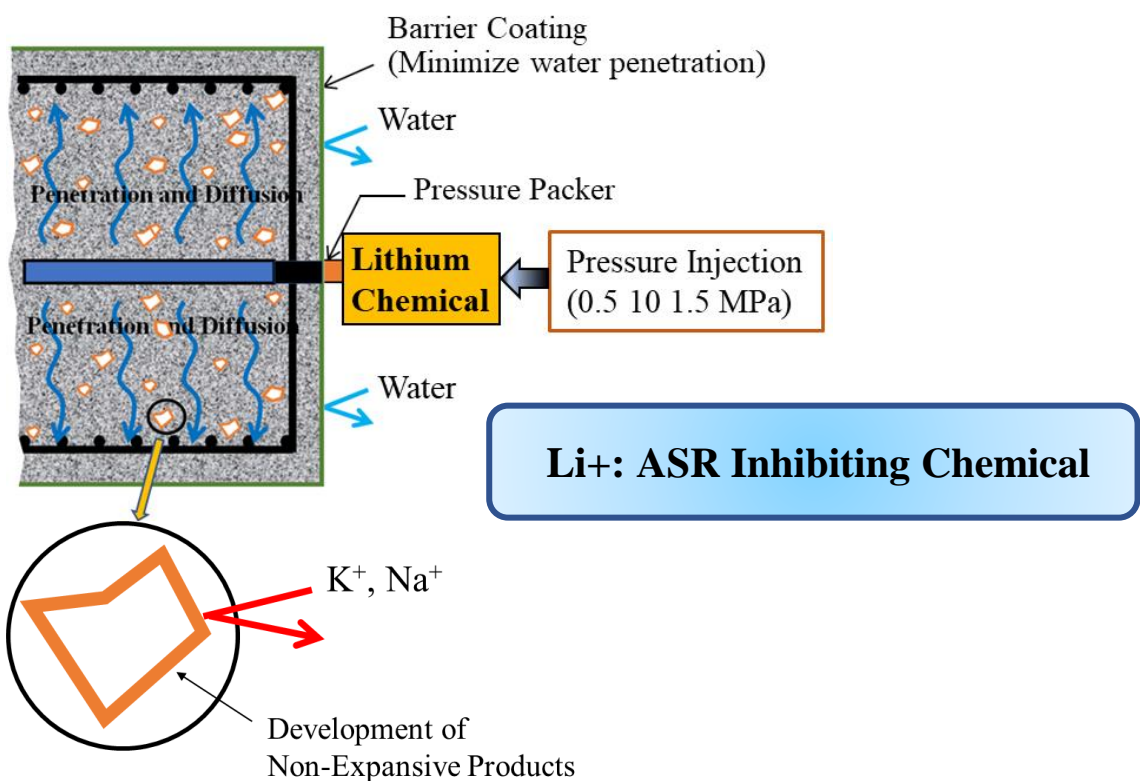
Lithium Injection System

**Control of ASR
Concrete Structures**



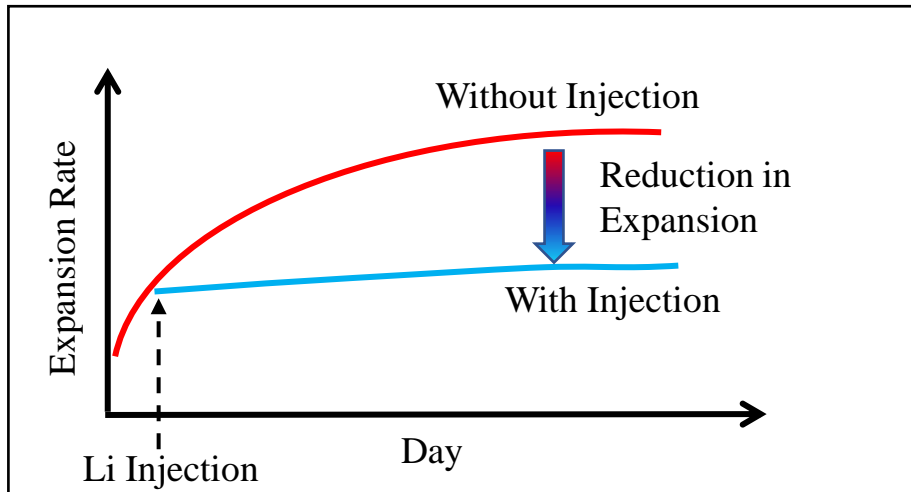
Four Stages of ASR in Concrete

<p>Stage 1 Incubation Period</p>		<ul style="list-style-type: none"> • Production stage of alkaline silica gel. • No change in appearance.
<p>Stage 2 Progressive Period</p>		<ul style="list-style-type: none"> • Water absorption expansion of alkaline silica gel continues progressively. • Start cracking. • Start reduction of concrete strength.
<p>Stage 3 Acceleration Period</p>		<ul style="list-style-type: none"> • Absorption expansion of alkali silica gel has developed greatly. • The expansion rate shows the maximum level. • Increased crack density.
<p>Stage 4 Deterioration Period</p>		<ul style="list-style-type: none"> • Cracks, displacement, deformation develop greatly. • Concrete strength significantly decreases due to excessive expansion and breakage of steel reinforcement occurs, which affects the load bearing capacity.



Features

- ❑ Automated pressure injection using spring loaded syringes or pump system.
- ❑ Super high concentration of lithium solution accelerates the diffusion in concrete.
- ❑ Typical injection spacing is 500mm to 750 mm in a grid pattern.
- ❑ Typical application period is 5 to 40 days.



Effects of Lithium Injection in Concrete

Attachment of Stainless Steel Bands. And Soak in Alkaline Solution

Maintain 40°C and RH >95% For about 3 months

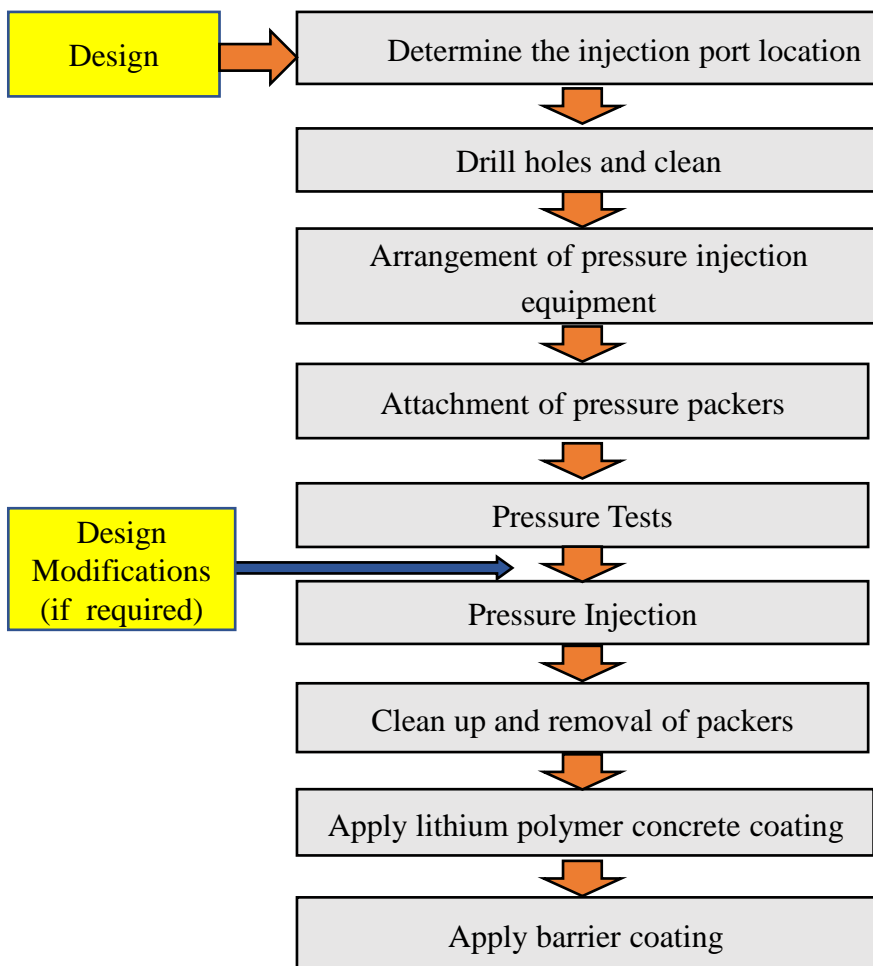
- Measure Length Change
- Visual Inspection

Evaluation of Effectiveness (JCI-DD2)

Field Application



Pressure Injection Procedure



20 mm dia.



10 mm dia.



6 Years

