

Calcium Nitrite 30% Solution

Calcium nitrite ($\text{Ca}(\text{NO}_2)_2$) is often used as a corrosion inhibitor in concrete mixes. The primary reason for adding calcium nitrite to concrete is to protect the steel reinforcement bars (rebar) within the concrete from corrosion. This is especially important in structures that are exposed to deicing salts or seawater.

The mechanism behind its anti-corrosive properties lies in the chemical reactions between calcium nitrite and the steel surface. Calcium nitrite forms a protective, passivating film on the surface of the steel, which helps to prevent the electrochemical processes that lead to corrosion. This enhances the durability and extends the service life of reinforced concrete structures.

Additional benefits:

- **Improved Durability:** Structures with calcium nitrite additives can last longer and reduce the need for costly repairs or replacements.
- **Cost-Effectiveness:** While incorporating calcium nitrite into concrete might require an investment upfront, its long-term value becomes apparent through the reduced need for maintenance and repairs. By enhancing the durability of the structure, calcium nitrite can substantially lower the total lifecycle costs, making it a financially wise choice in the long run.
- **Enhanced Strength:** Some studies indicate that calcium nitrite can also contribute to the improvement of the compressive strength of concrete, although this is not its primary use.
- **Environmental Benefits:** Longer-lasting structures require fewer resources for repair and replacement, contributing to sustainability.

It's important to note that the correct dosage and proper mixing are crucial for the effectiveness of calcium nitrite as a corrosion inhibitor. Consulting engineers and following industry guidelines is recommended for best results.

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Chemical & Physical Properties

Chemical Formula	$\text{Ca}(\text{NO}_2)_2$
CAS Number	13780-06-8
Specific Gravity @ 60°F (15.5°C)	1.27 - 1.29
PH @ 68°F (20°C)	8.5 - 9.5
Color	Clear, yellow solution
Odor	No significant odor

Typical Analysis

Calcium Nitrite ($\text{Ca}(\text{NO}_2)_2$)	30.00%
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