

Sika[®] CNI

Corrosion Inhibiting Admixture

Construction

Description Sika CNI is a calcium nitrite-based admixture designed to inhibit the corrosion of steel in reinforced concrete. Sika CNI contains a minimum of 30% calcium nitrite by mass and is formulated to meet AS1478. 1-2000, Type SAC.

How It Works In the high alkalinity of concrete, reinforcing steel builds up a natural passivation layer. This layer protects the steel from corrosion. This passive ferric oxide layer however can be damaged by the presence of chlorides and combined with the presence of moisture and oxygen which will lead to corrosion of the steel.

Sika CNI will help oxidize the steel to form ferric oxide, which resists chloride attack. This reduces the areas of ferrous oxide ions that are susceptible to attack by chlorides. In the presence of these chlorides, rust continues to generate in these areas (corrosion pits) and ultimately leads to staining, cracking and spalling of the concrete.

Sika CNI fortifies the ferric oxide passivating layer prior to the penetration of chlorides. The nitrite ions in Sika CNI will convert ferrous oxide to more resistant ferric oxide, thereby protecting the steel reinforcement from corrosion.

Advantages Sika CNI:

- Extends the service life of reinforced concrete structures by effectively inhibiting corrosion.
- Is recommended for use in conventionally reinforced concrete, precast, prestressed and post-tensioned concrete that will be exposed to chlorides from marine or other aggressive environments. Typical applications include parking garage decks and support structures, bridge decks and marine structures.
- May be used in concrete elements where chlorides are added initially to the concrete mix.

Application

Dosage Typical dosage rates are 10-30 litres per cubic metre of concrete. Optimum dosage depends on specified requirements, site and exposure conditions, mix ingredients and desired plastic and hardened properties. In the absence of a specified dosage rate, please contact your local Sika representative.

Sika CNI may accelerate the setting time. In order to prevent slump loss or accelerated finishing characteristics, a set retarding admixture may be required, especially in warm weather application. The full accelerating effect of Sika CNI may be used for cold weather concreting.

Laboratory and field trials are essential in determining the optimum dosage, combination of admixtures and effect on the concrete properties particularly setting time and slump loss

Mixing Mixing the required quantity manually or by automated dispenser. Add Sika CNI directly into the freshly mixed concrete at the end of the batching cycle. When used in combination with other admixtures, care must be taken to dispense each admixture separately into the mix.

Mix water adjustment is necessary to account for the water in Sika CNI and thus, maintain the required water/cementitious ratio.

The batch water must be adjusted by reducing 0.839kg of water per litre of Sika CNI.

Compatibility with other Admixtures

Sika CNI can be used with Portland cement complying to AS3972 specifications. It can be used in combination with other Sika admixtures including microsilica, water reducers, superplasticisers, set retarders and air entrainment agents. Admixtures have to be added separately to the concrete mix in order to deliver the results required.

Specification Type Sika CNI meets and exceeds all requirements of Australian Standard 1478.1-2000 as Special Purpose Accelerating Admixture, Type (SAC).

Technical Data

Air Entrainment	Sika CNI may slightly reduce the entrained air content and a higher dosage of the air entrainment agent may be required.
Packaging	20 litre pail 205 litre drum Bulk deliveries
Storage and Shelf Life	Sika CNI will begin to freeze at -15°C. If frozen, thaw out and agitate thoroughly to return to normal state before use. Shelf life when stored in dry warehouse conditions between 5°C - 30°C is two (2) year minimum.
Form	
Colour	Clear Yellow
Limitations	Sika CNI will not reduce the ingress of chlorides or other aggressive agents.
Caution	Irritant; Eye irritant. May cause skin irritation, redness and pain at the site of contact. Ingestion may affect the GI tract, resulting in irritation, nausea, vomiting, slow respiration, collapse and coma. Repeated small doses may cause a fall in blood pressure, rapid pulse, headache, and visual disturbances. Inhalation – may cause respiratory tract irritation leading to sore throat, coughing, and breathing difficulties. General ventilation and/or local exhaust ventilation is recommended. Safety glasses/chemical goggles are recommended. Avoid skin contact, wear a long sleeve shirt and long pants. Wear nitrile or other chemical resistant gloves. If application creates a mist of vapours, an NIOSH organic vapour respirator with HEPA filter is recommended. Wash thoroughly after handling. DANGER: Do Not Allow Material To Dry. Resultant Powder is An Oxidizer.
Handling Precautions	Eyes – rinse thoroughly with water for at least 15 minutes. Consult a physician. Skin – wash skin thoroughly with soap and water. Remove contaminated clothing. If symptoms persist, consult a physician. Ingestion – Induce vomiting, get medical attention immediately. Inhalation – remove person to fresh air; if breathing has stopped, institute artificial respiration. A full Material Safety Data Sheet is available from Sika on request.
Spill Clean Up	Wear suitable protective equipment. Contain spill, collect with absorbent material and transfer into suitable containers. Avoid contact. Keep spills away from sewers and open bodies of water. Dispose of in accordance with local, state and federal environmental regulations. If dried, this material is an oxidizer.
Important Notification	The information, and, in particular, the recommendations relating to the application and end-use of Sika's products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject of our terms and conditions of sale. Users should always refer to the most recent issue of the Australian version of the Technical Data Sheet for the product concerned, copies of which will be supplied on request. PLEASE CONSULT OUR TECHNICAL DEPARTMENT FOR FURTHER INFORMATION.

