

# 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 ASTM C-494 requirements for Type C, accelerating admixture.

### Uses

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. Ferrous oxide creates a ferrous oxide complex (rust), if attacked 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 corroding.

### Applications

Sika® CNI is recommended for conventional steel reinforcement as well as prestressed or post-tensioned concrete that will be exposed to chlorides from marine environments or deicing salts.

Sika® CNI will extend the service life of structures by effectively inhibiting corrosion, in areas such as parking garage decks and support structures, bridges decks, marine structures and many others.

Sika® CNI may also be used in concrete elements where chlorides are added initially to the concrete mix

### Advantages

Sika® CNI is a corrosion-inhibiting admixture that provides protection against corrosion in reinforced concrete structures.

#### **Sika® CNI:**

- Extends the service life of reinforced concrete structures.
- Is recommended for use in all types of reinforced concrete, precast and/or prestressed concrete as well as ready mix applications.

### Limitations

Sika® CNI will not reduce the ingress of chlorides or other aggressive agents.

**Compatibility**

Sika<sup>®</sup> CNI can be used with Portland cements compliant with ASTM, AASHTO or CRD specifications. It can be used in combination with other Sika admixtures including microsilica, water reducers, superplasticizers, set retarders and air en-trainment agents. Admixtures have to be added separately to the concrete mix in order to deliver the results required.

Sika<sup>®</sup> CNI may slightly reduce the entrained air content and a higher dosage of the air entrainment agent may be required.

**Concrete Setting Time**

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

**Dosage**

The recommended dosage rate will vary between 2 and 6 gallon per cubic yard ( 10-30 L/m<sup>3</sup>) of concrete, depending on the severity of the corrosion environment, In absence of a specified dosage rate, please contact your local Sika representative.

Sika <sup>®</sup> CNI		Chlorides	
(gallons/ c.y.)	(L/m <sup>3</sup> )	(lbs./c.y.)	(kg/m <sup>3</sup> )
2	10.0	6	3.5595
2½	12.5	8	4.7460
3	15.0	9.9	5.8732
3½	17.5	11.5	6.8224
4	20.0	13.0	7.7123
4½	22.5	14.1	8.3648
5	25.0	15.0	8.8988
5½	27.5	15.6	9.2547
6	30.0	16.0	9.4920

**Mixing**

Measure the required quantity manually or by automated dispenser. Add Sika<sup>®</sup> 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<sup>®</sup> CNI and thus, maintain the required water/cementitious ratio.

The batch water must be adjusted by reducing 7.0 lbs. (.635 kg) of water per gal. (liter) of Sika<sup>®</sup> CNI.

## Technical Data

<b>Colour</b>	Greenish liquid
<b>% Active Ingredients</b>	30% Calcium Nitrite Solution
<b>Unit Weight</b>	10.7 ± 0.1 lbs/gal (1.28 ± 0.02 kg/l)
<b>Storage/Shelf Life</b>	Sika <sup>®</sup> CNI will begin to freeze at 5F (-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 50°F and 80°F (10°C - 27°C) is two years minimum.
<b>Packaging</b>	Available in 200 liter.
<b>Safety Instructions</b>	Irritant; Eye irritant. May cause skin irritation, redness and pain at the site of contact. Ingestion may cause effects to the GI tract, such as irritation, nau sea, vomiting, slow respiration, collapse and coma. Repeated small doses may cause a fall in blood pressure, repid pulse, headache, and visual distur bances, Inhalation-may cause respiratory tract irritation leading to sore throat, coughing, and breathing difficulties. General ventilation and / or local exhaust ventilation is 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 vapors, an NIOSH organic vapor respirator with HEPA filter is recommended. Wash thoroughly after handing. <b>DANGER : Do Not Allow Material To Dry, Resultant Powder is An Extreme Oxidizer.</b>
<b>First Aid</b>	Eyes-rinse eyes 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.
<b>Spill Clean - Up</b>	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 and oxidizer and is classified as a ignitable waste.

The information, and, in particular, the recommendations relating to the application and end-use of Sika 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 accordance with Sika's recommendations. 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 user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



**Sika (Thailand) Limited**  
Head Office  
700/37 Moo 5 Bangpakong Industrial Park II,  
Km.57 Bangna-Trad Rd., T. Klongtamhru,  
Muang District, Cholburi 20000

Tel : +66 3821 4270-85  
Fax : +66 3821 4286  
E-mail : sikathai@th.sika.com  
website : <http://www.sika.co.th>

Sika<sup>®</sup> CNI 3/3

