

# PRODUCT DATA SHEET

## Sika® CNI

### CORROSION INHIBITING ADMIXTURE

#### 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 meets the requirements of ASTM C 1582, Corrosion Inhibiting Admixture and ASTM C494, 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.

#### CHARACTERISTICS / ADVANTAGES

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, bridge decks, marine structures and many others.

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

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.

#### PRODUCT INFORMATION

<b>Packaging</b>	200 L drums and 1000 L flow bins Bulk supply in tanker trucks possible on demand
<b>Appearance / Colour</b>	Pale yellow to greenish liquid
<b>Shelf life</b>	12 months minimum from production date if stored properly in original unopened packaging
<b>Storage conditions</b>	Sika® CNI should be stored in a dry area between 5°C and 35°C. Protect from direct sunlight
<b>Specific Gravity</b>	~1.3 kg/l

## TECHNICAL INFORMATION

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### Concreting Guidance

The standard rules of good concreting practice for production and placing must be observed when using Sika® CNI in concrete. Refer to relevant standards.

Fresh concrete must be cured properly especially at high temperatures in order to prevent plastic and drying shrinkage. Use Sika® Antisol® products as a curing agent or apply wet hessian.

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## APPLICATION INFORMATION

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### Recommended Dosage

The recommended dosage rate will vary between 10 and 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. Adjust water content accordingly. Sika® 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® CNI may be used for cold weather concreting.

Trial mixes must be performed to establish the exact dosage rate required.

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### Compatibility

Sika® 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 entrainment agents.

Admixtures have to be added separately to the concrete mix in order to deliver the results required. Sika® CNI may slightly reduce the entrained air content and a higher dosage of the air entrainment agent may be required.

We recommend to perform trial mixes to establish the required performance when combining Sika® CNI with other products or admixtures.

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### Dispensing

Measure 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 0.839 kg of water per Liter of Sika® CNI.

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### Restrictions

When using Sika® CNI a mix design must be selected for the local material sources used and trial mixes performed to verify suitability.

If frozen and/or if precipitation has occurred, it may only be used after thawing slowly at room temperature and intensive mixing.

Sika® CNI should not be added to dry cement. Before pouring, suitability tests on the fresh concrete must be carried out. Due to the extended workability take special care that formwork is properly installed and secured. In case the setting time of concrete is extended, if cured properly, other properties may not be affected and higher ultimate strength is visualized.

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## BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## LEGAL NOTES

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 NORTHERN GULF

Bahrain / Qatar / Kuwait  
Tel: +973 177 38188  
sika.gulf@bh.sika.com  
gcc.sika.com

### SIKA SOUTHERN GULF

UAE / Oman / SIC  
Tel: +971 4 439 8200  
info@ae.sika.com  
gcc.sika.com

### SIKA SAUDI ARABIA

Riyadh / Jeddah / Dammam  
Tel: +966 11 217 6532  
info@sa.sika.com  
gcc.sika.com



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Sika Gulf B.S.C. (c)

All products are supplied under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

### Product Data Sheet

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