

LIQUID SHRINKAGE-REDUCING ADMIXTURE FOR CONCRETE AND MORTAR

Description

Shrinkage is the reduction in concrete volume (contraction) that occurs without loading, mainly due to water loss and cement hydration. It can lead to cracking, allowing harmful substances to enter and reducing durability.

NIROSAFE SRA is a liquid shrinkage-reducing admixture that lowers both autogenous and drying shrinkage without affecting the concrete's strength. It works by chemically reducing capillary forces and contains no expansive materials.

Uses

- ✓ Floors, Walls and foundations
- ✓ Silos and concrete pipes
- ✓ Bridge decks and parking garages
- ✓ Watertight structures (e.g., water tanks, swimming pools, reservoirs, sewage treatment plants)
- ✓ Underground construction
- ✓ Suitable for use in ready-mix, precast, and pre-stressed concrete, as well as in mortar, grout, and wet-mix shotcrete

Advantages

- ✓ Effectively reduces autogenous and drying shrinkage
- ✓ Compatible with all cement types; maintains strength
- ✓ Minimizes crack widths for enhanced durability
- ✓ Allows increased joint spacing in slabs
- ✓ VOC-free (Class A+) – safe for indoor use
- ✓ No impact on superplasticizer dosage
- ✓ Suitable for various surface finishes
- ✓ Provides a harder, dust-free surface
- ✓ Easy to use and cost-effective
- ✓ Helps reduce labor costs.

Working Mechanism

NIROSAFE SRA acts through a physical mechanism by lowering the surface tension of pore water in concrete. As water evaporates, curved menisci form in capillary pores, creating capillary stresses that pull on pore walls, causing shrinkage.

NIROSAFE SRA reduces these stresses by lowering surface tension, thereby minimizing shrinkage strain and reducing cracking. Unlike expansive agents, SRAs do not cause expansion, but instead prevent the internal stresses responsible for shrinkage.

Characteristics

Form	: Liquid
Relative Density	: 0.97 ± 0.02 at 25°C
pH	: Min. 6
Chloride ion content	: Nil (As per BS 5075 Part I)

Directions for Use

NIROSAFE SRA is compatible with all types of EN 197 cements. For optimal performance, it should be dispensed after approximately 60% of the mixing water has been added.

It can also be added directly into the truck mixer, provided that adequate mixing time is ensured to achieve a fully homogeneous mix.

Compatibility

NIROSAFE SRA is compatible with other NCL admixtures in the same concrete mix. All admixtures should be added to the concrete separately and must not be mixed together prior to addition. The performance of concrete containing more than one admixture should be assessed by trial mixes to ensure the desired combination of effects is obtained.

NIROSAFE SRA is suitable for use with ordinary Portland cement.

Contact NCL for advice on use with sulphate resisting cements and cement replacement materials

Dosage

Depending on the application, the dosage of **NIROSAFE SRA** typically ranges from 1.0% to 2.5% of the binder weight. For standard flooring concrete, a dosage of approximately 1% is recommended.

Dosages above the recommended range may be used, provided they are properly tested. The exact dosage required for a specific project targeting controlled drying shrinkage should always be confirmed through in-situ trials.

Non-chloride

Neither calcium chloride nor any chloride-based ingredients are used in the manufacture of **NIROSAFE SRA**

Technical support

NIRMAN CHEMICALS provides technical advisory services for on-site assistance and guidance on mix design, optimum dosage evaluation of trials.

Packaging

NIROSAFE SRA is supplied in 20 litre, 200 litre drums or in bulk on request.

Storage and Shelf life

NIROSAFE SRA store in original sealed containers at temperatures between 10°C and 30°C. Keep the product under cover, away from direct sunlight, and protected from extreme temperatures.

Failure to follow these storage guidelines may lead to premature deterioration of the product or its packaging. Shelf life is 12 months when stored as above.

For specific storage advice consult our local NIRMAL CHEMICALS representative.

Safety precautions

NIROSAFE SRA does not fall into the hazard classifications. However, it should not be swallowed or allowed to come into contact with the skin and eyes.

Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with the eyes it shall be rinsed immediately with plenty of water and medical advice sought immediately. If swallowed, medical attention shall be sought.

Fire

NIROSAFE SRA is water based and non-flammable.

Cleaning of Tools

Clean all tools and application equipment with water immediately.

Note

All Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact our local NIRMAL CHEMICALS representative.

Disclaimer

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labor involved in the application are beyond our control.



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