NIRMAN CHEMICALS

NIRODENSE HST

TECHNICAL DATA SHEET

MODIFIED LITHIUM SILICATE-BASED LIQUID CONCRETE FLOOR DENSIFIER & HARDENER

Description

NIRODENSE HST is a modified lithium silicate-based concrete densifier and hardener developed using Hybrid Silicate Technology. It combines complementary silicate components designed to support concrete densification across surfaces with varying porosity, density and hardness. These variations can occur within the same floor due to differences in mix composition, compaction, curing, finishing and aggregate distribution.

The hybrid silicate system is designed to penetrate accessible concrete pores and react with available calcium-bearing compounds to promote the formation of additional calcium silicate hydrate (C–S–H). This reaction helps increase surface density and hardness, improving the durability of suitable concrete surfaces.

When properly applied as part of a suitable concrete grinding and polishing system, NIRODENSE HST helps reduce surface dusting, improve abrasion resistance and support enhanced polished colour, gloss and visual clarity.

Uses

NIRODENSE HST is suitable for densifying and hardening machine-trowelled, burnished and polished concrete surfaces, including:

- Industrial floors and warehouses
- Commercial buildings and shopping centres
- Parking areas and service facilities
- Workshops and automotive garages
- Retail and other high-traffic concrete floors
- Residential garages and basement floors
- Pole barns, sheds and other machine-trowelled concrete floors
- Burnished or polished concrete surfaces
- Other suitable cementitious surfaces requiring densification and surface hardening

Advantages

Hybrid Silicate Technology: Designed to promote effective and uniform densification across concrete surfaces with varying porosity and absorption characteristics.

Surface Hardening: Reacts with available cementitious compounds to help increase surface hardness and density.

Dust Reduction: Helps reduce surface dusting and improve floor cleanliness.

Improved Abrasion Resistance: Enhances resistance to wear from pedestrian and industrial traffic.

Enhanced Polished Appearance: Helps improve colour depth, gloss and visual clarity when used with a suitable concrete grinding and polishing system.

Reduced Surface Porosity: Helps reduce surface porosity and liquid absorption, depending on substrate conditions.

Non-Film-Forming Treatment: Densifies the concrete without relying on a conventional surface film when properly applied.

Water-Based Formulation: Suitable for professional concrete-floor treatment applications.

Typical Properties

Aspect	: Clear to turbid liquid
Relative Density	: 1.1 ± 0.02 at 25^{0}C
pH	: Min. 6
Chloride ion content	: Nil (As per BS 5075 Part I)
VOC Content	: 0 g/L
Freeze Point	: 0° C

Directions for use:

Surface preparation

Substrates to be sealed must be a minimum of 28 days old and/ or be fully cured, which should be clean and porous enough to allow penetration into the substrate. Surfaces should be clean and free of surface laitance, dust, dirt, debris, mildew, oil, grease, previous sealers, curing agents, paint or other surface coatings, and other contaminants. If acid or other cleaning compound is used for cleaning or etching the surface, neutralize the surface completely before application of NIRODENSE HST.

Application Method

1. Apply NIRODENSE HST uniformly using a low-pressure sprayer, microfiber applicator or suitable floor-treatment equipment.
2. Spread the material evenly to achieve uniform surface contact.
3. Work the liquid into the concrete using suitable equipment where required.
4. Maintain the recommended wet contact time established during application trials.
5. Prevent uncontrolled pooling and remove excess liquid before it dries into a residue.
6. Allow the surface to dry and cure according to site conditions and the validated application procedure.

COMPLETE CONSTRUCTION CARE

7. For polished concrete, follow the applicable grinding and polishing sequence.

Important: Do not allow silicate residue to dry as a heavy surface deposit. Actual contact time and residue-removal requirements must be established through field trials.
If a coarse non-slip surface is desired, start curing without any more finishing operations.

Drying and Return to Service

Drying time depends on ambient temperature, humidity, ventilation, concrete porosity and application rate.
Allow the treated surface to dry adequately before foot traffic. Heavy traffic, polishing and subsequent coatings should only proceed when the application-specific requirements have been met.
Final drying and return-to-service times are to be established by testing.

Limitations

- ✓ Not a substitute for a waterproofing membrane.
- ✓ Does not correct structurally weak, delaminated or severely deteriorated concrete.
- ✓ Does not replace a dedicated chemical-resistant or oil-resistant coating.
- ✓ Results depend on the availability of reactive calcium-bearing compounds in the substrate.
- ✓ Excess application may cause surface residue, whitening or other appearance defects.
- ✓ Compatibility with subsequent coatings, sealers and polishing systems must be confirmed before use.
- ✓ Clean the tools and equipment with water before the paste sticking to them hardens

Technical support

NIRMAN CHEMICALS provides technical advisory services for on-site assistance and guidance on mix design and applications.

Coverage

6-8 M^2/Kg for machine troweled and smooth surfaces.
Note: Coverage rates are approximate and for estimating purposes only. Application rate based upon porosity and absorption. Always test absorption prior to application.

Packaging

NIRODENSE HST is supplied in 20 kg, 250 kg drums or in bulk on request.

Storage and Shelf life

Store under cover, out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment.
Shelf life is 24 months when stored as above.
Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult our local NIRMAN CHEMICALS representative.

Safety precautions

NIRODENSE HST 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 immediately - Vomiting should not be induced.

Fire

NIRODENSE HST is 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 NIRMAN 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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