

NORTEC® DENSE CS

TECHNICAL DATA SHEET

Product Description

NORTEC® DENSE CS is a proprietary modified colloidal silica that permanently densifies and hardens cement-based building materials such as concrete, floor screeds, and dry-shake floors.

It is a transparent, solvent-free, non-flammable liquid—not a coating or impregnation—that preserves the natural appearance of the surface.

Compared to conventional silicate hardeners, *NORTEC® DENSE CS* offers a more controlled, consistent hardening process and a durable, environmentally friendly alternative to traditional densifiers and polishing systems.

Areas of Application

This product is primarily intended for horizontal surfaces exposed to mechanical stress from vehicle and pedestrian traffic and suitable for machine cleaning.

Typical applications include industrial floors, production and logistics areas, retail spaces, sports and exhibition facilities, decorative floors (e.g., terrazzo), and many other environments.

The product can be used on both interior and exterior surfaces, whether new or existing.

NORTEC® DENSE CS can also be applied retrospectively to refurbish and enhance existing surfaces.

By creating a denser microstructure in the hardened surface layer, water penetration into the concrete is significantly reduced. As a result, the product is suitable for minimizing the impact of harmful chemical exposure on the surface.

Restrictions and Limitations

NORTEC® DENSE CS is not suitable for improving lightweight construction panels or boards with large-pored surfaces that contain significant cavities or voids. Although some improvement in dust binding may be achieved, the product will not enhance the material's structural or functional performance.

For effective performance, the treatment must be able to penetrate the concrete pores and react with the hydration products. If penetration is prevented by existing coatings, hydrophobic treatments, or curing compounds (spray films), the beneficial effects will not be achieved.

If necessary, coatings or surface treatments that inhibit penetration should be removed by mechanical or chemical methods prior to application.

Effect and Function

Concrete derives its strength from the formation of calcium silicate hydrate phases (CSH).

NORTEC® DENSE CS initiates a unique, irreversible catalytic reaction that targets the micro- and gel-pore structure of the substrate. As a result, additional CSH phases are formed within the pore system, reducing porosity, strengthening the concrete matrix, and increasing long-term durability.

In addition, unreacted cement particles are activated to continue hydration. The newly formed CSH phases are silicate-rich, which further enhances chemical resistance and significantly reduces the penetration of harmful substances into the concrete.

Due to its nanostructure and neutral pH, this densifier is more reactive than conventional concrete hardeners. It reacts not only with residual calcium hydroxide, but also with other mineral components of the concrete and with itself, resulting in deeper and more comprehensive densification.

A single application of *NORTEC® DENSE CS* is sufficient for the entire service life of the concrete; repeat applications are not required.

The densification process begins immediately after application and may continue for hours, days, weeks, or even months, depending on concrete composition, ambient humidity, and temperature. In most cases, there is no waiting period, and treated surfaces can be subjected to mechanical loads just a few hours after application.

Unless mechanically polished, the treatment produces no visible surface film. Therefore, test areas treated with *NORTEC® DENSE CS* are not suitable for visual comparison with film-forming products.

Technical Properties

Form of Delivery: 5 l, 10 l, 20 l, 208 l, 1040 l, liquid

Colour: transparent

VOC: 0 g/l

Density: 1.1 - 1.2 g/cm³ at 20 °C

pH-Value: 5 - 8

Application Temperature: 5 °C to 40 °C surface temperature

Material Usage: 0.07 – 0.10 l/m² for horizontal smooth power troweled surfaces, more than 0.15 l/m² for structured and/or slightly porous surfaces. The amount depends significantly on the temperature of the environment and the quality of the building material. Experience has shown that in the case of screed surfaces, higher quantities are required.

Distribution and Application: The material is sold project based and can only be applied by authorized applicators.

Storage/Durability: Frost-resistant, can be stored for 18 months in original container.

Flammability: Non-flammable when applied as a building material; it does not create vapours or gas in the event of fire.

UV Resistance: No negative effects from exposure to UV light.

Notes: Material residue outside of the surfaces to be treated should be removed with plenty of water while still wet.

The improvement of the building material depends on age, cement content, moisture, porosity of the concrete, as well as the penetration of the product.

Disclaimer

All technical data, as well as the physical and mechanical properties stated in this product data sheet, are based on laboratory testing. Actual performance values may vary from those listed due to site conditions and other factors beyond our control.

Legal Notice

The above information, in particular the recommendations for the application and use of NORTEC® products, is based on our knowledge and experience under normal conditions, provided that the products are properly stored, handled, and applied. Due to the wide variety of materials, substrates, and site conditions, no guarantee of performance or assumption of liability—arising from any legal relationship—can be derived from this information or from verbal advice, unless such liability is based on intent or gross negligence on our part.

The user is required to provide NORSÄ GmbH, in writing and in a timely manner, with all information necessary for proper and effective technical evaluation. The user is also responsible for verifying the suitability of the product for the intended application. Product specifications are subject to change without prior notice. Third-party proprietary rights must be observed.

Our current terms and conditions of sale and delivery, as well as the most recent version of the product data sheet, shall apply. The purchaser's rights regarding product quality are governed exclusively by these terms and conditions.

All technical information is based on data provided by our manufacturing department and reflects the latest state of research, development, and application technology. No manufacturer's liability can be derived from the contents of this technical data sheet for applications outside our area of responsibility and control.

Our technical service team is available to provide support beyond the scope of the information contained herein. However, any information or statements provided require legally binding written confirmation from the manufacturer.

The instructions and recommendations in this technical data sheet do not relieve the user of the obligation to exercise due diligence in verifying suitability for the intended application. In case of doubt, the product should be tested on a small, representative area prior to full-scale application.

Your NORTEC® Partner:

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