

NORTEC® DENSE N TECHNICAL DATA SHEET

Product Description

NORTEC® DENSE N is a modified sodium silicate used to permanently solidify and harden surfaces of cement-based building materials (CEM I & II). *NORTEC® DENSE N* is not a coating, sealing, or silification agent!

It is a transparent, solvent-free, odourless, non-flammable liquid which is suited for improving cement-based non-porous surfaces, in particular concrete, floor screeds, and dry shake floors. The natural appearance of the floor is preserved.

Areas of Application

This product is primarily used on horizontal surfaces that are subject to mechanical stress from vehicle and people traffic and can be cleaned by machine.

Typical applications are industrial floors, production, logistics, retail spaces, as well as sports and exhibition facilities, decorative floors, and many more.

The product can be used on interior and exterior, new and old surfaces.

NORTEC® DENSE N can be applied retroactively to refurbish existing unsightly, dusting or otherwise worn surfaces.

Due to the denser microstructure of the hardened surface material, the penetration of water into the concrete is reduced. It is therefore suitable for reducing harmful chemical influences on the surface.

Restrictions and Limitations

NORTEC® DENSE N is not suited for the improvement of light weight construction panels or boards with large-pored surfaces that have significant cavities or voids. Even though it can result in an improvement to dust binding, it will not improve practical and useful construction characteristics.

In order for *NORTEC® DENSE N* to be effective it must be able to penetrate into the concrete pores and react with the hydration products of the concrete. If this is prevented due to existing (old) coatings, hydrophobing, or after treatment agents (spray film), the positive effects of *NORTEC® DENSE N* will not occur.

If necessary, the old coatings on existing surfaces blocking these effects should be removed via a mechanical or chemical treatment prior to the application.

Effect and Function

Concrete gets its strength from the formation of calcium silicate hydrate phases (CSH phases). *NORTEC® DENSE N* triggers a unique, irreversible catalytic reaction which targets the micro and gel pores in the building material. As a result, additional CSH phases are formed in the pore space, which reduces the porosity, strengthens the structure and increases the durability.

Also, any existing cement that has not reacted is stimulated to further reaction, and the newly formed CSH phases become silicate-rich which further strengthens their resistance.

This effectively minimizes the penetration of hazardous substances into the concrete.

A one-time application of *NORTEC® DENSE N* is sufficient for the entire lifetime of the concrete; repeated application is not necessary.

With *NORTEC® DENSE N*, the densification process begins immediately after surface treatment and continues for 6 to 12 months. There is generally no wait time, as the treated surfaces can be subjected to mechanical stress just a few hours after applying *NORTEC® DENSE N*. Regular wet cleanings accelerate the densification process and improve the chemical resistance.

Unlike simple sodium silicates or siliconates which form a thin shiny film on the surface due to their high solids content and high content of foreign substances and wear off under mechanical stress, the treatment with *NORTEC® DENSE N* results in a permanent catalytic reaction in the building material.

The effect on a surface finished with *NORTEC® DENSE N* will therefore not be visible to the user in the first few days after treatment in or on the surface of the material. Test surfaces treated with *NORTEC® DENSE N* are unsuitable for a quick visual comparison with film-forming products due to the longer maturation time.

Technical Properties

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

Colour: transparent

Odour: odourless

VOC: 0 g/l

Density: 1.1 - 1.2 g/cm³ at 20 °C

pH-Value: ≈11.3

The product is alkaline like cement paste.

The same safety instructions for handling fresh cement bound materials apply.

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

Material Usage: 0.15 – 0.25 l/m² for horizontal smooth power troweled surfaces, more than 0.25 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 indefinitely.

Wear Resistance: Abrasion resistance is increased considerably.

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.

Electrostatic Discharge Capacity: The natural electrical conductivity of the building material remains the same. The additional measures to be taken for polymer coatings to establish the bleeder resistor are not necessary.

Frost-Thaw Resistance: Treated concrete surfaces show less weathering compared to untreated surfaces.

Adhesive Bond: The mineral-enhanced surface has a positive effect on the adhesion of a variety of subsequently applied paints, coatings, or adhesives. Osmosis under coatings is considerably reduced after the densification process is complete.

Notes: Never allow the material to come into contact with glass or aluminium. If it happens, immediately rinse thoroughly with water.

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 in this product data sheet are based on laboratory tests. The values given can vary from those listed in the technical data sheet due to conditions outside of our influence.

Legal Notice

The above information, particularly the suggestions for application and use of *NORTEC® DENSE N*, are based on our knowledge and experience in normal situations, provided that the product has been stored and used properly. Because of the different materials, substrates, and varied working conditions, a guaranteed work result or a liability, from whatever legal relationship, cannot be claimed from this information nor from verbal consultation, unless we are guilty of intent or gross negligence in this regard. The user must prove that he has provided *NORSA* in writing with all findings required for the proper and effective evaluation, in good time and in full. The user must check the products for their suitability for the intended purpose. Changes to the product specifications are reserved. Third party property rights must be observed. Our respective sales and delivery conditions apply as well as the most current product data sheet.

All information originates from our manufacturing department according to the latest state of research, development, and application technology. For use and application outside of our area of responsibility and influence, no manufacturer's liability can be derived from the contents of the technical data sheet. Our technical service is available for any needs that go beyond the scope of the information, data, and instructions for the use described above. The information and statements in each case require a legally binding confirmation in writing from the manufacturer.

The instructions and recommendations in this technical data sheet do not release the user from the obligation of due diligence with respect to verifying the suitability of the intended application. When in doubt, test the product on a small surface area.

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