



Nitoflor® LH+

High performance lithium based hardener, strengthener and densifier for concrete floors with salt protection technology

Uses

Nitoflor LH+ floor hardener is used for surface hardening of new and old concrete to prevent dust generation and to reduce wear, particularly on exposed concrete. Typical areas of application include salt exposed areas, parking decks, marine environments, pedestrian walkways, stamped/colour concrete etc., on both new and existing concrete surfaces.

Advantages

- **Chloride ion screen** reduces salt penetration by 90% as tested following the NCHRP 244 procedures.
- **Superior in performance** over Sodium based systems
- **ASR Protection** - contains Lithium, the only chemical element known to mitigate damaging ASR (Alkali-Silica Reactivity)
- **Seals** micro-channels in concrete against chemical attack
- **Hardens** - making concrete stronger and abrasion resistant
- **Dust proofs** - creating a cleaner, healthier environment
- **Permanent One** - penetrating application is all that is required. No coating to peel or wear off.
- **Easy maintenance.** Makes cleaning easier. Reduces staining.
- **Satin sheen** to concrete works well even in subzero temperatures

Description

Nitoflor LH+ floor hardener is a lithium silicate based liquid hardener system which when applied on concrete surfaces penetrates into the micro channels and seals against water and chemical attack.

Technical support

Fosroc offers a comprehensive range of floor toppings and coatings. In addition, Fosroc offers technical support service to specifiers, end users and contractors, as well as on-site technical assistance in locations all over the country.

Properties

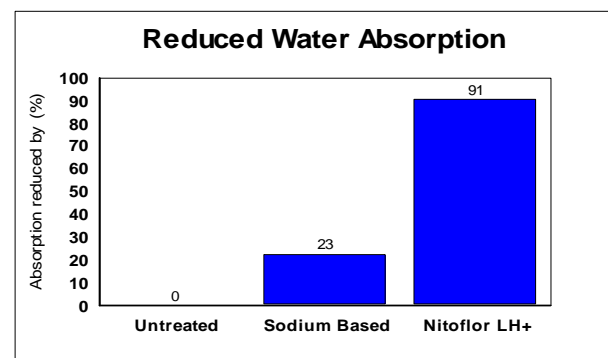
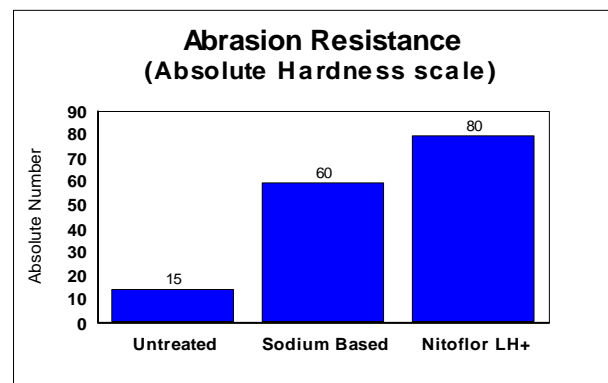
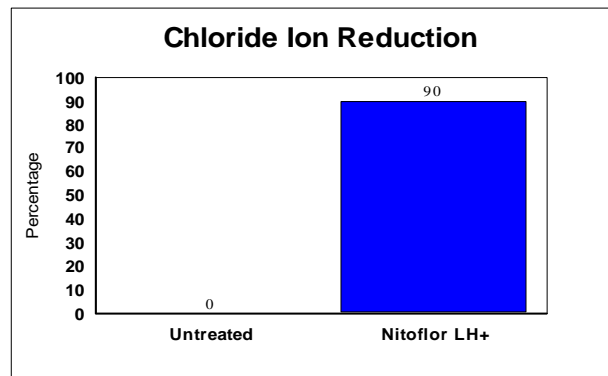
Abrasion Resistance (ASTM C779) - 45 % improvement

Hardening Test (ASTM C39) - 46% improvement @ 24 hrs.

Hardness Test (Moh's Scale Test) - 40% improvement

Curing Test (European Norms CenTC104SC3tg) - 94.5% @ 24 hrs. 86% @ 72 hrs.

Chloride ion reduction - 90% improvement



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Compatibility with cement types

Nitoflor LH+ floor hardener is suitable for use on concrete made with all normal OPC and PPC cements. However, where high pozzolonic content cement is employed, free lime may be low and the use of other Nitoflor toppings may be preferable. Fosroc shall be consulted for advice in case of doubt.

Properties

Hardness

An increase in the surface hardness occurs with all concrete where Nitoflor LH+ floor hardener has been used because of a chemical reaction with the cementitious materials. This automatically gives an improvement in the ability of the concrete surface to resist traffic and other forms of abrasion, and is permanent.

Penetration

The wetting agents in Nitoflor LH+ floor hardener assist penetration to considerable depth, unlike some treatments which merely form a superficial skin having a limited life.

Anti-dust

The main source of dust, from otherwise sound concrete floors, is the liberation of free lime which has not been converted fully in the hydration process. By converting this free lime into a hard crystalline material, this source of dust is eliminated. At the same time, the resistance of the concrete surface to penetration of oil and grease is considerably increased.

Specification Clauses

Performance specification

The liquid floor hardener used shall be a lithium silicate based system. When tested according to ASTM C779, the concrete treated with the system shall show an improvement in the abrasion resistance of at least 45% over control. When tested as per ASTM C39, the concrete treated with the system shall show a 46% improvement in hardening over control. The system should also impart a 40% improvement in the Moh's hardness scale test result and pass the curing efficiency test of 94.5% at 24 hours as per European norms CENTC104SC3tg).

Supplier Specification

The surface hardening of new and old concrete (specify details and areas of application) must be carried out using Nitoflor LH+ manufactured by Fosroc, applied strictly in accordance with the manufacturer's technical datasheets.

Application instructions

Preparation

The substrate shall be thoroughly cleaned of all foreign materials such as bond breakers, curing agents, form release oils, dust, construction laitance. Clean the surface with a high pH detergent and wash thoroughly. The surface shall be saturated with water. Let the water seep into the concrete, or remove excess.

Application

A low pressure, high volume sprayer shall be used to apply Nitoflor LH+ floor hardener so as to form a glistening sheen and to ensure complete saturation of the surface. Enough Nitoflor LH+ floor hardener shall be applied to keep the surface wet for 20 minutes.

If applied by hand, the sprayed material is spread with a lambswool roller once or twice and then spreading is stopped. If spread excessively, it tends to dry in streaks. After 20 minutes, the excess material may be removed and the surface shall be allowed to dry for 1 - 2 hrs. The floor is ready to use after the surface is dry. A light lithium residue may form on the surface after the floor is dry. This is the excess Nitoflor LH+ floor hardener which was not absorbed and can be removed by a stiff broom or power sweeper.

For an immediate shine, Nitoflor LH+ floor hardener shall be allowed to dry overnight and then polished with a high speed buffer equipped with a black pad, followed by a red pad.

Sealing / overcoating / striping

Concrete floors treated with Nitoflor LH+ floor hardener can be sealed /overcoated with Nitoflor epoxy floor coatings after 24 hours. The treated surface can also be painted for striping as there will be no chemical incompatibility between Nitoflor LH+ floor hardener treated surface and these paints.



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Maintenance

Floors treated with Nitoflor LH+ benefit from good routine maintenance. Regular scrubbing with a high pH detergent is recommended and can increase the shine. Tyre marks can be removed with a citrus type of cleaner. Oils and acids should be removed properly to prevent damage.

Chemical Resistance

Concrete treated with Nitoflor LH+ floor hardener shall resist chemical attack from the following compounds much more effectively. Extreme or prolonged exposures, especially to acids, may eventually cause some damage to concrete. However, concrete treated with Nitoflor LH+ floor hardener is more resistant to staining.

Acids

Acetic Acid	<10%
Acid waters	pH<6.5
Chromic	5%
Hydrochloric acid	10%
Phosphoric Acid	10% & 85%

Salts

Nitrate	Nitrite
Persulphate	Sodium sulphate
Sodium Chloride	Sodium Thiosulphate
Petroleum Oils -	Light oil

Solvents and Alcohols

Carbon tetrachloride	Ethyl Alcohol
Methyl alcohol	Trichloroethylene
Acetone	Carbon Disulphide
Vegetable oils	Glycerine
Fats & Fatty acids	
Coal tar distillates	

Miscellaneous

Cold ashes	Buttermilk
Chlorine Gas	Nickel plating solutions
Cider	Ores
Coal	Corn syrup
Lignite oils	Manure

Mine water waste Sugar

Wine	Water
Fermenting fruits / vegetables Extracts	Formaldehyde

Stain Resistance

Concrete treated with Nitoflor LH+ floor hardener is more resistant to staining. After cleaning, the stain was evaluated according to the following scale:

- 0 - No change in stain, very visible
- 3 - Slight change, but stain still very visible
- 8 - Large change, stain barely visible
- 10 - Stain completely removed and no longer visible.

Tomato paste	8 Mustard	8
Soda	10 Ice cream	8
Gum	8 Beer	8
Coffee	10 Tea	8
Wine	5 Paint	3
ink	3 Butter	3

Estimating

Packaging

Nitoflor LH+ floor hardener is supplied in 20 & 200 ltr containers.

Coverage

Spray applied - 10 - 12m² per Ltr on power trowelled surfaces. On textured surfaces the coverage will be much lower.

Storage

Shelf life

12 months if stored in a dry place in unopened packages.



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Precautions

Health & Safety instructions

Nitoflor LH+ floor hardener is non flammable, non toxic water based formulation. It contains no solvents, or harmful levels of VOCs. It is not carcinogenic or mutagenic and may be used in food preparation areas. Nitoflor LH+ is odorless during and after application and also allows concrete to breathe.

Fire

Nitoflor LH+ is non-flammable.

Additional information

Technical data and guidance can be provided on a wide range of concrete admixtures, concreting aids, waterproofing and other materials including floor sealers/toppings, repair systems and industrial machinery grouts.

Separate datasheets are available on these products.

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Important note :

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