

SECTION 9

FAST CURE
TROWEL-APPLIED
POLYURETHANE

Nuthane SB[®]

NUTHANE SLURRY & BROADCAST (SB) POLYURETHANE FLOORING SYSTEM

DESCRIPTION

Nuthane is an industrial grade floor topping system specifically designed for the Australasian food industry. Nuthane resin is blended with specially graded silica quartz aggregates to produce a floor system that is hard and durable, resistant to impact, abrasion, thermal shock and chemicals/food acids, yet is non-porous, hygienic and easily cleaned.

The Slurry & Broadcast system gives a thinner, more uniform base.

TYPICAL PHYSICAL PROPERTIES & FEATURES

- Nuthane is a heavy duty monolithic 6 mm thick floor topping based on polyurethane technology.
- No smell during application.
- Low temperature application. Use above 5°C.
- Application to damp (but cured) concrete surfaces.
- Very high chemical resistance (see separate chart)
- Excellent abrasion resistance (6 times that of basalt concrete).
- Excellent impact resistance.
- Excellent adhesion to properly prepared substrates.
- Easily cleaned.
- Good slip resistance.
- Able to be formed into coving, plinths, sumps, etc.
- Good resistance to thermal shock.
- Contains **Sterishield** as a bacterial growth inhibitor. Will not promote bacteria or fungal growth. Cured film is non-toxic.
- Not moisture permeable.
- Flexural strength: 25 Mpa
- Weight per m² @ 6 mm thickness: 14 kg/m²

RECOMMENDED USES

- Freezing works, abattoirs, butchery floors, bottling plants, breweries, cosmetic and pharmaceutical, and food and beverage processing plants.
- Dairy factory floors.
- Ablution blocks, kitchens, laundries, supermarkets.
- Floors where a high degree of chemical, mechanical and slip resistance is of prime importance.
- Food process floors where a high degree of hygiene is required. Approved by regulatory authorities.
- Interior/exterior use. Concrete repair and protection – resurfacing damaged or broken concrete with a more physical and chemical resistant surface.
- Can be applied to new or existing sound concrete, timber or other surfaces.
- Suitable for use in dry or wet situations including ramps.

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In accepting our goods the customer acknowledges:

(a) The materials are of a hazardous nature and that the customer is responsible for disposal of the container in accordance with the requirements and regulations of the relevant supervising government.

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LIMITATIONS

- Application to uncured concrete (minimum recommended cure 28 days). But will bond to damp concrete. Refer to Nuplex as we may give advice in specific applications. Refer to Tech Bulletin on "wet floors" on the Bulletin Board on the NZ Nuplex Construction Products website.
- Application to unstable or defective substrates without approved remedial treatment prior to installation.
- **Nuthane SB** is a slurry material and may not fill excessive floor undulations and/slopes. Refer **Sureshield** or **Surecote 500** for trowel-on materials.
- Applications over existing coatings/toppings (refer to Nuplex) or over concrete cure or release agents without Nuplex approval or over ceramic tiles without specific written Nuplex design specification.

CHEMICAL RESISTANCE

- Refer to Nuplex chemical resistance data.

SURFACE PREPARATION

- All concrete must be shotblasted or coarse diamond ground immediately before use.
- Coves may be installed at this stage using **Nuplex Surecote 500** resin. The **Nuthane** system uses epoxy coves. Employ metal coving strips as required.
- Edge recess constraints: This is compulsory to control topping shrinkage. A floor recess must be cut at all perimeters, doorways, around columns and both sides of floor or control joints. This is 8 mm wide and 6-8 mm deep and is cut 50 mm from the edge. It is cut with two blades and the internal area knocked out.

APPLICATION

Prime the properly prepared floor areas with minimum one coat of epoxy. Coverage rate and number of coats will vary depending on the porosity of the substrate, maximum coverage 6 m²/litre/coat.

Wait until the primer is dry and has gelled/set before overcoating.

Nuplex Nuthane must be applied in such a manner as to achieve a minimum 6 mm thickness. Use screed box, bars or install angle strips as a guide.

Accurately weigh and power mix until homogeneous **Nuthane** and resin activator in the ratio of 1:1 by weight.

Once the **Nuthane** resin and activator are blended well, mix with **Nuplex Nuthane** floor sand in the ratio of:

Mixed Resin : Nuthane **SB** filler aggregate: **1 : 3**

Resin / hardener / SB aggregates: 2.5/2.5/15 kg

Blend in an efficient mixer to ensure all ingredients are homogeneously blended.

Mix slowly to avoid aeration.

Apply **Nuplex Nuthane SB** flooring to correctly prepared and sealed substrate using a spreader box and/or a suitable glass, steel trowels, power float, etc, to obtain a 5-6 mm finish. Ensure the matrix is well compacted and free of ridges or unevenness. Successive mixes must be homogeneously blended together into wet **Nuthane** mixes. Access to repair wet floor areas during installation can be achieved using crampons or special spiked shoes.

Once levelled, broadcast evenly -1+600 aggregate into the wet surface at a rate of 3-4 kg/m². Broadcast until refusal and no more wet resin appears. This is heavy application rate. Work carefully to keep a clean working edge.

Adequate lighting is to be provided to ensure defective surface finishing can be easily identified and corrected during the installation process. Lubricate tools and equipment used during the installation with sparing quantities of water.

If applying at low temperatures, ensure good forced air cross draft to ensure a strong cure.

Ensure all finished edges of the **Nuplex Nuthane** are supported to avoid damage.

Optional coves and skirtings can be completed as the main floor is installed however they may be installed before

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installation of the floor. Use **Surecote 500 resin** to form coves.

Floors must be protected during cove/skirting installation.

One coat of **Nuthane Topcoat** is now roller applied at a spread rate of 2-3 m²/litre.

To do this, mix Nuthane Resin : Hardener : Topcoat filler in the ratio of: **4.0 : 4.0 : 4.0 kg**. Mix well and apply as stated in an even fashion over the **Nuthane** base coat and coves.

QUALITY ASSURANCE

A log shall be kept by the Nuplex contractor and made available to Nuplex at their request.

Information to be recorded daily is:

1. Material batch numbers used.
2. Sequence of mixing, ratios and quantities and formula.
3. Substrate moisture content.
4. Substrate temperature.
5. Ambient temperature.
6. Ambient relative humidity.
7. Application by Nuplex approved contractors.

Thinning: Do not thin.

Clean up: Acetone.

Cure and Dry Times:
(25°C 50% RH)

Workable pot life:	20-30 minutes
Hard Dry:	3 hours
Light foot traffic:	6 hours
Recoat:	within 24 hours
Full use:	12 hours

Health & Safety: Wear suitable protective eye glasses and clothing when using this product.

Shelf Life: 6 months in unopened containers. After this period suitability for use should be checked in consultation with Nuplex.

Pack Sizes:

- Nuthane Resin – 20 kg
- Nuthane Hardener – 20 kg
- Nuthane SB Filler – 15 kg bag
- Nuthane Topcoat filler – 4 kg pot

Colours: Factory batched for large, forecast projects. Unpigmented otherwise, add 5% by weight of the polymer (A) of Lanxess powder pigment.

Summary of Key Features:

- Zero odour
- Lower temperature cure
- Chemical resistant
- Hardwearing
- Higher thermal shock resistance than epoxies
- High abrasion resistance

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CHEMICAL RESISTANCE CHART

Nuthane vs Sureshield

Test procedure involves total immersion of the polymerised sample in a test medium at 25°C. The samples were observed for chemical attack and hardness throughout the testing period. The results below were taken after 3 weeks exposure.

Test Media	Concentration	Sureshield	Nuthane Polyurethane
ACIDS			
Hydrochloric Acid	10%	M	M
Sulphuric Acid	10%	M	M
	25%	U	M
Acetic Acid	10%	M	U
	50%	M	M
Nitric Acid	10%	M	M
Citric Acid	10%	M	U
Lactic Acid	90%	M	M
Phosphoric Acid	30%	M	M
ALKALIES			
Potassium Hydroxide	30%	A	M
Caustic Soda	50%	A	U
SOLVENTS			
Ethanol		M	U
Toluene		A	U
Acetone		D	M
Isopropanol		U	U
PETROCHEMICALS			
Kerosene		U	U
DISINFECTANTS & CLEANERS			
Detergent (DET 18)	100%	U	U
Bleach (2.5% Sod Hyd Cl)		M	M
MEKP – M50		A	M
SALT SOLUTION			
Brine	20%	U	U
OTHERS			
Sugar Syrup	40%	U	U
Distilled Water		U	U

LEGEND U = Unaffected (After 3 week exposure the samples have not changed)
M = Marked (Short term exposure, the test media will leave a mark on the sample)
A = Attacked (Short or long term exposure, the mechanical properties will deteriorate)
D = Destroy (Short or long term exposure, damage will occur)

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