

# Technical Data Sheet



Date Sept 2016  
Replaces May 2012

## NUTHANE SB POLYURETHANE HEAVY DUTY FLOORING SYSTEM

Also including Nuthane SB variants:

- Nuthane MD; Nuthane SBM; Nuthane T; Nuthane TP
- Nuthane TF Topcoat gloss option.

### DESCRIPTION:

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



### TYPICAL FEATURES & BENEFITS

- Nuthane is a heavy duty monolithic 6mm thick floor topping based on polyurethane technology.
- No smell during application. Non Tainting & Non dusting
- Dense and impervious. Non porous.
- Application to damp concrete surfaces. Low temperature application. Application to new concrete
- Easily cleaned and able to be waterblasted.
- High adhesion and wear resistance
- Topcoat finish Matt or Gloss systems as required.
- HACCP registration. 2014. Cleanroom Approved.

### PERFORMANCE DATA SB

- Very high chemical resistance to: Acids, alkalis, Solvents, staining materials, Hypochlorite, food acids, blood. Aggressive cleaners, short-term steam and hot water, etc. see separate data.
- Excellent abrasion resistance.
- Excellent impact & Flexural strength. Nuthane has high resilience making it more flexible and resistant to impact damage than other floor toppings. Excellent adhesion to properly prepared substrates. GB2567-2008. 2.77(KJ/m<sup>2</sup>). Concrete fails. Flexural strength: 25Mpa Tensile strength : 6N/mm<sup>2</sup>
- Fire properties to ISO 9239.1 Critical radiant flux (CRF) 11 kw/m<sup>2</sup>; Smoke value 41% min.
- Good thermal expansion properties: The high resin level (compared to aggregate loading) means the product exhibits good resistance to thermal shock. The Polyurethane resin base exhibits natural flexibility. Coefficient of thermal expansion 1.5x10<sup>-5</sup> /°C. Heat resistant to 100c. Good resistance to thermal shock. 9mm Systems heat resistant to 120c. (see other thickness at rear).
- Compressive Strength. Nom. 50-60mpa
- Electrical properties: surface resistivity 3x10<sup>8</sup> Ohm
- Good slip resistance. R10 to R13. (when used with sharp aggregate)
- Able to be formed into coving, plinths, sumps etc.
- Contains Sterishield as a bacterial growth inhibitor. Nuthane will not promote bacteria or fungal growth. Cured film is non-toxic.
- Not moisture permeable.
- Easily cleaned.
- Weight per m<sup>2</sup> @ 6mm thickness: 14kgs/m<sup>2</sup>
- Nuthane is supplied in coloured form. These are approximately matched to Australian AS2700 and British Standards BS5252. See colours at rear
- Many years of use in NZ and Australia.

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- The Product has a limited shelf life and must be stored strictly in accordance with the guidelines and specifications related to it.
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- **Word document specification** is available on our website.

**RECOMMENDED USES:**

- Freezing works, abattoirs, meat, small goods, fish and food processing plants, butchery floors, bottling plants, breweries, Cosmetic & Pharmaceutical & 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 and also over old resin floors
- Suitable for use in dry or wet situations including ramps.
- To provide excellent underfoot slip resistance in commercial applications.

**Warranty**

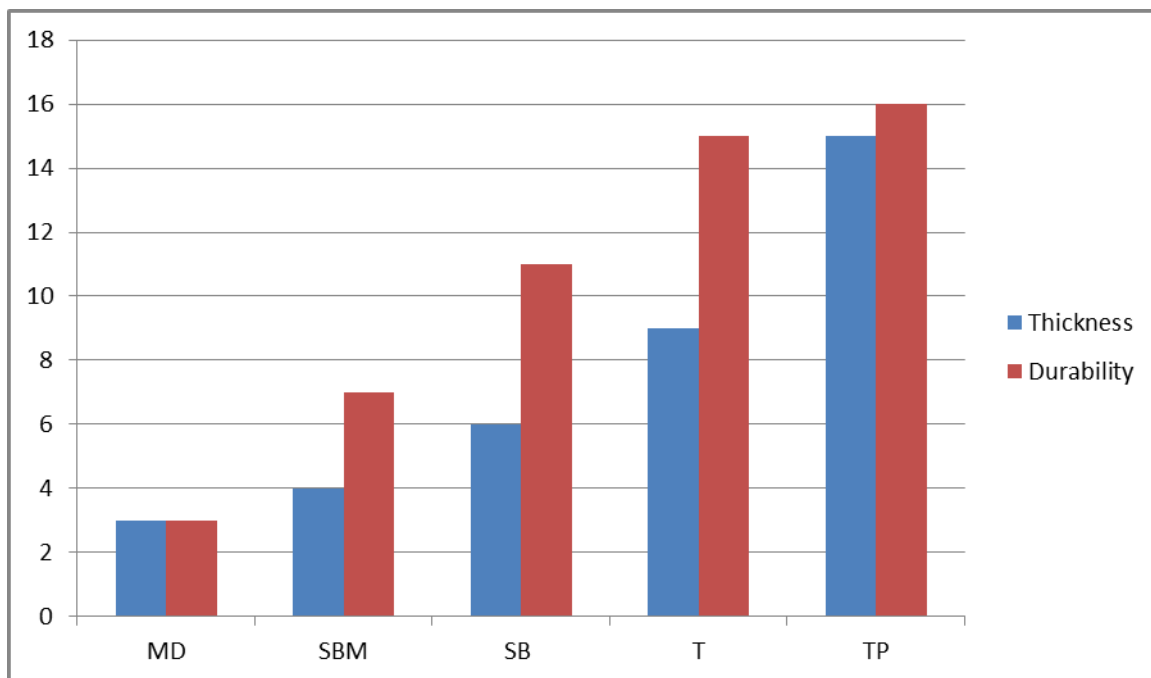
Nuthane SB, T, TP are warranted for 10 years for durability. See warranty form

Nuthane variant descriptions

System	Thickness (mm)	Description	Application
MD	3-4	Smooth finish	Lighter duty
SBM	4-6	Similar to SB but finer aggregate mix. Non-slip	As for SB but for less intense environments if used at 4mm
SB	Nominally 6 mm; may be applied at 4mm in some circumstances	Standard system for industrial floors. Non-slip	Normal non-slip for wet heavy duty industrial floors at 6mm.
T	8-10	Heavy duty trowel. Trowelled non-slip.	For use in environments where a more heat and chemical resistant product is needed. Better chipping resistance.
TP	12-20mm variable	Heavy duty trowel. Trowelled non-slip.	As for T version ; deep fills

**Note well**

Performance in complex heavy duty environments with impacts and chemical and heat attack is very dependent on thickness. The thicker the floor topping, the more capable that topping is of long term performance. In the chart below "Durability" is a relative guide only for industrial environments.



## LIMITATIONS:

- Nuthane SB will bond to sound concrete but will not bond to weak, friable concrete surfaces
- Concrete shall be cured however Nuthane will bond to damp concrete. Refer to Nuplex as we may give advice in specific applications. Refer to surface preparation below and/or Tech Bulletin on "wet Floors" on the Bulletin board on the website. Normal abrasion techniques must apply.
- Nuthane will bond to concrete that is 7 days old as long as specific concrete design and installation specifications are adhered to. It should be emphasised that success in this application is fully attributable to concrete design.
- 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/or slopes. Refer Sureshield or Supascreed or Nuthane T for trowel-on materials.
- Application 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.
- Choose the Nuthane grade that suits the intended application.
- Nuthane will yellow upon exposure to UV. Nuthane may be used in many circumstances, interior and exterior. But do be aware of yellowing colour changes on exposure to UV light. This does not affect performance durability.
- Refer to Nuplex chemical resistance data.

## SURFACE PREPARATION:

- All concrete must be shotblasted or **coarse** diamond roughened or scabbled immediately before use.
- Coves may be installed at this stage using Nuplex Supascreed resin. Employ Nuplex metal coving strips as required.
- Concrete shall be heavily floated to provide strong compaction.
- A floor recess should be cut at all perimeters, doorways, around columns and both sides of floor or control joints. This is 5mm wide and 6-8mm deep and is cut 50mm from the edge. It is cut with two blades and the internal area knocked out.
- **Wet concrete** : Nuthane will bond to damp concrete but take care with weak, uncured concrete. Please follow this guidance:
  - 1.0 If planning to lay after 48hrs, scabble or shot blast the concrete to "open the surface" and use fans to dry the surface to accelerate drying. Allow no further surface wetting. Extend this time in poor conditions. Ensure good air movement in enclosed spaces.
  - 2.0 **Wet and uncured concrete** (when less than 28 days) concrete : Allow no further wetting- (rain). The concrete design must be controlled for early cure and low water content.

The engineer must ensure that the concrete has: a Low water / cement ratio, is a high strength and rapid setting concrete, contains water reducing agents and early curing agents.

It must be certified by the concrete placer that the above has occurred. For the warranty, above, to apply certification of the engineered concrete must occur and Nuplex and its contractor must see evidence of its formulation and correct installation.
  - 3.0 Scabble or shot blast the concrete to "open the surface" and use fans to dry the surface for >24hours.
- **Prefill: Nuplex offer** STZ prefill system types for adding falls, slope modification and floor angles.

see that data sheet for info.

**Creating new floor falls**

Many old concrete surfaces (and some new ones) need falls to be created to drains. This is often excessively expensive to use resin systems to create these new sloped falls.

Nuthane will bond to concrete placed to falls with the same conditions as shown in the paragraph above. Add Nuplex Araplex SBR to the concrete mix in the recommended doses to ensure adhesion and flexural strength.

Scabble the existing floor down to ensure a transition depth of 50mm (ie avoid featheredging the placed concrete )

For smaller areas it may be desired to place STZ Prefill Screed 20 or 20+ to create new falls. Nuthane will bond to these after cure of 48hrs.

In all cases, the placer of the Prefill must ensure its full adhesion to the original substrate – consider specialist adhesion promoters eg K80 epoxy.
- **Coving:** Consider whether coves are installed before or after the main floor area. It is normal to install all coves prior to the main floor area.
- **For all details:** [http://www.nuplexconstruction.com/pdf/Details\\_resin-floor-toppings.pdf](http://www.nuplexconstruction.com/pdf/Details_resin-floor-toppings.pdf)
- **Finally before placement of Nuthane,** All concrete must be shotblasted or coarse diamond roughened or scabbled immediately before use.

**APPLICATION:** IMPORTANT: Use Nuplex approved contractors with teams that have the skills, capability and experience to undertake the contract size, time schedule and complexity in question.

For porous concrete, prime the properly prepared floor areas with minimum one coat of Supascreed Primer. Coverage rate and number of coats will vary depending on the porosity of the substrate, Maximum coverage 6m<sup>2</sup>/litre/coat. Lightly broadcast with aggregate to aid adhesion and trowelling. Wait until Supascreed Primer is clear and has gelled/set before overcoating. Install coves.

Condition all materials in good conditions >16c. Mix materials and take to the worksite. Cold materials will be difficult to apply. Nuplex Nuthane must be applied in such a manner to achieve a minimum 6mm thickness. Use screed box, bars or install angle strips as a guide.

Accurately weigh and power mix until homogeneous Nuthane, resin and 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.**

Example mix: **Resin / hardener / SB aggregates: 4: 4: 24 kg.** This mix will cover 3.2m<sup>2</sup> approx.

or **Resin / hardener / SB aggregates: 2.5: 2.5: 15 kg.** This mix will cover 2m<sup>2</sup> approx.

Blend in an efficient mixer to ensure all ingredients are homogeneously blended. Mix slowly to avoid aeration.

*Nuplex SB Nuthane* flooring to correctly prepared and sealed substrate using a spreader box and/or a suitable glass, steel trowels, power float etc to obtain a 5-6mm 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 K20s** aggregate (Larger 18/36 is an option) into the wet surface at a rate of 3-4kg /m<sup>2</sup>. Broadcast until refusal and no more wet resin appears. This is a 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. Keep equipment used during the installation clean to prevent lumps developing.

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

Slip resistance is controlled by the broadcast aggregate:

- K20s fine non-slip, attractive safe floor.
- 18/36 for a coarser underfoot finish
- 7/14 for very secure no slip
- 18/36 with Silicon carbide for sharp "grabby" non-slip in very slippery situations.

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 installation of the floor. Use Nuplex Nuthane Cove mix to form coves. Floors must be protected during cove/skirting installation.

Other systems

	Resin : Hardener : Aggregate	Coverage	Application method	Broadcast	Topcoat	Use
MD	8 + 8 + 16	7m <sup>2</sup> @ 3mm	Spread by Screed rake	none	None; but gloss may be increased with AQUACLEAR	Smooth cleanroom floors
SBM *1	4 + 4 +24 or 2.5 + 2.5 + 15	See above in SB main data.	Slurry and broadcast	As per SB. K20s would be best here.	As for SB	Industrial Non-slip floors
T	2.5 + 2.5 + 25	1.2m <sup>2</sup> @ 12mm	Trowel	None	Not normally top coated; finished "off-trowel".	Industrial Non-slip floors. Heavy duty. eg loaders. Operating Chiller floors – see tech bulletin
TP	Use STZ prefill as base (Screed 20+); then use Nuthane T as above. See data on screed 20+	As above or as required.	Trowel	None	Not normally top coated	Industrial Non-slip floors. Deep fill to falls.

\*1 Note Compared to SB, SBM will be a thicker mix. It may require less incorporated aggregate to achieve a spreadable mixture.

### Topcoating

Once the body coat is applied with a non-slip aggregate, allow it to cure. Sweep hard and vacuum to remove loose broadcast aggregates. Then apply the topcoat system

**TOPCOAT** The topcoat application provides an even result on the non-slip finish.

A variety of systems are available.

		Finish	Base	Odour	Light Stability
1.0	Standard Nuthane Topcoat	Matt	Uses Nuthane resin	No Odour	Will yellow
2.0	Nuthane Topcoat TF	Gloss	Uses Nuthane resin	No Odour	UV stable
3.0	Nuthane with Supadeck UV Topcoat – see separate datasheet	Gloss	Uses separate topcoat resin	Solvent odour	UV stable
4.0	Nuthane with Surecote System 500AR – see separate datasheet	Gloss	Uses separate topcoat resin	No Odour	Some slow yellowing

#### 1.0 Standard Nuthane Topcoat

One coat of **Nuthane Topcoat** is now roller applied at a spread rate of 3-4m<sup>2</sup>/litre To do this, mix: Nuthane Resin: Hardener: Topcoat filler in the ratio: **4.0:4.0:4.0 Kg (12 kg/ 8Lts)**. Mix well and apply as stated in an even fashion over the Nuthane base coat and coves.

#### 2.0 Optional TF topcoat system

One coat of **Nuthane TF Topcoat** is now roller applied at a spread rate of 2 -3 m<sup>2</sup>/litre.

( The Nuthane Topcoat resin catalyst and Supadeck TF hardener will be required).

Mix very carefully using a skilled and trained operator.

Mix: 1.5 Kg Resin with 7.5ml (0.5%) catalyst, add 2.75 kg Supadeck TF hardener and 1.5 Nuthane topcoat filler = 5.75kg mix, (see below).

The catalyst is needed in the resin to obtain good cure times. Failure to add that catalyst will result in cure not occurring. It may be more convenient to add the catalyst to a full pail (20kg) of Nuthane resin. This would be that 20kg plus 100mls Nuthane Topcoat resin Catalyst).

Mix components well. Apply using a double armed roller so that force may be used to apply a thin even coat. Do not allow to pool or puddle as thick applications may blister. Take care to apply a thin even film to avoid curing blisters. If brushing coves, then backroll. This mix will cover approx 24-30m<sup>2</sup>. For a smoother finish, apply a second topcoat.

TF topcoat cure time	Catalyst addition to resin ratio	Pot life (Minutes)	Touch dry time (hrs)
	0.2%	21	6.5
	0.4%	16	5
	0.6%	10	4

### QUALITY ASSURANCE:

A log shall be kept by the licensed Nuplex contractor and made available to Nuplex Industries Ltd at their request. Information to be recorded daily is:

1. Concrete sub-base or prefill mix.
2. Material batch numbers used.
3. Sequence of mixing, ratios and quantities and formula.
4. Substrate moisture content & Substrate temperature.
5. Ambient temperature / Ambient relative humidity.
6. Daily detail of licenced contractors on-site.

### THINNING:

Do not thin.

### CLEAN UP:

Solvent HA

### CURE AND DRY TIMES:

(25°C 50% RH)	Workable pot life:	20-30 minutes
	Hard Dry:	3 hours
	Light foot traffic:	6 hours
	Recoat:	Anytime within 24 hours; after that time with prior abrasion
	Full Use:	>12 hours

**SHELF LIFE:** 12 months in unopened containers. After this period suitability for use should be checked in consultation with Nuplex.

### MAINTENANCE

Nuthane can be patched by reapplication of itself or patched with Supascreed. It is tolerant of all commercial cleaning products and methods. Hard brush scrubbing is the best method of cleaning.

**Pack Sizes:**

Nuthane Resin	20kg
Nuthane hardener	20 kg
Nuthane SB Filler	24 kg (15kg also)
Nuthane Top Coat filler	4 kg plastic pail

**For the TF Gloss topcoat:**

Nuthane Topcoat resin catalyst	500ml
Supadeck TF hardener	2.75 kg

**Broadcast**

Silica's K20s or 18/36	25kg
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**Coves**

Nuthane Cove mix:	Supascreed 20lt/6.7Lt
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**Colours**

Nuthane is supplied in coloured form. These are approximately matched to Australian AS2700 & British Standards BS5252.

- Red: 04C39,
- Green: 12B25,
- Cream ( yellowish off-white);
- Mid Grey: N45 koala Grey-10A07;
- Tan: 08D44;
- Black;
- "Curtain call".
- Traffic Grey
- Blue with TF topcoat.

However any darker / deeper toned colour can be matched. (Nuthane colour chart on Nuplex website).

**Summary of Key features**

- Zero odour / no contamination effects
- Substrate tolerant.
- Rapid installation
- Low temperature cure
- Heat & Chemical resistant
- Hardwearing & high adhesion
- Impact resistant



Nuthane Epoxy coves prior to Nuthane topcoat.

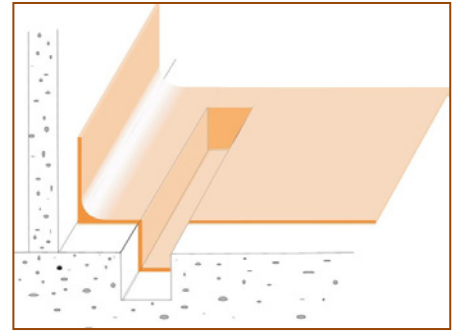


Application of Topcoat to Nuthane base.

**Detailing:**

Nuplex provide details to cover all site situations. These include: coves, expansion and control joints, vessel supports, machinery supports and penetrations, brain details.

[http://www.nuplexconstruction.com/pdf/Details\\_resin-floor-toppings.pdf](http://www.nuplexconstruction.com/pdf/Details_resin-floor-toppings.pdf)



**SOURCE:** Nuthane is suitable for use in Australia and New Zealand. Made by NUPLEX Industries Ltd .