NIPPOSEAL FLEXSIL *(formerly known as Nippon LM PUSIL)* *Updated May'23*

DESCRIPTION

NippoSEAL FLEXSIL is a one component, ready to use, green label certified moisture-cure PU liquid apply waterproofing membrane based on hybrid technology. It has most polyurethane and acrylic waterproofing performance criteria, yet, it does not have many of their associated disadvantages.

NippoSEAL FLEXSIL is free from solvents, isocyanate, and has extremely low volatile organic compounds (VOC). It does not require classification of marking as hazardous substance. It reacts fast with the moisture in the atmosphere to form tough yet elastomeric seamless waterproof membrane, giving it early rain resistant properties in 1 hour. **NippoSEAL FLEXSIL** can be applied at various substrates and under various conditions such as cold days and on damp surfaces. It is also an ideal solution for treating rising damp wall surface.

USES

NippoSEAL FLEXSIL is suitable for above ground, interior and exterior waterproofing applications such as:

- New and old RC flat roofs, roof terraces, balconies and walkways
- Complex detailing, up-stands, penetrations, scupper drains, and gutters
- Cool roofs
- Podium decks and pool decks
- Encapsulate asbestos of fibre cement
- Interior and exterior wet areas, fountains and water features
- Exterior walls
- Recoating on defective single ply roofs

ADVANTAGES

- Excellent waterproofing performance with high resistant to both positive and negative water pressure
- Cost effective wet on wet application, fast through cure and save time
- Excellent workability independent of environment conditions
- Resistant to standing water
- Early rain resistant
- Excellent adhesion on most substrates
- High solar reflectivity index
- Single liquid component and ready to use
- Excellent elasticity and tensile strength
- 100% reactive materials, high build coverage
- Non-shrinkage
- Excellent weathering and UV stable
- Extremely low VOC and odourless, non-hazardous, solvent free and isocyanate free
- Green label certified

Product Type	Product	Pack Size	Standard Color	Finishing	Substrate
Liquid Applied Waterproofing Membrane	**NippoSEAL FLEXSIL**	20kg / pail	**White, Grey, Green**	Matt to Low Sheen	Concrete

Application Data

Application temperature	: 0°C to 45°C
Service temperature	: -5°C to 80°C
Recoating Time Interval	: within 3 days
Theoretical Coverage*	: 0.6-1.0kg/m^2/coat (Note: the actual coverage depends on the type of substrate, substrate surface porosity, substrate texture, and whether a primer is used)
Special Notes	: Limit to foot traffic (i.e. periodic maintenance)

Typical Technical Data

Skin at 30°C, minutes	: 40
Specific Gravity	: 1.30
Solar Reflective Index	: > 100
Tensile Strength at Break, N/mm^2 (ASTM D412)	: > 2.0
Elongation at Break, % (ASTM D412)	: > 150
Adhesion to Concrete, N/mm^2 (ASTM D4541)	: > 1.4
Positive water pressure resistance, bar (DIN 1048)	: 6
Negative water pressure resistance, bar (DIN 1048)	: 4
Water absorption, %	: < 0.5
Green label compliance	: Compliance
Shelf Life	: 12 months

**All values given are subject to 5-10% tolerance*

Application Method

Substrate Preparation

Concrete and Masonry Substrate

The substrate must be thoroughly clean and dry, free from dust, algae, mildew, fungal, grease and oil. All the contaminants, previous waterproofing and impurity must be removed till bare substrate. Any cracks, honey combs, water leakage area should be repaired by **Nippon Paint Repair System** (for more detail, please refer to Nippon Paint Technical Department) before the waterproofing work proceed. The substrate must be sound and dry with no rising damp. The concrete surface should be flat and free from holes and undulations. Any holes and undulations should resurface with **Nippon Paint Scratch Coat System**. The surface should be clean smooth and cast to fall to allow water run-off.

Mixing

Stir the product thoroughly using mechanical mixer at a slow speed drill at 300-400 rpm fitted with suitable paddle for 1-2 minutes. Do not add any additional water or solvent to the product.

Application

Waterproofing

NippoSEAL FLEXSIL can be applied directly to most substrates without the need for primer. However, on certain surfaces and substrates, primers may be required, please consult Nippon Paint Technical Department. Apply the first coat of **NippoSEAL FLEXSIL** at a rate of 0.6kg/m^2/coat with a soft bristled brush or roller to completely cover the holes, cracks and etc. Once the first coat is touch dry, apply the second coat at a rate of 0.6kg/m^2/coat in order to achieve the required total dry film thickness at 1mm. The second coat shall be applied at right angles to the first coat.

For a reinforcement waterproofing system, apply the first coat of **NippoSEAL FLEXSIL** at a rate of 1.0kg/m2/coat. Next, carefully lay **Nippon Paint LM MAT**, a chopped strand fibreglass mesh onto the surface while it is still fresh. Press it down firmly to make sure it is perfectly wetted. Apply second coat of of **NippoSEAL FLEXSIL** at a rate of 1kg/m^2 and ensure no air is trapped beneath. Each subsequent coat shall be applied at right angles to the previous coat.

NippoSEAL FLEXSIL has high hydrophobicity upon application. However, if rain does fall before it has fully cured, small indents may occur on the waterproofing surface, allow a light overcoat within the recoating time to resurface it to smooth finish. Ensure there is no visible pinhole in the finished surface.

NOTE: All subsequent coat shall be applied within the recoating time of 3 days.

Detailing Treatment

All detailing should be applied before proceeding with the large field area. Right angle and corner should be pre-treated with 25mm **NippoBOND** modified cement sand angle fillet. Further treat the expansion joint with debonding tape before any reinforcement application. All upstands, penetrations and joints shall be pre-treated with reinforced waterproofing system, where **Nippon Paint LM MAT** shall be applied by using wet on wet method, overlapping at minimum 75mm.

Recommended Waterproofing System

Concrete Substrate

Waterproofing First Coat	**: NippoSEAL FLEXSIL**	0.6 kg/m^2/coat
Waterproofing Second Coat	**: NippoSEAL FLEXSIL**	0.6 kg/m^2/coat

Concrete Substrate (Reinforcement)

Waterproofing First Coat	**: NippoSEAL FLEXSIL**	1.0 kg/m^2/coat
Fibre Reinforcement	: Nippon Paint LM MAT	1 layer
Waterproofing Second Coat	**: NippoSEAL FLEXSIL**	1.0 kg/m^2/coat

Environmental Conditions During Application

1. Apply temperature: 0-45°C. Do not apply when the surface to be coated is less than 3°C above the dew point.
2. The humidity for application is 30-80%

Storage and Transportation

This product should be stored in original container in a shaded or cool and adequate ventilation warehouse. The storage temperature should be 15-35°C. This product should be away exposure from rain, UV, sunlight, source of flame and heat. When transporting, care must be taken. Failure to comply with the recommended storage may result in considerable premature deterioration of the product and shorten its shelf life. While reopen for reuse, if skin has formed, remove the skin and stir well before reuse.

Cleaning

Clean up equipment or tools with thinner immediately after use. Cured material can be removed mechanically.

Safety Precautions

- Keep it tightly closed in original packed container.
- Away from direct expose to sunlight.
- Always use protective hand gloves, goggle and dust mask when handling or applying the product.
- Dispose off any waste in accordance with the appropriate Environment Quality Regulations.

Note

*Theoretical Coverage is based on a mathematical formula and does not consider Loss Factor.

$$\left[\frac{Volume\ Solid\ \%\ x\ 10}{Dry\ Film\ Thickness\ (\mu)}\right] = m^2/lit/coat$$

This theoretical coverage rate has been calculated from the volume solids of the material and is related to the amount of coating applied onto a perfectly smooth surface without wastage. Variables like porosity of substrate, application method, dilution ratio, dry film thickness, opacity and so on will affect the loss factor and can vary from 30% - 50% or even more.

For a practical coverage rate, due allowance should be made for atmospheric conditions, surface roughness, geometry of the article being coated, the skill of applicator, method of application etc. when estimating quantities required for a particular job.