

**NIPPOGARD M4000-TA** (formerly known as Nippon SM Bitumen M4000)

*Updated Sept'22*
**DESCRIPTION**

**NippoGARD M4000-TA** is an atactic polypropylene (APP) modified bitumen waterproofing membrane, reinforced with non-woven polyester felt, surfaced with reflective natural color slates to provide weather protection against UV and mechanical protection against light foot traffic as well as offering an aesthetic surface. It exhibits excellent mechanical strength, elasticity and durability. It is designed to place on top of the existing r.c. roof surface and providing an economical efficient waterproofing solution to r.c. flat roof.

**USES**

**NippoGARD M4000-TA** is suitable for exposed waterproofing applications such as:

- Medium to large R.C. roof (expose and inverted roofs)
- Basement rafts slabs
- Underpass
- Bridges
- Exposed car park, ramps, and driveway
- Aprons

**ADVANTAGES**

- High flexibility to accommodate movements
- Excellent dimensional stability under tension
- High resistance to positive water and vapor pressure
- High puncture resistance
- High heat resistance
- Resists water-based chemicals

Product Type	Product	Pack Size	Finishing	Standard Color	Substrate
Sheet Form Membrane (Torch-Applied)	<b>NippoGARD M4000-TA</b>	10m <sup>2</sup> /Roll	Mineral	Grey	Concrete

**Application Data**

Application Temperature	: 5°C to 45°C
Theoretical Coverage	: 10m <sup>2</sup>
Special Notes	: Do not apply the coating on standing water wet or damp concretes : Provide adequate ventilation when installing in the confined areas : Avoid overheating of membrane

**Typical Technical Data**

Mass per unit area, kg/m <sup>2</sup> (DIN EN 1849-1)	: 4.5
Length, m (DIN EN 1849-1)	: 10
Width, m (DIN EN 1849-1)	: 1
Upper surface finish	: Grey slate flakes
Lower surface finish	: PE Foil
Softening point, °C (DIN EN 1427)	: 150
Penetration @25°C, mm (DIN EN 1426)	: 18-23
Polyester Reinforcement, g/m <sup>2</sup> (DIN EN 29073-1)	: 180
Tensile Strength (L/T) (DIN EN 12311-1)	: 750/650
Elongation at Break (L/T) (DIN EN 12311-1)	: 40/45
Shear Resistance at Joints (L/T) (DIN EN 12311-1)	: 600/500
Tear Resistance (L/T), N (DIN EN 12310-1)	: 160/170
Resistance to Static Load, kg (DIN EN 12730)	: 20
Impact Resistance, mm (DIN EN 12691)	: 1000

Dimensional Stability, % (DIN EN 1107-1)	: ±0.6
Heat/ Flow Resistance at 120°C (DIN EN 52123/DIN EN 1110)	: No Flow
Flexibility at 0°C (DIN EN 1109)	: No Crack
Water Absorption, % (ASTM D5147)	: 0.20
Hydrostatic Pressure Resistance at 5 bar (BS EN 12390-B)	: No Leakage
Water Vapour Transmission, g/m <sup>2</sup> /24 hours (ASTM E96)	: 0.01
Reaction to Fire (DIN EN13501-1)	: Class E
Adhesion to Granules, loss, % (DIN EN 12039)	: 15-25

*\*All values are subject to 5-15% tolerance*

## **Application Method**

### **Substrate Preparation**

#### **Concrete Substrate**

The substrate must be thoroughly clean and dry, free from dust, 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. The concrete surface should be flat and free from holes and undulations. Any holes and undulations should be resurfacing with Nippon Paint Scratch Coat System. The surface should be clean smooth and cast to fall.

#### **Priming**

Apply **Nippon Paint PRIMEBIT** at 4-6m<sup>2</sup>/L by brush, roller or spray, and allow to dry prior to application of **NippoGARD M4000-TA**.

#### **Alignment**

Unroll the **NippoGARD M4000-TA** membrane and aligning the side laps. Start the installation of membrane plies at the low point or drains, such that the flow of water is over or parallel to the plies, but never against the laps. All the overlaps joint shall be installed to have “up” slope laps over “down” slope laps. Side overlaps should be at minimum 100mm and end overlaps at minimum 150mm. Re-roll the roll of membrane halfway and stand on the unrolled portion to prevent shifting.

#### **Torching and Sealing**

**NippoGARD M4000-TA** membranes are installed by using a cylinder fed propane gas torch, and use hand held roofing torch is recommended as it affords a good control. Begin torching the embossed PE side of the rolled portion of the membrane till exposing a shiny bitumen surface. Proper torching procedure involves passing the torch flame in an “L” pattern applying about 75% of the heat across the coiled portion of the roll and 25% across the substrate, including the lap area of the previously installed membrane. Roll forward the membrane and press firmly with the boot or roller against the substrate to bond well.

The propane gas should be moved from side to side and up the lap edge while the membrane is slowly unrolled and adhered to the underlaying surface. Subsequent shift of the roll should be avoided after torching. The remaining unrolled membrane should be rerolled and installed in the same manner. When one end is completed, reroll the opposite end and install in the same manner. As subsequent rolls are installed, heat is applied to both the roll and the membrane is overlapped onto each other. Be sure to heat the entire roll evenly, with extra welding of the laps. Do not over torch as this will expose the reinforcement in the membrane and cause damage.

Heat both overlaps and use round tipped trowel to seal the overlap. Adequate heat is confirmed when a uniform flow of melted bitumen compound flows evenly from the membrane edges. Excess compound should be smoothed and pressed into the seam using a heated trowel. Any un-seam areas must be lifted and re-torched. Do not re-seal by torching the top surface of the membrane.

#### **Right Angle and Corner Treatment**

Right angle and corner should have 25mm **NippoBOND** modified cement sand angle fillet.

#### **Up Stand**

All angles should be sealed with extra care to ensure full adhesion. **NippoGARD M4000-TA** shall be upturn terminated at 300mm and chased into groove cut line, sealed with a suitable sealant, **NippoJOINT POLYSIL**, at parapet wall.

<b>Joint Treatment</b> Fill the concrete joint with suitable backing material and <b>NippoJOINT POLYSIL</b> at appropriate width to depth ratio.
<b>Recommended Waterproofing System</b>
<b>Concrete Substrate (Exposed roof)</b> Primer : Nippon Paint PRIMEBIT : 1 coat Waterproofing : <b>NippoGARD M4000-TA</b> : 1 layer (4.5 kg/m <sup>2</sup> )
<b>Environmental Conditions During Application</b> <ul style="list-style-type: none"><li>• Apply temperature: 5-45°C. Do not apply when the surface to be coated is less than 3°C above the dew point.</li><li>• The humidity for application is 30-80%</li><li>• During application of membrane, adequate ventilation should be provided</li></ul>
<b>Storage and Transportation</b> This product should be stored horizontally in a shaded or cool and adequate ventilation warehouse. Do not stack pallets on top of each other. The storage temperature should be 15-35°C. This product should be covered or away exposure from rain, UV, sunlight, cold or moisture, source of flame and heat. When transporting, care must be taken. It is always kept membrane in a secure horizontal position. Failure to comply with the recommended storage may result in considerable premature deterioration of the product. This product does not expire if correctly stored.
<b>Cleaning</b> Clean up equipment or tools with clean water immediately after use. Once hardened, it can be removed with white spirit, xylene or similar solvent. Allow the waste to cure, seal it into a suitable container and bury in landfill accordance to local authorities for disposing.
<b>Safety Precautions</b> <ul style="list-style-type: none"><li>• Keep membrane tightly closed and upright, and keep out of reach children or away from food and drink.</li><li>• Ensure good ventilation during installation.</li><li>• Always use protective hand gloves when handling or applying the product.</li><li>• When applying, it is advisable to wear eye protection.</li><li>• Dispose off any waste in accordance with the appropriate Environment Quality Regulations.</li></ul>
<b>Note</b> The above information is given to the best of our knowledge based on laboratory tests and practical experience. However, since we cannot anticipate or control the many conditions under which our products may be used, we can only guarantee the quality of the product itself. we reserve the right to alter the given without prior notice.