NIPPOGARD HD 2000 *(formerly known as Nippon SM HDPE HP2000)*

Updated Dec'22

DESCRIPTION

NippoGARD HD2000 is a flexible, strong plastic sheet based on premium quality polyethylene resin, specially act as pond liner, water tank liner, and damp-proof layer in the roofing and basement waterproofing system. It is designed to enhance sealing efficiency and durability, to prevent contaminants from entering groundwater or streams, and to prevent seepage loss. It helps to sustain water quality and manage waste removal.

USES

NippoGARD HD2000 (Heavy-duty series) is suitable for all kind of pond lining, water tank lining, damp-proof barrier applications for every construction site such as:

- Agricultural ponds
- Water tanks
- Landfills and Canals
- Basement and ground floor
- RC Roof -Inverted Roof and Green Roof
- Golf courses, resorts and recreations

ADVANTAGES

- Excellent durability and long-lasting performance
- Excellent chemical resistance
- High resistance against impact load
- Excellent low-temperature flexibility and bending
- Excellent tensile strength and elongation
- Eco-friendly, non-poison product, and no pollution for substrate surface, removed easily

Product	Thickness	Color	Roll Size	Substrate	Key Usage
NippoGARD HD2000 *(Heavy-Duty HDPE Series) – formerly known as Nippon SM HDPE HP2000*					
HD2000	2mm	Black	3m(W) x 50m(L)/ 6m(W) x 50m(L)	Concrete / Metal	Pond liner, water tank liner, landfills, damp proof layer in roofing and basement

Application Data

Application Temperature : 5°C to 45°C

Special Notes : 1. Do not apply the membrane on standing water wet concretes

: 2. Provide adequate ventilation when installing in the confined areas or spaces

Typical Technical Data

Type	: Heavy Duty
Typical Usage	: Liner for pond, water tank, landfills
Form	: Premium HDPE sheet
Thickness, mm (EN 1849-2)	: 2 (±10%)
Coverage, m²	: 150 or 300
Tensile Strength, kN/m (EN12311-2)	: 29
Elongation, % (EN12311-2)	: 700
Tear Strength, tangential, N (EN12310-2)	: 249
Puncture Resistance, N	: 640
Low Temperature Resistance, at -45°C	: Pass
Water Vapor Permeability, g.cm/(cm²). Pa	: $<1.0 \times 10^{-13}$
Dimensional Stability, %	: ±2
Resistance to Soil	: Pass

Application Method

CONCRETE WATER TANK LINING

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 Scratch Coat System. The surface should be clean, smooth, without bump and have a gradient should meet the design requirements to allow water run-off.

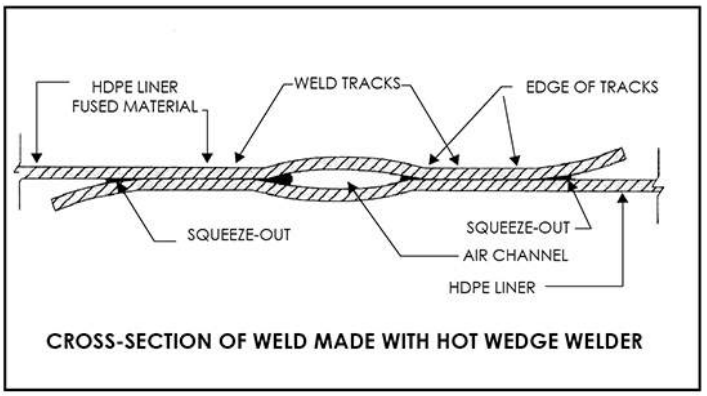
Application

Apply the **NippoCEM FLEX** for 3 coats or at 3mm thick in total, allow to cure before applying **NippoGARD HD2000.**

Installation

Hot-Wedge Double Fusion Welding

The primary type of welding equipment used for welding **NippoGARD HD2000** is a hot wedge double fusion welding system as shown in the above picture. It provides an excellent welding consistency by reducing human error and errors caused by fatigue. This self-propelled hot wedge welder is used to weld long continuous seams and can travel at speeds of 3 to 5 meters per minute. The unit contains a high temperature split wedge used to melt the plastic along the weld lines on the overlapped sheets. The liner sheets are then squeezed together by pressure rollers so that the two sheets fuse together. The pressure applied by the drive rollers as they pass the two sheets together determines how much plastic will be squeezed out of the weld area and effects the structure of the weld.



CROSS-SECTION OF WELD MADE WITH HOT WEDGE WELDER

1) Seaming equipment shall be allowed to warn up a minimum of 10 minutes before performing welding
2) Cut the materials according to site requirement of lining

3) Fusion welding shall be sued for seaming **NippoGARD HD2000** panels together and is not used for patching or detail work. The site manager shall verify that: the equipment used is functioning properly, all work is performed on clean surfaces and done in a professional manner.
4) Use the Roller to make the overlap flat.
5) Use the suitable size battens and nails to fix the membrane between vertical wall and horizontal ground as per manufacturer recommendation. (based on the height of the vertical wall)
6) Use the recommended sealant to seal the area between membrane and vertical wall.
7) Check if there's lack of damage areas and finish the project.

OA-QC Checking:

The attributes of a good seam made by a wedge welder are:

- Both areas of fused material should be void of any seam lines
- Edge of tracks should not cut the liner
- The air channel should be clear
- The widths of the tracks should be equal
- The squeeze out should be barely visible

Recommended Waterproofing System

CONCRETE WATER TANK LINER

Concrete Substrate

Waterproofing	: NippoCEM FLEX	3 coats or 3mm thickness
Waterproof and Vapor Proof Lining	: **NippoGARD HD2000**	1 layer

Environmental Conditions During Application

- Apply temperature: 5-45°C. Do not apply when the surface to be coated is less than 3□C above the dew point.
- The humidity for application is 30-80%
- During application of membrane, adequate ventilation should be provided

Storage and Transportation

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.

Cleaning

Clean up equipment or tools with water immediately after use.

Safety Precautions

- Keep membrane tightly closed and upright, and keep out of reach children or away from food and drink.
- Ensure good ventilation during installation
- Always use protective hand gloves when handling or applying the product.
- When applying, it is advisable to wear eye protection
- Dispose off any waste in accordance with the appropriate Environment Quality Regulations

Note

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.