Technical Date Sheet（TDS）

1. Description

SAM-921 Self-adhesive Bitumen Waterproof Membrane is made of high-performance self-adhesive modified bitumen as the bonding and sealing layer. The upper surface is covered with a cross-laminated polyethylene film or a peelable silicon-coated release film, while the lower surface is covered with a peelable silicon-coated release film, forming a flexible sheet waterproof material.

2. Packing & Specification

Item	Data
Package	Curled into a cylindrical, using suitable packaging material.
Width (m)	1.0
Thickness (mm)	1.5, 2.0
Length （m）	20
Area (m2/roll)	20
Upper Surface Material	Cross-laminated polyethylene film, Silicon-coated release film
Lower Surface Material	Silicon-coated release film

3. Technical Information

Product complies with the requirements outlined in the GB/T 35467-2017 ‘Wet-laid Waterproofing Membrane’.

Items		Index E	Typical Value E
Tensile Property	Tension/(N/50mm)	≥200	256
	Elongation at Maximum Tensile Strength/%	≥180	232
	Phenomenon during Stretching	The adhesive layer and the polymer membrane do not separate.	
Tear Strength/N		≥25	38
Heat Resistance		70℃, 2h, No sagging and dripping, slippage ≤ 2 mm	Passed
Water Impermeability		0.3MPa, 120min Impermeable	Passed
Peel Strength between Membranes/	No Processing	≥1.0	1.5
	Soaking	≥0.8	1.6

(N/mm)	Thermal Treatment	≥0.8	1.3
Tackiness/min		≥30	51
Peel Strength from Cement Mortar/ (N/mm)	No Processing	≥1.5	2.1
	Thermal Treatment	≥1.0	1.7
Peel Strength after Immersion in Cement Mortar/ (N/mm)		≥1.5	1.9
Thermal Ageing (80℃,168h)	Tensile Retention/%	≥90	99
	Elongation Retention/%	≥80	90
	Low Temperature Flexibility/℃	-18, No Crack	Passed
Dimensional Stability/%		±1.0	±0.5
Thermal Stability		No blistering, flowing, or edge curling of polymer membrane, with edge curling not exceeding 1/4 of the side length	Passed

4. Area of Application

Suitable for various non-exposed surfaces, underground and indoor projects, as well as waterproofing projects such as subways, tunnels, pools, channels, especially suitable for waterproofing projects where open flames are not allowed.

5. Product Features & Benefits

- The high-extension cross-laminated polyethylene film features strong puncture resistance, high tear resistance against nail pull-out, excellent tear resistance, high elongation, good dimensional stability, strong UV resistance, and superior low-temperature performance.
- Through physical interlocking and chemical reactions, the membrane effectively integrates with the building structure to resist external environmental impacts, ensuring long-lasting and reliable bonding.
- During wet-lay application, no special treatment of the substrate is required, no primer is needed, and full adhesion with the building substrate using cement mortar or cement slurry ensures strong resistance to damage and excellent waterproofing functionality, effectively preventing liquid water and vapor from entering the structure.
- The self-adhesive bitumen exhibits strong creep resistance and adapts well to substrate deformation, meeting various construction environment requirements.
- It possesses self-healing capabilities to prevent water seepage and compensates for the limitations of

rigid waterproofing in concrete, achieving a dual waterproofing effect of both rigidity and flexibility.

- Wet-lay application allows construction directly on damp or humid concrete substrates, reducing construction time and costs.
- Self-adhesive application follows the specific method for installing self-adhesive membranes.

6. Construction application

【Wet-laid Method】

➢ **Construction Process**

Surface preparation, repair, and moistening of the substrate→Preparation of cement slurry→Application of reinforcement layer→Positioning and trial laying with guideline→Application of cement slurry by scraping→Application of waterproofing membrane→Overlapping of membrane rolls→Rolling and air removal→Sealing of membrane ends→Final curing and protection→Quality inspection and acceptance

➢ **Construction Key Point**

- Substrate cleaning, repair, and moistening: The substrate should be firm, smooth, clean, free from standing water, loose particles, dust, and oil stains. Use high-grade polymer mortar for repairing uneven surfaces and cracks, ensuring thorough moistening of the substrate.
- Preparation of cement slurry: Cement slurry is typically prepared at a ratio of cement to water = 1:0.35 to 0.45 (by weight). First, pour water into the mixing bucket according to the ratio, then add cement to the water. Allow it to soak for 15 to 20 minutes until thoroughly soaked, then mix with an electric mixer for 3 to 5 minutes until free of lumps, suitable for application. Depending on construction conditions, specialized adhesive powder of 3‰ to 6‰ cement volume may be added.
- Positioning and trial laying with guideline: Based on site conditions, position appropriately and determine the direction for laying the membrane. Mark control lines on the substrate and lay the membrane following the direction from low to high along the water flow.
- Application of cement slurry by scraping: The thickness depends on the smoothness of the substrate, generally ranging from 1.5 to 2.5 mm. During application, ensure compacting and smoothing. The width of the applied cement slurry should extend 100 mm beyond the long and short edges of the membrane, maintaining evenness during application.
- Membrane installation:

1. Rolling method: Align the membrane with the guideline and perform a trial lay. Use a paper knife to lightly cut the isolation film at the midpoint of the membrane length, being careful not to damage the membrane. Slowly peel off the isolation film from the backside while pushing the unrolled membrane forward along the guideline. Lay the membrane while peeling the isolation film. After the trial lay, roll back half of the remaining membrane length and paste it onto the substrate following the above method.

2. Lifting method: Place the pre-cut membrane upside down (with the bottom isolation film facing up) on the base. After removing all isolation films from the membrane, apply cement slurry to the bonding surface of the membrane and the base. Then, lift and flip the membrane into position from both ends, coordinating the placement. Adjacent membrane rolls should overlap in parallel, with overlaps of more than 500 mm for short edge joints. During long and short edge joint construction, remove the upper and lower membrane overlap films.

- Membrane overlap: The overlap width should be no less than 80 mm, with short edge joints of adjacent membranes staggered by more than 500 mm. Specific methods for waterproof membrane overlaps are as follows: When overlapping the long edges of the membrane, peel off the isolation film at the overlap and bond. When overlapping the short edges of the membrane, bond the self-adhesive surface of the upper membrane with the upper surface of the lower membrane, ensuring the lower membrane surface is clean. If the overlap edge is contaminated with cement, clean off the cement before using heat-assisted bonding.
- Rolling for air removal: After membrane installation, use a soft rubber plate or roller to scrape and expel air from the overlapped part of the membrane towards the unjoined direction, ensuring the membrane adheres fully to the base.
- Curing and protection: Allow curing for 24 to 48 hours (exact time depends on environmental temperature; generally shorter in higher temperatures). During hot weather, protect the waterproof layer from direct sunlight using sunshades or other covers.
- Upon completion of membrane installation and passing hidden inspections, immediately proceed with protective layer construction to safeguard the membrane from damage. Construct a 50 mm thick fine stone concrete protective layer on the foundation plane, ensuring a smooth surface and reliable strength, with the surface of the fine stone concrete protective layer required to be rubbed.

【Self-adhesive Method】

➢ **Construction Process**

Substrate preparation→Reinforcement layer construction→Application of waterproofing membrane→Air removal and compaction→Waterproof test→Protective layer construction:

➢ **Construction Key Point**

- Substrate preparation: The substrate should be solid, level, dry, clean, free from loose particles, dust, and oil stains. Repair uneven surfaces and cracks with high-grade polymer mortar. Before construction, inspect and accept the substrate, clean and sweep it thoroughly if necessary using a vacuum cleaner or high-pressure dust blower.
- Application of substrate treatment agent: Before laying the membrane, apply the substrate treatment agent evenly, ensuring complete coverage of all areas to be adhered with no omissions or accumulation.

- Detailing at junctions: After the substrate treatment agent has dried, promptly handle the areas requiring waterproof reinforcement according to specifications or design requirements. Use torch assistance or other heating equipment for detailing where membrane adhesion is difficult. Ensure full adhesion of the reinforcement layer to the substrate for general areas; stress concentration areas should follow spacing requirements as per specifications.
- Large-scale construction:
  1. Horizontal surfaces: After the substrate treatment agent has dried, align guidelines and initially unroll the membrane to release stress fully. Secure the starting end before gradually laying out the membrane. Unroll while simultaneously peeling off the isolation material, keeping the peeling angle parallel to the substrate, and laying from low to high.
  2. Vertical surfaces: Fully adhere the membrane to both the substrate and adjacent membranes. Seal the ends of vertical membrane installations with metal pressure bars first, followed by application of membrane sealing paste.
- Construction of protective isolation layer: After membrane installation and passing inspection, clean the waterproof layer surface thoroughly. Apply protective measures and construct a waterproof protection layer according to design requirements. Use isolation layer materials such as low-quality bitumen membranes, plastic films, or paper-reinforced mortar between the membrane waterproof layer and rigid protection layer.

7. Transportation & Storage

- During transportation and storage, products of different types and specifications should be stacked separately without mixing. Avoid exposure to sunlight and rain, ensure ventilation, and keep away from sources of ignition. Storage temperature should not exceed 45° C. Store rolls horizontally with stacking height not exceeding 5 layers. During transportation, prevent tilting or side pressure, and cover with tarpaulin if necessary.
- Under normal transportation and storage conditions, the storage period begins from the date of production and lasts for one year.

8. Matters Need Attention

- Construction is strictly prohibited during rainy, snowy, or windy conditions exceeding Beaufort Scale 5.
- The temperature of the construction substrate and ambient environment should not be below 5° C.
- During precipitation events during construction, protective measures should be taken for laid membranes. In areas with lower temperatures or higher localized stress, auxiliary heating may be used for membrane installation.

9. Quality, Health & Safety

Please read the safety manual carefully, our security experts will be pleased to give you advises about

safety, health and environmental issues.

10. Product Responsibility

The above information and recommendations which are based on our experience are as for reference, they can't replace the customers' own experimental results. Since our company, our representatives or distributors can't control the transportation, storage, handling and use conditions of the products, the economic disputes and the quality accident caused by improper use can't be attributed to our suggest. In any application, the customer shall be responsible to comply with obligations of third-party intellectual property rights. Without our consent, anyone shall not provide technical information to third parties.

11. Other Information

Company name：Beijing Oriental Yuhong Waterproof Technology Co., Ltd

Address：Yard 19, Kechuang Ninth Street, BDA, Beijing, China

Tel：010-59031700

Fax：010-85785519

Customer service：400-779-1975

Website：www.yuhong.com.cn