

EVA (ETHYLENE-VINYL ACETATE COPOLYMER) WATERPROOF BOARD

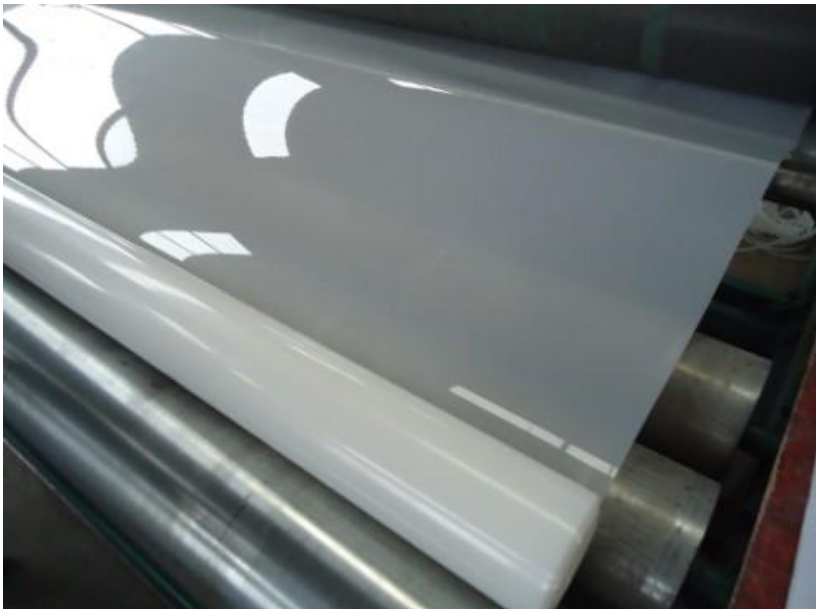


EVA waterproof membrane has excellent flexibility, anti-seepage, cold resistance, elasticity, stress cracking resistance, light specific gravity, high barrier, no chemical pollution, acid, alkali and various chemical substances resistance, excellent elongation and wear resistance, good dimensional stability, good adhesion, convenient construction.

EVA waterproof board is made of ethylene-vinyl acetate copolymer (EVA) as the main raw material, adding special additives and anti-aging agents, through melting, plasticizing, extrusion, three-roll calendaring, molding, winding and other processes made with a certain thickness of sheet waterproof material. The main color of EVA waterproof board is transparent white and opaque milky white, and the thickness is 1.2mm and 1.5mm. It is mainly used for waterproof use on the top layer of the tunnel.



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Waterproof board is a plastic roll material that plays a role in preventing water seepage in engineering. It is commonly referred to as waterproof board when the thickness is $\geq 0.8\text{mm}$, and when the thickness is $\leq 0.8\text{mm}$ is called geomembrane. It is a type of anti-seepage material made of polymer as the basic raw material, divided into homogeneous waterproof board and composite waterproof board. Its main function is to prevent liquid leakage and gas volatilization.

EVA (Ethylene-Vinyl Acetate Copolymer) Waterproof Board Features:

- ECB waterproof board has good impermeability; high barrier property; high puncture resistance; acid and alkali resistance to a variety of chemicals; good elongation wear resistance; good dimensional stability; good adhesion; convenient construction;
- The original physical properties of the structure remain intact at high temperatures;
- It has good plane drainage and vertical water permeability, and can still maintain this performance after many years;
- Creep resistance, corrosion resistance to common chemicals in soil and corrosion resistance to gasoline, diesel, etc;
- The waterproof plate has a good elongation under a certain stress, so that it can adapt to the uneven irregular base surface;
- Has a high UV resistance.

Drainage Products: EVA (ETHYLENE-VINYL ACETATE COPOLYMER) WATERPROOF BOARD

APPLICATION

EVA waterproof board is widely used in tunnel, subway, water conservancy, highway, drainage projects, protection works for gates and dams; waterproof and impermeable buildings, landfill of municipal refuse, port construction, fish pond, salt, pipe surge prevention, industrial and domestic water storage, golf course, swimming pool, etc.

SPECIFICATIONS OF EVA (ETHYLENE-VINYL ACETATE COPOLYMER) WATERPROOF BOARD

TECHNICAL INDICATORS OF EVA WATERPROOF BOARD GB18173.1-2006

Item		Target
Breaking tensile strength (MPa)	Normal atmospheric temperature≥	16
	60°C≥	6
Elongation at break (%)	Normal atmospheric temperature≥	550
	-20°C≥	350
Impermeability, no leakage for 30min		0.3MPa non permeable
Low temperature bending, °C		-35°C No cracks

TECHNICAL INDICATORS OF TUNNEL SPECIFIC EVA WATERPROOF BOARD GB18173.1-2012

No	Item	Unit	TECHNICAL INDEX
1	Tensile strength /MPa	Ordinary temperature (23°C) ≥	Mpa 16
		High temperature (60°C) ≥	Mpa 6
2	Elongation at break /%	Ordinary temperature (23°C) ≥	% 550
		Low temperature (-20°C)≥	% 350
3	Tear strength ≥	kN/m	60
4	Impermeability	30min	0.3MPa No leakage
5	Low temperature bending		-35°C No cracks
6	Heating expansion and contraction amount	Extend ≤	mm 2.0
		Contract ≤	mm 6.0
7	Hot air aging (80°C*168h)	Tensile strength retention rate ≥	% 80
		Retention rate of elongation at break ≥	% 70
8	Alkali [saturation Ca(OH) ₂ solution 23°C*168h]	Tensile strength retention rate ≥	% 80
		Retention rate of elongation at break ≥	% 90
9	artificial weathering	Tensile strength retention rate ≥	% 80
		Retention rate of elongation at break ≥	% 70
10	Adhesive peel strength (sheet to sheet)	Standard experimental conditions ≥	N/mm 1.5
		Soaking retention rate (23°C×168h) ≥	% 70

The production process of tunnel waterproof board adopts the advanced two-stage co extrusion single screw extrusion method in China. The raw material resin is added with reinforcing agents and antioxidants, and the board is formed after heating, melting, plasticizing, extrusion forming, and traction. It can also be thermally synthesized with geotextiles with straps to form composite waterproof boards. The extrusion rolling method can also be used, which involves melting and plasticizing the resin extruder, extruding molten billets from the narrow slit mold mouth of the machine head and fusing them with the straps, and then rolling and cooling them to form a film, or integrating them with geotextiles with straps, and then rolling and cooling them to form composite waterproof boards.



PROJECTS CASE OF EVA (ETHYLENE-VINYL ACETATE COPOLYMER) WATERPROOF BOARD



[Landfill in Victoria]



[Tunnel in Senegal]

CONSTRUCTION PRECAUTIONS

- Foundation treatment: Clean the paving surface, ensure that the substrate is flat, the soil is solid, and there are no unevenness, cracks, sharp objects, stones, iron wires, wooden sticks, etc. Within the anti-seepage range, the grass and tree roots should be removed, and weed control agents should be sprayed. On the contact surface with the membrane, a layer of sand or clay with small particle size should be laid as a protective layer, and the thickness of the protective layer should not be less than 30 cm. Lay in a certain direction, but do not pull too tightly. Leave a certain amount of expansion and contraction to adapt to the deformation of the substrate. When laying waterproof boards, it is necessary to adjust the direction of each unit to facilitate the welding of two units. After laying the waterproof board, it should be pressed with a sandbag to prevent wind and sand from affecting the next step of edge welding.

- Waterproof board welding: Joint treatment is a key construction procedure, usually using hot welding method. The connected surfaces are heated to melt, and then fused into one through pressure. For the laid waterproof board, the edge joints must be free of oil stains, moisture, dust, etc. Before welding, the two edges of the joint should be adjusted to overlap a certain width, which is generally 6-8 cm and flat without wrinkles.

- Joint treatment is a key construction procedure, usually using hot welding method. The surface of the joint is heated to melt, and then fused into one through pressure.

- EVA waterproof board is used for railway tunnels;
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- EVA waterproof board is used for culvert inner walls;
- EVA waterproof board is used for overpass bottom, pools;
- EVA waterproof board is used for artificial lakes;
- EVA waterproof board is used for basements and other waterproof works;
- EVA waterproof board is especially for the waterproof works inside the vault.



EVA waterproof boards are used together with short wire geotextiles, and composite waterproof boards can also be produced. This means that geotextiles and waterproof boards are combined together to avoid laying twice during construction, reducing labor and making construction faster.