

GENERAL DESCRIPTION

AXEL TOPSEAL 109 (TPO) is a thermoplastic polyolefin waterproofing membrane. It is a type of single-ply roofing membrane commonly used in commercial and residential buildings. TPO membranes are made from a blend of polypropylene (PP) and ethylene-propylene rubber (EPR) polymers with advanced polymerization technology, adding antioxidant and anti-aging agent.

TPO membranes are known for their excellent weather resistance, durability, and flexibility. They are typically white or light-coloured, which helps to reflect sunlight and reduce the heat absorbed by the building. This feature makes TPO membranes energy-efficient and helps in reducing cooling costs.

Overall, **AXEL TOPSEAL 109 (TPO)** offer a versatile solution for roofing, waterproofing, and other applications where a durable and flexible membrane is required.

RECOMMENDED USES

1. **Roofing** : Widely used as roofing systems for commercial buildings, warehouses, residential homes, and other structures. They are installed as a single layer or in combination with insulation boards. TPO roofs are known for their longevity, resistance to UV radiation, and ease of installation.
2. **Waterproofing** : Can be used as waterproofing membranes for various applications. They are commonly used in below-grade applications, such as basements and foundations, to provide a reliable barrier against water intrusion.
3. **Pond liners** : Can be used as liners for ponds, reservoirs, and other water containment structures. The TPO material provides excellent resistance against UV radiation, chemicals, and root penetration, making it suitable for long-term water containment.
4. **Geomembranes** : Used as geomembranes in civil engineering projects, such as landfill liners, canals, and tunnels. They provide a protective barrier to prevent contamination of soil and groundwater.



CHARACTERISTICS & ADVANTAGES

1. **Weather Resistance** : Exhibit excellent resistance to weathering, including ultraviolet (UV) radiation, ozone, and extreme temperatures. They are designed to withstand prolonged exposure to sunlight without degradation, ensuring long-term performance and durability. It also gives excellent resistance to high and low temperatures, like rubber products, at - 50°C degrees, still maintain flexibility and mechanical strength at higher temperatures.

TOPSEAL 109 (TPO)

TPO Waterproofing Membrane

- Energy Efficiency** : Typically, available in white or light colours, which helps to reflect sunlight and reduce the heat absorbed by the building. This thermal reflective property contributes to energy efficiency by lowering cooling costs during hot weather.
- Flexibility** : Offer the flexibility even in cold temperatures, making them easier to handle and install. They can accommodate building movements and thermal expansion/contraction without cracking or splitting, ensuring a reliable and durable roofing system.
- Chemical Resistance** : Resistant to a wide range of chemicals, including acids, alkalis, and pollutants. This resistance helps to protect the roofing system from chemical damage and ensures its longevity.
- Ease of Installation** : Can be installed using a variety of methods, such as mechanically attached, fully adhered, or ballasted systems. Their flexibility and ease of handling make the installation process relatively straightforward, reducing labour time and costs.
- Resistance to Mold and Algae**: TPO membranes have inherent resistance to mold, algae, and fungal growth. This characteristic helps maintain the cleanliness and appearance of the roofing system, reducing maintenance requirements.
- High tensile strength, high elongation, small size change of heat treatment.

COVERAGE

Depend on design (thickness / width)

COLOURS

White, grey or customized

PACKING

Roll form (size per roll will vary depending on thickness & width)

STORAGE

Store in a dry, cool and shaded place. Avoid direct sunlight, rain and keep ventilated.

SURFACE PREPARATIONS

All surfaces must be clean free of grime, dust or other foreign materials. Loose particle, laitance, old membrane must be removed prior to **AXEL TOPSEAL 109** installation.

METHOD OF APPLICATION

AXEL TOPSEAL 109 (TPO) can be installed using various methods, depending on the characteristics and specific requirements of the project and the manufacturer's guidelines. Here are three common installation methods:

- Mechanical fixation method:**
 - The central spacing of metal fixtures is determined by the local wind speed, the type of structural base, the height of the building and the width of the membrane. Generally, it should not be greater than 600mm. Membrane surrounding 800mm should be fully adhered.

TOPSEAL 109 (TPO)

TPO Waterproofing Membrane

- TPO membrane must be fixed where the height of each roof varies, the side walls, skylights in the prominent parts, the periphery of all base shade corners with slopes greater than 1/6, all pipes and grooves where the sealing paste is poured.
2. **Welding method:**
 - * At the intersection of all joints, the continuous seam of hot air welding is guaranteed by pressing with silicone rollers. Surface irregularity caused by multilayer thickness of TPO may cause false welding.
 3. **Cold bonding method:**
 - In this method, membrane is bonded directly to the roof substrate using a compatible adhesive.
 - The roof substrate, such as insulation or an approved cover board, is first prepared and cleaned.
 - The adhesive can be applied to the substrate or the bottom of membrane in a uniform and consistent manner, not exposed and not accumulated.
 - The TPO membrane is then carefully rolled out onto the adhesive and pressed firmly into place.
 - The overlap area should be welded with long overlap seam first and then short overlap seam.

Remarks : It is important to note that specific installation techniques and manufacturer guidelines should be followed for each application to ensure optimal performance and longevity of the TPO membrane.



brush PVC glue



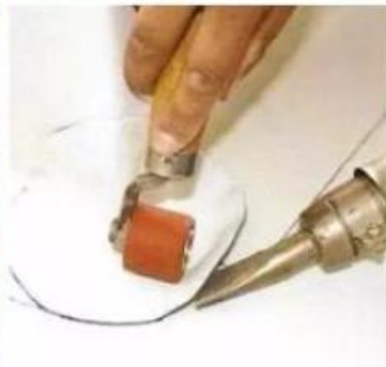
lay the membrane



long side hot air welding



fix membrane



detail treatment



detail treatment

CLEANING OF TOOLS

Tools that may be used during installation.



Automatic welding machine

Electric iron

Metal fasteners

Drilling machine

Clean all tools and application equipment with water immediately after use. Hardened or cured material can only be mechanically removed.

TECHNICAL SPECIFICATIONS

No of component	One (in roll form)
Thickness (mm)	1.2 , 1.5 , 2 or customized
Width (m)	1,2,3 or customized
Length (m)	10,20,30 or customized
Breaking strength	976 N (min value)
Elongation at reinforcement break (%)	15 (min value)
Tearing strength	245 N (min value)
Brittleness point (°C)	-40 (max value)
Properties after heat aging (retained values)	
Breaking strength %	90 (min value)
Elongation at reinforcement break %	90 (min value)
Tearing strength %	60 (min value)
Weight change (mass) %	±1, max value
Linear dimensional change %	±1, max value
Water absorption %	Pass
Weather resistance : visual inspection	Pass

* *The data above is tested according to ASTM standard D6878. The data will be varied with different or customized designs.*

SHELF LIFE

12 months from the date of production if stored properly in original, unopened and undamaged sealed packaging in dry conditions.

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