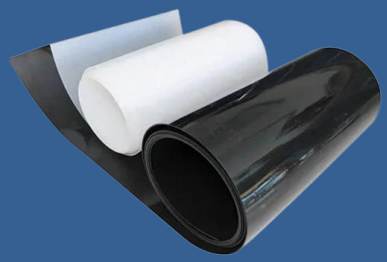
CCI GEOMEMBRANE

HDPE RESIN



PRODUCT DESCRIPTION:

CCI GEOMEMBRANE is a synthetic membrane liners or barriers used to control fluid or gas migration in a human-made project, structure, or system. It is made from HDPE resin, and their applications span across a range of industries including waste management, mining, water management, and civil engineering.

PROPERTIES:

1. **Impermeability**:
   - **Low Permeability**: Geomembranes have very low permeability, making them effective barriers against liquids and gases.
2. **Chemical Resistance**:
   - **Resistant to Chemicals**: They can withstand a wide range of chemicals, including acids, bases, and solvents, without degrading.
3. **Durability**:
   - **High Durability**: Geomembranes are designed to last for long periods, often decades, without significant deterioration.
4. **Flexibility**:
   - **Flexible**: They are flexible and can conform to the contours of the underlying surface, making installation easier and ensuring a better seal.
5. **Tensile Strength**:
   - **High Tensile Strength**: Geomembranes have high tensile strength, allowing them to resist stretching and tearing under stress.
6. **Puncture Resistance**:
   - **Resistant to Puncture**: They are resistant to punctures and abrasions, which is crucial for applications where they might be exposed to sharp objects or rough surfaces.
7. **UV Resistance**:
   - **UV Stability**: Many geomembranes are treated to be resistant to UV radiation, which prevents them from degrading when exposed to sunlight.
8. **Thermal Stability**:
   - **Temperature Resistance**: They can withstand a wide range of temperatures, making them suitable for use in various climates and industrial processes.
9. **Seamability**:
   - **Weldable**: Geomembranes can be easily seamed or welded, ensuring that large areas can be covered with minimal risk of leaks.
10. **Environmental Friendliness**:
    - **Recyclability**: Some geomembranes are recyclable, contributing to environmental sustainability.
11. **Biological Resistance**:
    - **Resistant to Microorganisms**: They are generally resistant to attack by microorganisms and rodents, which is important for applications in waste management and agriculture.

APPLICATION:

1. **Landfills and Waste Management:**
   - **Liners:** Used as liners in landfills to prevent leachate from contaminating groundwater.
   - **Covers:** Employed as covers to minimize the ingress of rainwater, reducing leachate generation.
2. **Mining:**
   - **Heap Leach Pads:** Geomembranes are used to line heap leach pads to contain the leaching solution and prevent it from contaminating the surrounding environment.
   - **Tailings Ponds:** They line tailings ponds to contain waste materials and prevent seepage.

3. **Water Management:**
    - **Reservoirs and Ponds:** Utilized to line reservoirs, ponds, and other water bodies to prevent water loss due to seepage.
    - **Canals and Irrigation Ponds:** Used to line canals and irrigation ponds, enhancing water conservation and distribution efficiency.
4. **Agriculture:**
    - **Lining for Irrigation Ponds:** Helps in conserving water by preventing seepage.
    - **Biogas Covers:** Used to cover biogas digesters, preventing gas escape and enhancing biogas collection.
5. **Construction:**
    - **Foundation Liners:** Geomembranes are used under building foundations to act as vapor barriers, preventing moisture from penetrating structures.
    - **Tunnel Liners:** Applied in tunnels to prevent water ingress and structural damage.
6. **Aquaculture:**
    - **Fish Ponds and Hatcheries:** Geomembranes are used to line fish ponds and hatcheries to maintain water quality and prevent leakage.
7. **Environmental Protection:**
    - **Containment Systems:** Used in the construction of containment systems for hazardous materials to prevent contamination of soil and groundwater.
    - **Secondary Containment:** Utilized around storage tanks to provide an additional layer of protection against spills and leaks.
8. **Transportation:**
    - **Road Construction:** Used in road construction to prevent water infiltration, which can weaken the road foundation.
    - **Railways:** Employed beneath rail tracks to prevent erosion and stabilize the foundation.

TECHNICAL PARAMETERS:

Ordinary High-Density Polyethylene Geomembrane

#	Parameter									
1	**Thickness, mm**	0.30	0.50	0.75	1.00	1.25	1.5	2.0	2.5	3.0
2	**Density, g/m²**	≥0.940								
3	**Tensile Yield Strength, N/mm**	≥4	≥7	≥10	≥13	≥16	≥20	≥26	≥33	≥40
4	**Tensile Breaking Strength, N/mm**	≥6	≥10	≥15	≥20	≥25	≥30	≥40	≥50	≥60
5	**Elongation, %**	-	-	-	≥11					
6	**Right Angle Tear Load, N**	≥34	≥56	≥84	≥115	≥140	≥170	≥225	≥280	≥340
7	**Puncture Resistance, N**	≥72	≥120	≥180	≥240	≥300	≥360	≥480	≥600	≥720
8	**Carbon Black Content, %**	2.0 – 3.0								
9	**Oxidation Induction Time, min**	≥60								
10	**Water Vapor Permeability Coefficient, g.cm/(cm².s.ps)**	$\leq 1.0 \times 10^{-13}$								
11	**Dimensional Stability, %**	±2.0								

Note: For numbers (3-7), this is for longitudinal and transverse direction

Environmental Protection Smooth High-Density Polyethylene Geomembrane

#	Parameter							
1	**Thickness, mm**	0.75	1.0	1.25	1.50	2.0	2.5	3.0
2	**Density, g/m²**	≥0.940						
3	**Tensile Yield Strength, N/mm**	≥11	≥15	≥18	≥22	≥29	≥37	≥44
4	**Tensile Breaking Strength, N/mm**	≥20	≥27	≥33	≥40	≥53	≥67	≥80
5	**Yield Elongation, %**	≥12						
6	**Elongation at Break, %**	≥700						
7	**Right Angle Tear Load, N**	≥93	≥125	≥160	≥190	≥250	≥315	≥375
8	**Puncture Resistance, N**	≥240	≥320	≥400	≥480	≥640	≥800	≥960
9	**Tensile Load Stress Cracking, h**	≥300						
10	**Carbon Black Content, %**	2.0 – 3.0						
11	**Oxidation Induction Time, min**	Normal Pressure Oxidation = ≥100						
		High Pressure Oxidation = ≥400						
12	**85°C Heat Aging Retention Rate After 90 days, %**	≥55						
13	**Anti-UV (OIT Retention Rate after 160 hours of UV Irradiation), %**	≥50						

Note: For numbers (3-8), this is for longitudinal and transverse direction

Environmental Protection Rough Surface High-Density Polyethylene Geomembrane

#	Parameter							
1	**Thickness, mm**	0.75	1.0	1.25	1.50	2.0	2.5	3.0
2	**Density, g/m²**	≥0.940						
3	**Rough Height, mm**	≥0.25						
4	**Tensile Yield Strength, N/mm**	≥11	≥15	≥18	≥22	≥29	≥37	≥44
5	**Tensile Breaking Strength, N/mm**	≥8	≥10	≥13	≥16	≥21	≥26	≥32
6	**Yield Elongation, %**	≥12						
7	**Elongation at Break, %**	≥100						
8	**Right Angle Tear Load, N**	≥93	≥125	≥160	≥190	≥250	≥315	≥375
9	**Puncture Resistance, N**	≥200	≥270	≥335	≥400	≥535	≥675	≥800
10	**Tensile Load Stress Cracking, h**	≥300						
11	**Carbon Black Content, %**	2.0 – 3.0						
12	**Oxidation Induction Time, min**	Normal Pressure Oxidation = ≥100						
		High Pressure Oxidation = ≥400						
13	**85°C Heat Aging Retention Rate After 90 days, %**	≥55						
14	**Anti-UV (OIT Retention Rate after 160 hours of UV Irradiation), %**	≥50						

Note: For numbers (4-8), this is for longitudinal and transverse direction

PACKAGING:

Can be customized

STORAGE:

1. **Clean and Dry**: Store in a clean, dry area to prevent moisture and contamination.
2. **Temperature Control**: Keep in a stable temperature environment, away from heat sources.
3. **UV Protection**: Avoid direct sunlight; use UV-protective covers if outdoors.
4. **Flat Surface**: Store on a flat, level surface to prevent creasing; use pallets or racks.
5. **Avoid Damage**: Keep away from sharp objects and handle gently.
6. **Label and Inventory**: Clearly label and use a first-in, first-out system.
7. **Vertical/Horizontal Storage**: Store small rolls vertically and larger rolls horizontally.
8. **Access Control**: Limit access to authorized personnel and conduct regular inspections.