POLYETHYLENE ROLL/FILM

DATA SHEET

UNITECH
For Building and Construction Materials

POLIANE

PRODUCT DESCRIPTION

Poliane is a polyethylene vapor barrier to alkalis, salts, acids and chemicals found in sub-soils. Poliane is a fully stable and waterproof polyethylene vapor barrier to alkalis, salts, acids and chemicals found in sub-soils, manufactured according to BS 312:1970 fully stable and waterproof.

BASIC USE

Used as a vapour barrier and damp proof membrane in concrete slabs, floors, insulation boards shuttering , etc... For corrosion protection of water and oil pipelines. Protects from the sun, wind, rain, dust and damage.

COMPOSITION & MATERIALS

Poliane is an anti-corrosive and weather resistant polyethylene vapor barrier.

TYPES

- Light pearl clear film (general purpose application).
- Black opaque film (used mainly as a damp proof membrane).

APPLICATION

- Sleeves for corrosion protection of water and oil pipelines.
- Agricultural film for greenhouses, plastic tunnels & other agrotechniques.
- Construction film used as a vapor barrier and damp proof membrane in concrete slabs, floors, over insulation boards, shuttering etc.

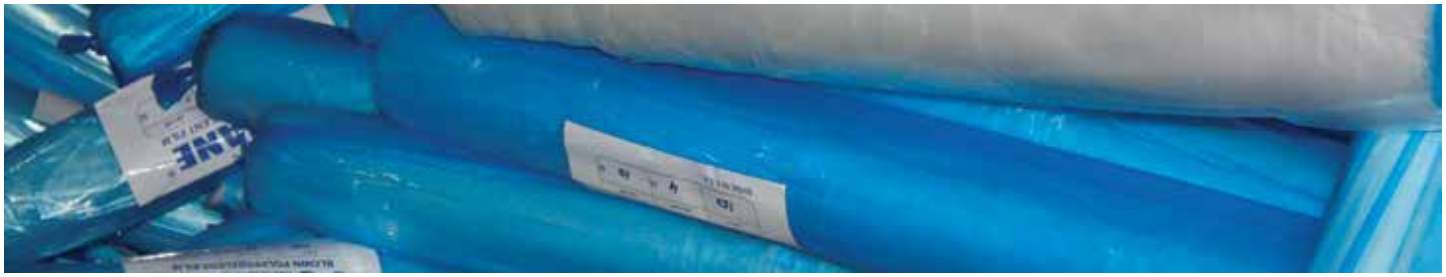
DIMENSIONS

- Supplied in rolls of different lengths, widths and thicknesses.
- Film Thickness: From 100 gauges (25 Microns) to 1200 gauges (300 Microns).
- Film Length: up to 25 meters.
- Film Width: up to 4 meters (see table 1).

* Note: The width is limited to 4 meters. After being blown, the film is slatted and wound on a solid mandrel in one, two or four plys. The roll is then packed into a heavy duty plastic sleeve sealed at both ends.

DURABILITY

It retains its physical properties and remains chemically resistant to aggressive soil organism, plant and other soil fauna as well as domestic sewage and retains its flexibility in temperatures over 80°C.



TECHNICAL SPECIFICATIONS

Table 1- POLYETHYLENE VAPOR BARRIER THICKNESS

Millimeter	Gauge	Micron (µ)	Mill
0.05	200	50	2
0.08	320	80	3.2
0.10	400	100	4
0.15	600	150	6
0.20	800	200	8
0.25	1000	250	10
0.30	1200	300	12
0.35	1400	350	14
0.40	1600	400	16
0.50	2000	500	20

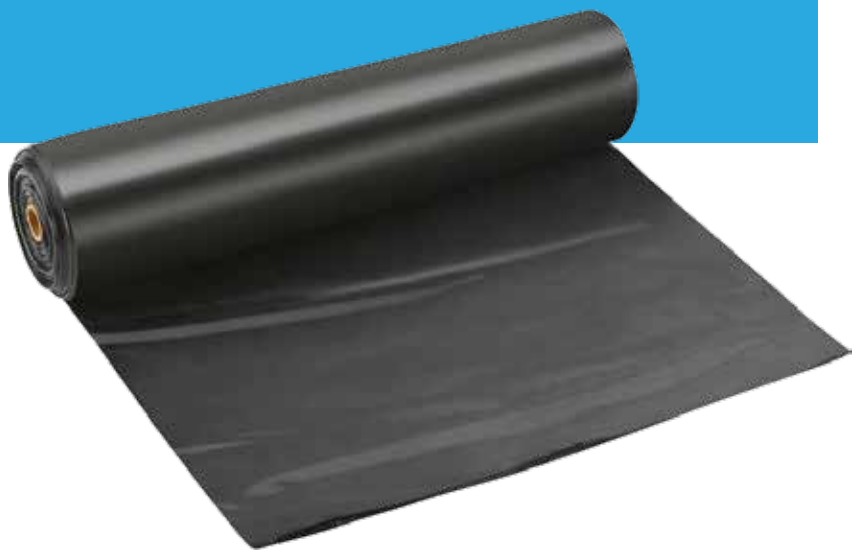
1 guage= 1/100 mill = 1/100,000 inch=25.4/100,000mm = 0.254 micron

TABLE 2 - TYPICAL PERFORMANCE CHARACTERISTICS

All values in the table below are per 100 Micron

Properties	Unit	Value	Test Method (ASTM)
Density at 24°C (unpigmented)	g/cc	0.923	D-1505
Dart impact	g	100	D-1709
Tear resistance	kg/cm^2	80	D-1004
Tensile strength (Longitudinal direction) Transverse direction)	 kg/cm^2 kg/cm^2	 180 170	 D-882 D-882
Elongation (Longitudinal direction) Transverse direction)	 % %	 230 375	 D-882 D-882
Transparency	%	20	D-1746
Gloss	45	40	D-2457
Haze	%	9.0	D-1003
Heat seal range	°C	115-175	-
Moisture Loss	g/cm^2	0.055	C-156

- Material: Low-Density Polyethylene
- Color: Black
- Thickness: 50-500 microns
- Length : 4 x 25 Meters (Customizable)



KEY PROPERTIES

Property	Value
Density	0.935 - 0.915 g/cm^3
Tensile Strength at Yield	8 - 12 MPa
Elongation at Break	> 400%
Melting Point	110 - 115 ^{0}C
Maximum Operating Temperature	80 - 90 ^{0}C

FEATURES

- High Flexibility: Adaptable for a variety of uses without cracking.
- Excellent Impact Resistance: Absorbs shock and resists breakage.
- Chemical Resistance: Resistant to water, dilute acids, and alkalis, making it suitable for harsh environments.
- Ease of Handling: Lightweight sheets are easy to transport and fabricate.

APPLICATIONS

- Liners, insulation, packaging, and industrial covers.

PRODUCT OVERVIEW

Agricultural Polyethylene (PE) Film is a high-quality, UV-stabilized film used for covering greenhouses and agricultural structures. It provides protection for plants and crops from weather elements, optimizes growth conditions, and enhances crop yield by allowing optimal light transmission while offering effective protection against harmful UV rays, wind, and rain.

KEY FEATURES

- **UV Resistance:** High UV stability, with protection against degradation from the sun's ultraviolet rays.
- **Light Transmission:** Excellent light diffusion and transmission (typically 85-95%), ensuring even light distribution inside the greenhouse.
- **Durability:** Long-lasting with resistance to tearing, punctures, and damage from wind and hail.
- **Thermal Insulation:** Helps in maintaining a stable temperature inside the greenhouse by providing insulation against temperature fluctuations.
- **Anti-condensation:** Some films are coated with anti-condensation properties to prevent water droplets from forming inside, reducing plant diseases.
- **Low Shrinkage:** Stable performance under various temperature conditions, ensuring that the film does not shrink or become loose over time.

MATERIAL COMPOSITION

- **Base Material:** Polyethylene (PE), a flexible, lightweight plastic polymer.
- **Additives:**
    * **UV Stabilizers:** To enhance resistance to UV radiation and extend lifespan.
    * **Anti-Drip/Anti-Condensation Agents:** To prevent water condensation.
    * **Anti-Abrasion Agents:** To prevent surface damage from wind or physical contact.
    * **Stabilizers for temperature resistance:** To ensure film remains effective in varying temperatures.

TECHNICAL SPECIFICATIONS

PROPERTY	SPECIFICATION
Material Type	UV Stabilized Polyethylene (PE)
Film Thickness	0.1 mm to 0.3 mm (varies by application)
Width	Customizable (typically 4m – 5.5m)
Length	Customizable (up to 200m or more)
UV Protection	0.6-3 years (depending on grade and additives)
Light Transmission	85% - 95% (diffusion range)
Tensile Strength	18-30 MPa (depends on film thickness)
Tear Resistance	≥ 20 N (depends on film thickness)
Water Vapor Transmission Rate	5.0 – 15.0 g/m²/day (depending on film type)
Temperature Range	-30°C to +60°C
Coefficient of Friction	0.3 to 0.6 (depends on additives)
Opacity	Transparent to translucent
Color Options	Clear, White, Green, Blue, Diffused (customized colors available)

PERFORMANCE CHARACTERISTICS

- **Thermal Insulation:** Polyethylene films provide moderate insulation, trapping heat inside the greenhouse, which is critical for plant growth during colder months.
- **Light Diffusion:** The film can diffuse sunlight, reducing hot spots and improving light penetration, which is essential for uniform plant growth.
- **Weather Resistance:** PE film is resistant to harsh weather conditions, including UV radiation, rain, wind, and snow. The film remains effective and does not degrade rapidly under exposure to weather elements.
- **Water Management:** Anti-condensation films help manage water by preventing droplets from forming, which could affect plant health.

APPLICATIONS

- **Greenhouses:** Used as a covering for greenhouse structures, providing a controlled environment for plants.
- **Agriculture:** Used in horticulture and crop protection applications to create ideal growing conditions.
- **Tunnels and Shade Houses:** Applied in the construction of agricultural tunnels and shade houses.
- **Nurseries:** Protects seedlings and young plants from harsh environmental conditions.

INSTALLATION & HANDLING

- **Installation Method:** Can be installed using various techniques such as hanging over greenhouse frames or using support cables. The film should be stretched tightly to avoid wrinkles.
- **Storage:** Should be stored in a cool, dry place, away from direct sunlight and sources of heat.
- **Handling:** Handle with care to avoid punctures or tears. Use gloves and protective equipment during handling.

PRODUCT BENEFITS

- **Improved Crop Yield:** Helps optimize growing conditions, leading to higher crop yields.
- **Energy Efficiency:** Retains heat and reduces the need for additional heating systems in colder climates.
- **Cost-Effective:** A durable and affordable solution for greenhouse coverings with long-term benefits.
- **Environmental Benefits:** Can be made from recyclable materials, and some films offer biodegradability options.

CERTIFICATIONS AND STANDARDS

- **ISO 9001:** Quality management standards.
- **ISO 14001:** Environmental management.
- **RoHS Compliant:** Free from hazardous substances.
- **Food Safety Certifications:** Some films are certified for use in food production.

SAFETY INFORMATION

- Ensure proper installation and use of protective equipment during handling.
- Keep the film away from sharp objects or extreme heat sources.
- In case of damage, dispose of the polyethylene film in an environmentally responsible manner (preferably recycling).

PACKAGING

- Available in rolls or sheets, with various thicknesses and widths to suit different greenhouse sizes.
- Packaging options include protective wrapping to prevent damage during shipping and storage.