



TECHNICAL SPECIFICATION

HDPE Geomembrane Sheet

1. Product Description

HDPE Geomembrane Sheet is a high-density polyethylene waterproofing and containment membrane manufactured from high-quality virgin HDPE resin with carbon black, antioxidants and UV stabilizers. It provides high chemical resistance, low permeability, excellent tensile strength and long-term durability for civil, environmental and industrial applications.

2. Typical Technical Properties

Property	Test Method	Typical Specification
Material	—	High Density Polyethylene (HDPE)
Surface	—	Smooth / Textured
Color	—	Black
Thickness	ASTM D5199	0.50 – 3.00 mm
Density	ASTM D1505 / D792	$\geq 0.940 \text{ g/cm}^3$
Tensile Strength at Yield	ASTM D6693	$\geq 15 \text{ N/mm}$
Tensile Strength at Break	ASTM D6693	$\geq 27 \text{ N/mm}$
Elongation at Yield	ASTM D6693	$\geq 12\%$
Elongation at Break	ASTM D6693	$\geq 700\%$
Tear Resistance	ASTM D1004	$\geq 125 \text{ N}$
Puncture Resistance	ASTM D4833	$\geq 320 \text{ N}$
Carbon Black Content	ASTM D4218	2.0 – 3.0%
Carbon Black Dispersion	ASTM D5596	Category 1 or 2
Oxidative Induction Time (OIT)	ASTM D3895	$\geq 100 \text{ min}$
Water Absorption	ASTM D570	Very Low
Water Permeability	—	Extremely Low
UV Resistance	—	Excellent
Chemical Resistance	—	Excellent

Note: Mechanical values vary significantly with membrane thickness. The values above are representative values and should be confirmed for the selected thickness and product grade.

3. Available Thickness

Typical available thicknesses:

0.50 mm, 0.75 mm, 1.00 mm, 1.50 mm, 2.00 mm, 2.50 mm and 3.00 mm

Other thicknesses may be available upon request.



4. Dimensions

Roll Width: Typically 5–8 m

Roll Length: Depending on thickness and customer requirement

Surface Options: Smooth on both sides, single-side textured or double-side textured

5. Raw Material Composition

- High Density Polyethylene resin
- Carbon black: typically 2–3%
- Antioxidants
- UV stabilizers
- Processing additives as required

The formulation is designed to provide resistance against UV exposure, oxidation, chemicals and environmental stress cracking.

6. Key Features

- Extremely low permeability
- High tensile strength
- Excellent elongation
- Excellent puncture and tear resistance
- High chemical resistance
- UV and weather resistance
- Resistant to biological degradation
- Suitable for exposed and buried applications
- Hot-wedge and extrusion weldable
- Long service life when properly designed and installed

7. Applications

HDPE geomembrane sheet is commonly used for:

- Water reservoirs
- Artificial ponds and lakes
- Irrigation ponds
- Landfill liners and caps
- Wastewater treatment ponds
- Mining applications
- Heap-leach pads
- Tailings storage facilities
- Canal lining
- Foundation waterproofing
- Underground structures
- Tunnels
- Sewage treatment facilities
- Industrial containment
- Secondary containment systems



- Aquaculture and fish ponds

8. Installation

HDPE geomembrane sheets are normally joined using **hot-wedge welding** or **extrusion welding**. The substrate should be smooth, stable and free from sharp stones or objects that could puncture the membrane.

Field seams should be inspected and tested according to the applicable project specification and installation standard.

9. Storage

Store rolls:

- On a stable, dry and level surface.
- Away from open flames and excessive heat.
- In a manner that prevents rolling, crushing or mechanical damage.
- With suitable lifting equipment to prevent damage during handling.

10. Quality Standard

HDPE geomembrane can be manufactured and tested in accordance with applicable **ASTM** test methods and project requirements. For projects requiring **GRI-GM13** compliance, the selected membrane grade and thickness should be tested against the applicable GRI-GM13 requirements.

11. Packing

HDPE geomembrane is supplied in **roll form**, securely wrapped and prepared for transportation. Roll dimensions and weights depend on membrane thickness, width and length.

Disclaimer

The values stated above are typical/general technical values for HDPE geomembrane sheets and are not intended as a batch-specific Certificate of Analysis. Final specifications should be adjusted according to the selected **thickness, surface type, roll dimensions and required standard (such as GRI-GM13)** before being issued as an official Technical Data Sheet.