

Geomembranes

A photograph showing a construction site where a large, dark, wrinkled geomembrane liner is being installed in a deep excavation. Several workers in orange safety suits and hard hats are visible on the edge of the excavation, working with the liner. The background shows a hilly landscape under a cloudy sky. An orange semi-circular graphic element is overlaid on the left side of the image.

Geomembranes

Geomembranes are thick plastic linings (0.75 to 3.0 mm) whose function is containment or waterproofing, preventing the passage of liquids and vapors. Due to growing environmental awareness, combined with regulations, their use is growing, especially in the infrastructure, construction, and agricultural sectors.

Geomembranes are used in specific markets, including applications such as: isolation between soil and waste resulting from post-consumer waste collection in landfills, lining large lakes for containing mining waste, fish farming tanks, water reservoirs on agricultural properties, and also as linings for sewage treatment tanks, waterproofing riverbeds and streams, lining tanks and walls in construction, etc.

Geomembranes must have high chemical resistance, an excellent balance between mechanical strength and flexibility, and good resistance to ultraviolet radiation. To ensure these requirements are met, geomembranes must be produced with materials specially designed for this application, and carbon black is generally used as an additive, providing greater resistance to UV radiation.

HF3712

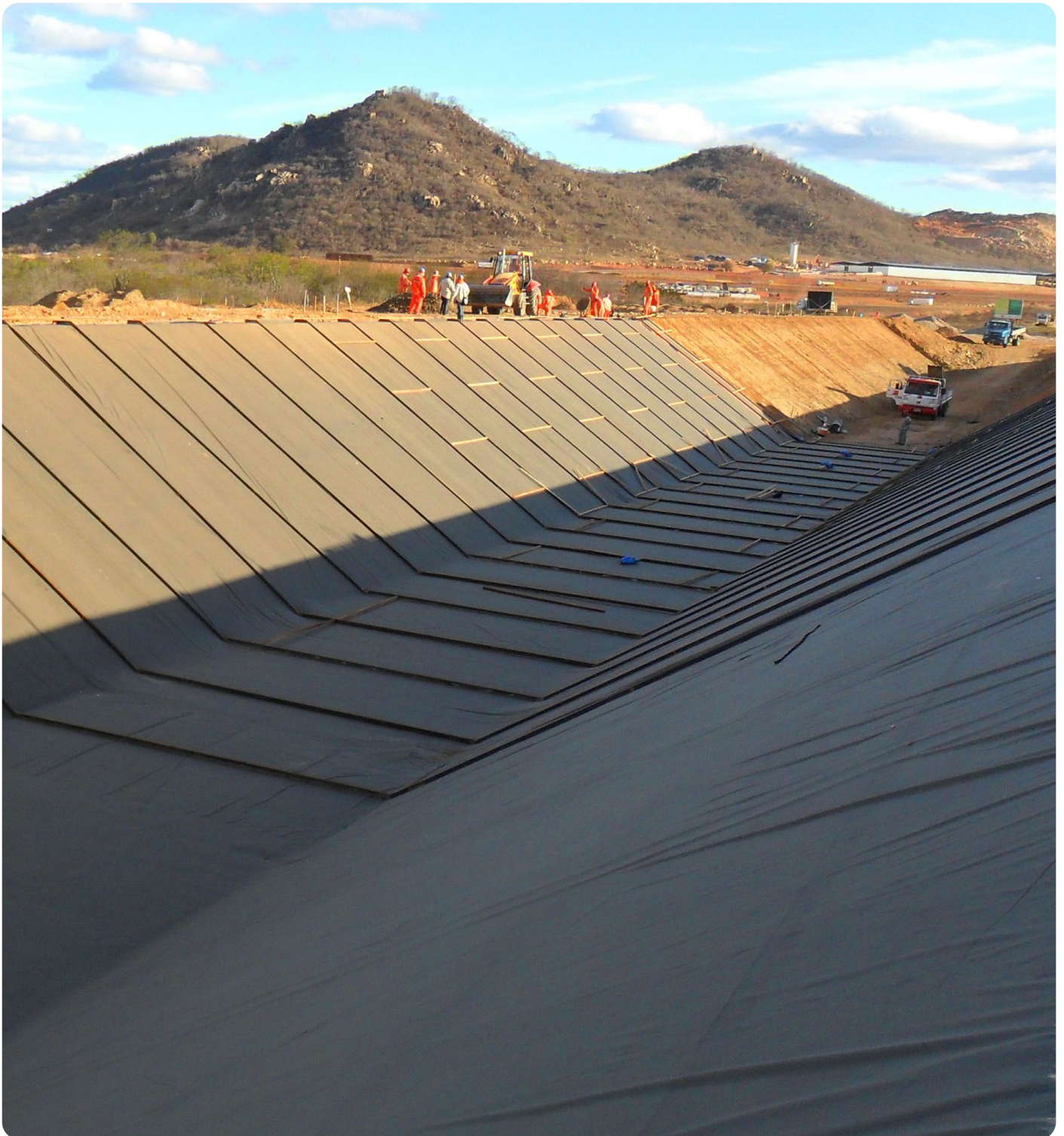
HF3712 is a linear medium-density polyethylene, developed to meet the requirements of the geosynthetics segment, and is suitable for the production of geomembranes through flat or tubular extrusion processes. It offers an excellent balance of mechanical properties, chemical resistance, and processability.

Properties	Values	Units	Method ASTM
Control			
Melt Flow Rate (190 °C / 21,6 kg)	10,5	g/10 min	ASTM D1238
Melt Flow Rate (190 °C / 5 kg)	0,38	g/10 min	ASTM D1238
Density	0,937	g/cm ³	ASTM D792
Mechanics			
Deflec on Temperature under Load at 0.455 MPa (HDT)	54	°C	ASTM D648
Vicat Softening Temperature at 10 N	118	°C	ASTM D1525
Tensile Strength at Yield	19	MPa	ASTM D638
Tensile Strength at Break	30	MPa	ASTM D638
Elongation at Yield	12	%	ASTM D638
Elongation at Break	1.400	%	ASTM D638
Hardness	56	Shore D	ASTM D2240
Izod Impact Strength @ 23°C	NB	J/m	ASTM D256
Flexural Modulus 1% Secant	700	MPa	ASTM D790
OIT (Oxidative Induction Time)	> 100	Minutos	ASTM D3895

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3. For information on about safety, handling, individual protection, first aids and waste disposal, please refer to MSDS.
4. The mentioned values in this report can be changed at any moment without Braskem previous communication.

Environmental Stress Cracking Resistance

Environmental Stress Cracking Strength (ESCR) is a critical property for application and is related to the chemical resistance of geomembranes under the action of aggressive substances, such as leachate, a substance commonly found in landfills.

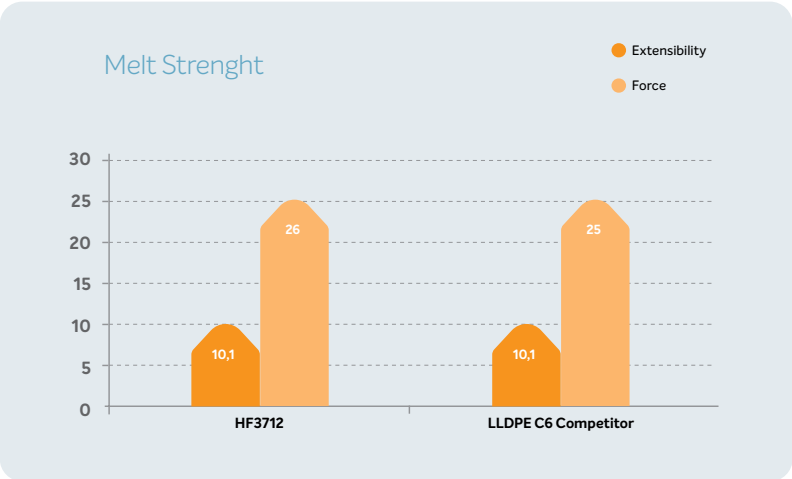




Processing

Geomembranes are generally produced on large-scale equipment. Because of this, the resins used for this application must have high melt strength, ensuring balloon support during processing. HF3712 is a resin with a high molar mass and a broad molar mass distribution, providing this material with high melt strength, ensuring good stability during extrusion and low thickness variation.

The melt strength of the Braskem product is similar to that of the reference grade for the application, ensuring excellent processability and balloon stability during extrusion.



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