

TECHNICAL SHEET



UHMW-PE (Ultra High Molecular Weight Polyethylene)

Equivalence:	ASTM D4976 – 12a		----		----		----	
Profiles:	Plate	Rod	----	----	----	----	----	----
Mechanical properties (approx. at room temperature):	Density, g/cm³		Tensile strength, MPa (ksi)		Elastic modulus, MPa (ksi)		Impact resistance, kJ/m² (Izod test)	
	0.93 – 0.94		14 (2.03)		550 (79.7)		4.0	
<ul style="list-style-type: none"> • The indicated values are minimum estimates, they are not mandatory, and should only be taken as reference for the general characteristics of polyethylene according to ASTM D4976 - 12a. • Special values should be consulted and agreed upon with the manufacturer. 								

CHARACTERISTICS

- It has superior abrasion resistance compared to other polymers. Due to its molecular structure, its bonds are very strong and can withstand breakage even under severe abrasion conditions. This resistance makes it suitable for use in machinery bearings to reduce wear and noise, as well as in construction equipment joints to prevent leaks.
- It is a strong, rigid, and abrasion-resistant material, ideal for applications requiring wear resistance.
- It is also a good electrical insulator and has good resistance to chemicals including acids, alkalis, solvents, and corrosion, allowing it to come into contact with aggressive chemical agents.
- It has high impact resistance compared to other plastics,

meaning it can withstand sudden impacts and forces without breaking. For example, it is used in helmets to protect against head injuries, as well as in knee and elbow protectors.

- Its low friction coefficient makes it useful in applications requiring smooth sliding and reduced friction.
- It has a density of approximately 0.94 g/cm³, making it lighter than most other polymers, making it a lightweight option for applications requiring strength and weight reduction.

APPLICATIONS

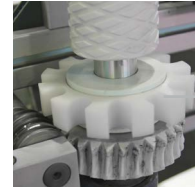
Due to its properties and characteristics, UHMW-PE is used as sliding bearings to reduce wear and noise, as gears to increase durability, and in wear plates to protect metal surfaces.

In agricultural equipment, such as pipes, valves, and fittings, containers for products, and silos for storing food. Due to its wear resistance and low coefficient of friction, in the mining and construction industries, it is used for lining hoppers, conveyor belts, and excavators.

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These applications can be found in various industries:

- Metalworking Industry:** It is used in sliding bearings and roller bearings to reduce wear and noise. It is used in gears to increase durability and efficiency, and in wear plates to protect metal surfaces from wear.
- Agricultural Industry:** It is used in irrigation equipment, such as pipes, valves, and connections, to enhance resistance and durability. It is also found in food storage equipment, such as silos and containers, to protect food from contamination.
- Mining and Construction Industry:** It is used as linings for hoppers and chutes. Also as parts of material handling equipment in abrasive environments. And even as seals and components for chemical processing equipment.
- Beverage and Food Industry:** It is used as protective guards for bottles and food products. Also in parts that are visible from the outside.



Gear of a machine to reduce noise and increase durability



UHMW-PE tubes for transporting abrasive products or aggressive chemicals



Hopper covered on UHMW-PE to prevent material clogging



Bottle production line with UHMW-PE conveyors

The data provided here is based on current knowledge and aims to provide general information and guidance, as well as its fields of application; therefore, it should not be considered a guarantee of functionality in any type of application