

## Technical Data Sheet

### MDI Ester-Based Polyurethane (MDI Ester PU)

Chemical Name(s): Methylene Diphenyl Diisocyanate Ester-Based Polyurethane  
Common Abbreviation(s): MDI Ester PU  
Available Profiles: Sheet, Rod, Tube

MDI Ester-Based Polyurethane is a high-performance elastomer known for its superior mechanical strength, wear resistance, and load-bearing capacity. It is widely used in industrial applications where high abrasion resistance and chemical resistance to oils and solvents are required. However, its susceptibility to hydrolysis in wet environments makes it more suited for dry or oil-laden conditions.

#### Benefits:

- Excellent wear and abrasion resistance
- High tensile strength and load-bearing capacity
- Superior resistance to oils, fuels, and solvents
- High hardness and dimensional stability
- Suitable for heavy-duty industrial applications

#### Common Applications:

- Industrial wheels and rollers
- Conveyor belts and pads
- Seals, gaskets, and wear strips in oil-rich environments
- Mining and material handling components
- Structural parts requiring high stiffness and load-bearing capacity

#### TYPICAL PROPERTIES of MDI ESTER-BASED POLYURETHANE (MDI ESTER PU)

	Property	Test Method	Value
Physical Properties	Density (g/cm <sup>3</sup> )	ATSM D792	1.18
	Water Absorption (%)	ASTM D570	0.5
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	45
	Tensile Modulus (MPa)	ASTM D638	100-400
	Tensile Elongation at Break (%)	ASTM D638	400
	Flexural Strength (MPa)	ASTM D790	30
	Flexural Modulus (MPa)	ASTM D790	400
	Compressive Strength (MPa)	ASTM D695	85
	Hardness (Shore A, Shore D)	ASTM D785	A90 - D55
	Impact Strength (kJ/m <sup>2</sup> )	ASTM D256	15
Thermal Properties	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	1.8 x 10 <sup>-4</sup>
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	70
	Approx. Melting Temperature (°C)	ASTM D3418	180-200
	Max Operating Temperature (°C)	-	80
Electrical Properties	Dielectric Strength (kV/mm)	ASTM D149	20
	Dielectric Constant at 1 MHz	ASTM D150	6.0
	Dissipation Factor at 1 kHz	ASTM D150	0.02
	Surface Resistivity (ohm/sq)	ASTM D257	>10 <sup>12</sup>
	Arc Resistance (sec)	ASTM D495	120-150
Flammability	Flammability Rating	UL94	HB
Standards Compliance	ASTM D638, D790, D695, D257 compliant		
Environmental Considerations	Recyclability: MDI Ester-Based Polyurethane can be challenging to recycle due to its durable composition but offers a long service life in industrial applications. Environmental Impact: While the material is durable, it is not suited for high moisture environments due to hydrolytic degradation, making it best suited for dry or oil-heavy environments..		

