

## Technical Data Sheet

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

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

MDI Ether-Based Polyurethane is an elastomer with excellent resistance to hydrolysis and superior flexibility, making it ideal for applications in moist or water-rich environments. This material is known for its low-temperature flexibility, good dynamic properties, and outstanding resistance to microbial attack. MDI Ether-based PU is preferred for applications that require resilience and longevity in wet or outdoor environments.

#### Benefits:

- Superior resistance to hydrolysis, ideal for wet and humid environments
- Excellent flexibility and resilience, even at low temperatures
- High resistance to microbial growth and chemicals
- Good dynamic properties and low fatigue under repeated flexing

#### Common Applications:

- Marine fendering systems and buoyancy components
- Wet environment seals and gaskets
- Flexible hoses and tubing
- Shock absorbers and cushioning materials
- Food processing equipment components
- Industrial wheels and rollers

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

	Property	Test Method	Value
Physical Properties	Density (g/cm <sup>3</sup> )	ATSM D792	1.12
	Water Absorption (%)	ASTM D570	0.1
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	40
	Tensile Modulus (MPa)	ASTM D638	100-300
	Tensile Elongation at Break (%)	ASTM D638	500
	Flexural Strength (MPa)	ASTM D790	30
	Flexural Modulus (MPa)	ASTM D790	300
	Compressive Strength (MPa)	ASTM D695	70
	Hardness (Shore A, Shore D)	ASTM D785	A85 - D45
Thermal Properties	Impact Strength (kJ/m <sup>2</sup> )	ASTM D256	14
	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	2.0 x 10 <sup>-4</sup>
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	60
	Approx. Melting Temperature (°C)	ASTM D3418	170-190
Electrical Properties	Max Operating Temperature (°C)	-	85
	Dielectric Strength (kV/mm)	ASTM D149	18
	Dielectric Constant at 1 MHz	ASTM D150	6.5
	Dissipation Factor at 1 kHz	ASTM D150	0.03
	Surface Resistivity (ohm/sq)	ASTM D257	>10 <sup>12</sup>
Flammability	Arc Resistance (sec)	ASTM D495	110-130
Standards Compliance	Flammability Rating	UL94	HB
Environmental Considerations	ASTM D638, D790, D695, D257 compliant		
	Recyclability: TDI Ester-Based PU is challenging to recycle but is highly durable, extending service life and reducing replacement frequency. Environmental Impact: Due to its susceptibility to hydrolysis, it is best suited for dry or oil-rich environments rather than applications involving water or high humidity.		

