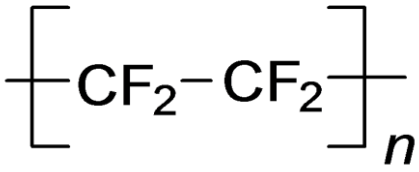
systemseals

MATERIAL SPECIFICATION SHEET

MT401

Polytetrafluoroethylene
(PTFE Premium-Medical Grade)



SPECIFICATIONS

Property	Spec	Value
Color		White
Specific Gravity	ASTM D792	2.130-2.190 g/cm³
Water Absorption	ASTM D570	0.01%
Flammability	UL 94	V-0
Tensile Strength	ASTM D4894	≥25 MPa
Elongation	ASTM D4894	≥280%
Hardness	ASTM D2240	≥54 Shore D
Ball Hardness	ASTM D785	≥23 MPa
Compression strength @1% Deformation	ASTM D695	≥4 MPa
Deformation under load (140 Kg/cm² for 24 hrs. @23°C)	ASTM D621	10-13%
Permanent deformation (after 24 hrs. Relaxation @23°C)	ASTM D621	6-7.5%
Coefficient of static friction	ASTM D1894	0.08-0.10
Coefficient of dynamic friction	ASTM D1894	0.06-0.08
Wear factor K	ASTM D3702	2.900
Wear coefficient		20000-25000 cm³ min 10-8 Kg m h
Thermal conductivity W/ m K	ASTM C177	0.34
Coefficient of linear thermal expansion from 25 to 100°C (10^{-5}/°C)	ASTM D696	12-15
Dielectric strength	ASTM D149	≥30 kV/mm
Volume resistivity (Ohm cm)	ASTM D257	10^{18}
Surface resistivity (Ohm)	ASTM D257	10^{17}

DESCRIPTION

MT401 is a PTFE material with hardness ≥54D, specially compounded medical grade. Polytetrafluoroethylene (PTFE) has exceedingly strong carbon-fluoride bonds (C-F). PTFE has a simple, linear, flexible and regular molecular structure, which makes it highly crystalline. Commercial PTFE is a high molecular weight polymer. Fluorine atoms form a tight sheath of protection providing PTFE with extreme molecular and physical properties. The sheath prevents PTFE from external influences upon the carbon-carbon backbone. It also results in weak interactions/bindings between polymer chains. These molecular structure properties make PTFE extremely resistant to chemicals or solvents even at very high temperatures and high pressures. PTFE also has very low friction and good anti-stick characteristics. PTFE is tough and flexible even at very low temperatures. However the same molecular structure properties result in mediocre mechanical properties with low stiffness and strength among thermoplastics. PTFE articles cannot be formed with conventional processes for thermoplastics because it does not flow above its crystalline melting point. Parts can be formed by a sintering process under high temperatures.