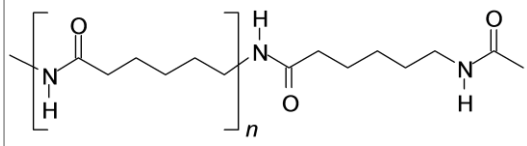
systemseals

MATERIAL SPECIFICATION SHEET

ML83



Polyamides
(PA6, cast, heat stabilized)

SPECIFICATIONS

Property	Spec	Value
Specific Gravity	ASTM D792	1.15g/cc
Tensile Strength	ASTM D638	12,000psi
Tensile Modulus of Elasticity	ASTM D638	400,000psi
Tensile Elongation @ break	ATSM D638	20%
Flexural Strength	ASTM D790	16,000psi
Flexural Modulus of Elasticity	ASTM D790	500,000psi
Shear Strength	ASTM D732	11,000psi
Compressive Strength, 10% deformation	ASTM D695	15,000psi
Compressive Modulus of Elasticity	ASTM D695	400,000psi
Hardness, Rockwell, Scale as noted	ASTM D785	M85 (R115)
Coefficient of Friction (Dry vs. Steel) Dynamic	QTM 55007	0.20
Limiting PV (with 4:1 safety factor applied)	QTM 55007	3,000 ft. lbs./in.^{2} min
Wear Factor "k" x 10 -10	QTM 55010	100 in 3 -min/ft.lb.hr
Coefficient of Linear Thermal Expansion (-40°F to +300°F)	ASTM E831	50 µin./in./ °F
Heat Deflection Temperature (264psi)	ASTM D648	200°F
Melting Point (crystalline) peak	ASTM D3418	420°F
Continuous Service Temp in Air (max)	Long Term	260°F
Thermal Conductivity	ASTM F433	2.37 BTU in/hr ft2

DESCRIPTION

ML83 is polyamide material with hardness of 85 Rockwell M, specially cast and heat stabilized. Polyamides (PA) have amide functional group linkages –CO-NH-. The amide group has strong affinity for hydrogen bonding with other amide groups and with water from the external environment. The two major commercial polyamide materials used in seal industries are PA 6 and PA 6,6. They differ by whether one or two raw material components are used in producing polyamide. In many aspects, they are interchangeable in applications. Both polyamide thermoplastics are flexible and allowing for easy crystallization. This capability is even enhanced by the strong affinity for polar amide groups of adjacent chain sections. Less amide content in the polymer means less tendency for polyamides to bind water. PA's lubrication can be further improved by incorporating molybdenum disulfide (MoS_2). The mechanical strength of PA can be increased by reinforcement with glass fiber. PA articles are normally molded by injection, extrusion or compression processes.