

## Omnia Plastica Akulon® PA6 G.Oil Omniamid Oil - Dry

Category : Polymer , Thermoplastic , Nylon , Nylon 6 , Nylon 6 , Cast

### Material Notes:

Cast Nylon 6 with the addition of 6% of special lubricating oil which remains in solution in the material. The unique method of production results in a micro distribution of oil particles with a homogeneous dispersion. This produces a notable improvement in the self-lubrication property as well as the shock resistance. Machining is also much easier. Features: Self-lubricating: the friction coefficient is the lowest of all the cast nylons. Wear resistance: better than PA6 natural. Tensile stress and compressive strength is like Omniamid G whilst shock resistance is higher, the E-modulus is lower. Machining: excellent on machine tools. Colour: orange and black. Weak Point: It is hygroscopic, even if to a lower extent than natural PA6 G. Because of the molecular structure, the large-sized cast pieces have better quality than those of small dimensions. Application: Mechanical: thanks to its excellent self-lubricating property, high shock resistance and compressive strength, together with the possibility to produce large-sized parts, it is widely used to produce bearings and bushings of large diameters as well as pulleys, wheels and anti-wear guides. Because of its excellent abrasion resistance it is used for gear wheels, guide bearings, bearings, sliding bearings, etc. in the building of parts for construction machines, excavators and earthmovers. In the shipbuilding industry its better weather resistance makes it suitable for rollers, haulage, sliding guides, bearings. In cable-car systems its usage includes pulleys, wheels and sliding blocks. Food contact: it cannot be used in contact with food. Electrical: usage in the electrical field is to be avoided as the electrical properties change with the change in moisture content. Chemical: it is resistant to alkali, inorganic compounds and solvents. Information provided by Omnia Plastica s.p.a. for semifinished products such as sheet, rod, and tube.

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[http://www.lookpolymers.com/polymer\\_Omnia-Plastica-Akulon-PA6-GOil-Omniamid-Oil-Dry.php](http://www.lookpolymers.com/polymer_Omnia-Plastica-Akulon-PA6-GOil-Omniamid-Oil-Dry.php)

Physical Properties	Metric	English	Comments
Density	1.14 g/cc	0.0412 lb/in <sup>3</sup>	ISO.1183 DIN.53479
Moisture Absorption at Equilibrium	1.5 %	1.5 %	50% relative humidity
Water Absorption at Saturation	4.8 %	4.8 %	23°C

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	82	82	dry sample; ISO2039.2
Ball Indentation Hardness	150 MPa	21800 psi	ISO2039.1 DIN.53456
Tensile Strength at Break	70.0 MPa	10200 psi	ISO.527 DIN.53455
Elongation at Break	35 %	35 %	ISO.527 DIN.53455
Tensile Modulus	3.10 GPa	450 ksi	ISO.527 DIN.53455
Compressive Strength	19.0 MPa	2760 psi	1% strain over 1000 hours; ISO.899 DIN.53444
Charpy Impact Unnotched	NB	NB	7.5 J; ISO.R179 DIN.53453
Charpy Impact, Notched	0.800 J/cm <sup>2</sup>	3.81 ft-lb/in <sup>2</sup>	ISO179/3C DIN.53453

Mechanical Properties	Metric	English	Comments
Coefficient of Friction, Dynamic	0.34		Hard steel; load =0.05MPa; speed =0.6 m/s

Thermal Properties	Metric	English	Comments
CTE, linear	80.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	44.4 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 23.0 - 60.0 $^\circ\text{C}$	@Temperature 73.4 - 140 $^\circ\text{F}$	
Thermal Conductivity	0.280 W/m-K	1.94 BTU-in/hr-ft <sup>2</sup> - $^\circ\text{F}$	DIN.52612
Melting Point	220 $^\circ\text{C}$	428 $^\circ\text{F}$	
Maximum Service Temperature, Air	100 $^\circ\text{C}$	212 $^\circ\text{F}$	Maximum operating temperature continuously for 5000 hours based on a tensile stress of 50% at 23 $^\circ\text{C}$ .
	160 $^\circ\text{C}$	320 $^\circ\text{F}$	short period, no load
Deflection Temperature at 1.8 MPa (264 psi)	90.0 $^\circ\text{C}$	194 $^\circ\text{F}$	ISO.75 DIN.53461
Minimum Service Temperature, Air	-30.0 $^\circ\text{C}$	-22.0 $^\circ\text{F}$	impact conditions and heavy loads not considered
Flammability, UL94	HB	HB	
Oxygen Index	25 %	25 %	ISO.4589

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+12 ohm-cm	1.00e+12 ohm-cm	ISO.93 DIN.53482
Dielectric Constant	3.7	3.7	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	30.0 kV/mm	762 kV/in	ISO.243 DIN.53481
Dissipation Factor	0.050	0.050	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

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