

PLASTIC MATERIALS

PA 6

DESCRIPTION

Semi-crystalline polymer of polyamide obtained by the polymerisation of the caprolactam. Its large popularity is due to both its good overall features as well as its cost-performance relationship. The use of a high viscosity polymer for the extrusion of akulon 6 stock shapes results in a product with excellent mechanical properties and a very high standard of quality

FEATURES

- ✚ Abrasion resistance: even in dusty and demanding environments, it's one of the best engineering plastics.
- ✚ Toughness: high tensile stress and compressive strength. The shock resistance is good particularly for annealed material.
- ✚ Fatigue-proof: it maintains its features even under continuous stress
- ✚ Self-lubricating: the friction coefficient is low and generally for sliding applications it does not require lubricators.
- ✚ Ageing resistance and weatherproof.
- ✚ Natural colour

WEAK POINT

- ✚ It is hygroscopic; it absorbs moisture which means that in time both its mechanical features and dimensions will change. When dry, it is hard and fragile and when moist it becomes more shock resistant and yielding. Machining is easy but automatic lathes should be avoided as the swarf is extremely elastic.

APPLICATION:

Mechanical: thanks to its features and its low price it is a popular material for "general purposes" Widely used in the mechanical industry to produce gears, cams, pulleys, anti-wear guides and other mechanical parts. It is used also for guides, bearings and wheels in shipbuilding. For outdoor applications, Akulon GX is preferable due to its higher UV stability

Food contact: generally it is not used in contact with food

Electrical: usage in the electrical field is to be avoided as the electrical features change with the moisture content.

Chemical: it is resistant to inorganic compounds and solvents.

PHISICAL PROPERTIES			
DESCRIPTION	STANDARDS	U.M	VALUE
SPECIFIC GRAVITY	ISO 1183	g/cm ³	1.14
WATER ABSORPTION AT SATURATION	ISO 62	%	9.5
MOISTURE ABSORPTION AT 23° C-50% RH	ISO 62	%	3
MECHANICAL PROPERTIS			
YIELD STRENGTH	ISO 527	N/mm ²	90
ELONGATION AT YIELD	ISO 527	%	- 4.5
TENSILE STRENGTH AT BREAK	ISO 527	N/mm ²	-
ELONGATION AT BREAK	ISO 527	%	-/≥50*
TENSILE MODULUS	ISO 527	MPa	3000
UN-NOTCHED IMPACT STRENGTH	ISO 179	KJ/m ²	NB
NOTCH IMPACT STRENGTH	ISO 179	KJ/m ²	9/NB
ROCKWELL HARDNESS M	ISO 2039-2	-	85
SHORE D HARDNESS	DIN 53505	SHORE D	-
FLEXURAL STRENGTH AL 3.5%	ISO 178	N/mm ²	-
FLEXURAL MODULUS	ISO 178	N/mm ²	-
COMPRESSIVE STRESS (1%-23° C)	ISO 604	N/mm ²	24
COMPRESSIVE MODULUS	ISO604	N/mm ²	-
DEFORMATION UNDER LOAD 100 Mpa -24 hr-RT	-	%	-
PAISSON' S RATIO	Abs	-	-0.38
TERMAL PROPERTIES			
MAXIMUM OPERATING TEMPERATURE	-	° C	85
MINIMUM OPERATING TEMPERATURE	-	° C	-40
VICAT SAFTENING TEMPERATURE VST/B/50	ISO 306	° C	-
HEAT DEFLECTION TEMPERATURE AT 0.45 Mpa	ISO 75	° C	160/180
HEAT DEFLECTION TEMPERATURE -1.8 MPa	ISO 75	° C	70/90
THERMAL CONDUCTIVITY	DIN 52612	W/(K*m)	0.28
COEF. OF LINEAR THERMAL EXPANSION (23 A 100° C)	ASTM D696	Pm/(m* ° K)	85
COEF. OF LINEAR THERMAL EXPANSION (23° C)	ASTM D696	Pm/(m* ° K)	-
TIBOLOGICAL PROPERTIES			
STATIC COEF. OF FRICTION ON POLISHED STEEL	MPC TEST	abs	0.22
DYNAMIC COEF. OF FRICTION ON POLISHED STEEL	MPC TEST	abs	0.26
PV LIMITWITHOUT LUBRICATION	MPC TEST V=0.5 m/s	N/mm ²	0.07
WEAR COEFFICIENT ON HARDENED POLISHED STEEL	MPC TEST PV=0.1 MPa m/s	Pm/s	8.5
MAXIMUM PRESSURE	MPC TEST	N/mm ²	24
ELECTRICAL PROPERTIES			
VOLUME RESISTANCE	IEC 60093	Ω* m	>10 ¹²
SURFACE RESISTANCE	IEC 60094	Ω	>10 ¹²
DIELECTRIC CONSTANT AT 1 MHz	IEC 60250	Abs	3.8
DIELECTRIC LOSS FACTOR- 1 MHz	IEC 60250	tan	0.06
DIELECTRIC STREGTH	IEC 60243	KV/mm	16
ULTERIORI CARATTERISTICHE			
BONDABILITY	-		N
FOOD CONTACT SAFETY (FDA COMPILACE)	DM 21/3/73		Y
FLAMMABILITY	UL 94		V3
OXYGEN LIMIT INDEX	ISO 4589	%	25
UV RESISTANCE	-		N****