Identification

Designation

Polyoxymethylene, acetal (copolymer)

Tradenames

Acetron; Alcom; Amcel; Amilus; Anjaform; BeetleAcetal; Bergaform; Celcon; Compocet; Dafnelan; Delrin; Deniform; Duracon; Durmax; Ecoform; Encore; Ensital; Ertacetal; Formax; Formosacan; Hostaform; Isotal; Iupital; Kematal; Kepital; Kocetal; Kopla; Latan; Lucel; Lucet; Lunex-T; Luvocom; Murytal; Nevipom; Niform; Nyloy; Palform; Pomalux; Pertal; Poliform; POLYform; Pomfor; Seratal; Sniatal; Talnex; Tarnoform; Taroform; Tecaform; Tekuform; Tenac; Tepcon; Terez; TismoPoticon; Ultraform; Whistatt

General Properties

Density	1.39e3	-	1.41e3	kg/m^3
Price	* 32.3	-	35.4	MXN/kg

Composition overview

Composition (summary)

Copolymer of (CH2-O)n (from formaldehyde or trioxane) with small amounts (<5%) of a comonomer such as -(CH2-CH2-O)- (from ethylene oxide or dioxolane)

Base	Polymer
Polymer class	Thermoplastic : semi-crystalline
Polymer type	POM (copolymer)
Polymer type full name	Polyoxymethylene (acetal), copolymer
Filler type	Unfilled

Composition detail (polymers and natural materials)

Polymer	100			%

Mechanical properties

Young's modulus	2.6	-	3.2	GPa
Compressive modulus	3.02	-	3.17	GPa
Flexural modulus	2.54	-	3.09	GPa
Shear modulus	* 0.933	-	1.15	GPa
Bulk modulus	* 4.41	-	4.63	GPa
Poisson's ratio	* 0.386	-	0.401	
Shape factor	5			
Yield strength (elastic limit)	57.2	-	71.7	MPa
Tensile strength	* 71.5	-	89.6	MPa
Compressive strength	* 105	-	116	MPa
Flexural strength (modulus of rupture)	85.4	-	94.1	MPa
Elongation	15	-	75	% strain
Hardness - Vickers	* 17.2	-	21.5	HV
Hardness - Rockwell M	75	-	90	
Hardness - Rockwell R	* 111	-	122	
Fatigue strength at 10^7 cycles	22	-	26	MPa
Fracture toughness	3.8	-	4.2	MPa.m^0.5
Mechanical loss coefficient (tan delta)	* 0.0125	-	0.0154	

Impact properties

Impact strength, notched 23 °C	4.14	-	7.51	kJ/m^2
Impact strength, notched -30 °C	4.09	-	6.56	kJ/m^2
Impact strength, unnotched 23 °C	99.9	-	200	kJ/m^2
Impact strength, unnotched -30 °C	75.2	-	200	kJ/m^2

Thermal properties

Melting point	160	-	175	°C
Glass temperature	-60	-	-50	°C
Heat deflection temperature 0.45MPa	155	-	166	°C
Heat deflection temperature 1.8MPa	85	-	121	°C
Maximum service temperature	83	-	97	°C
Minimum service temperature	-50	-	-40	°C
Thermal conductivity	0.221	-	0.239	W/m.°C
Specific heat capacity	1.28e3	-	1.31e3	J/kg.°C
Thermal expansion coefficient	110	-	198	µstrain/°C

Processing properties

Linear mold shrinkage	1.82	-	2.2	%
Melt temperature	142	-	232	°C
Mold temperature	80	-	100	°C
Molding pressure range	55	-	138	MPa

Electrical properties

Electrical resistivity	3.3e20	-	3e21	µohm.cm
Dielectric constant (relative permittivity)	3.6	-	3.8	
Dissipation factor (dielectric loss tangent)	9.5e-4	-	0.00105	
Dielectric strength (dielectric breakdown)	18.9	-	20.5	MV/m
Comparative tracking index	300	-	600	V

Optical properties

Transparency	Opaque

Absorption, permeability

Water absorption @ 24 hrs	0.2	-	0.22	%
Permeability (O2)	1.85	-	3.13	cm³.mm/m².day.atm