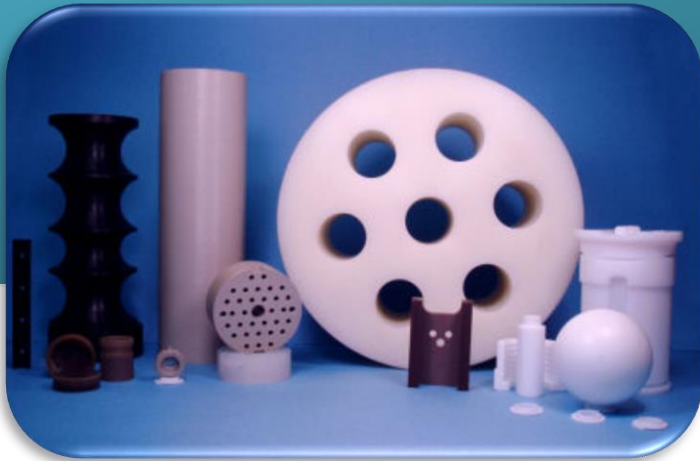


## OMEGA-TAL<sup>®</sup> Acetals (Polyoxymethylene-POM)



**OMEGA-TAL® Acetals (Polyoxymethylene-POM)**, which is a form of acetal, is a crystalline polymer obtained from the polymerisation of formaldehyde. Discovered fairly recently, it has enjoyed rapid growth and large acceptance thanks to its excellent mechanical features, superb stability despite humidity and ease of machining. OMEGA-TAL® Acetal resins are engineering thermoplastics based on formaldehyde polymerisation technology. These highly crystalline resins are strong, rigid and have a low coefficient of friction against metals, acetals and other plastics. They are creep resistant so that they are good for parts where dimensional stability is important. Moisture, lubricants and solvents including gasoline have little effect on this property, which is important in parts incorporating self-threading screws or interference fits. OMEGA-TAL® Acetals are resistant to a wide range of solvents, but they are attacked by both strong acids and oxidizing agents.

**MAIN ADVANTAGES of OMEGA-TAL® Acetal Sheet, Rod and Tube**

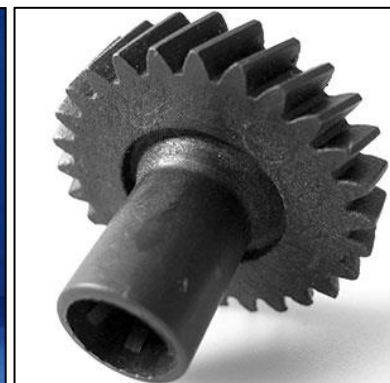
- Good electrical insulations and dielectric properties
- Low moisture absorption – resists hydrolysis up to 60°C
- Excellent dimensional stability and machinability
- High mechanical strength and rigidity
- Good impact resistance even at low temperatures
- Low co-efficient of friction
- High hardness and stiffness
- Good creep resistance
- Physiologically safe

**WEAKNESSES of OMEGA-TAL® Acetal Sheet, Rod and Tube**

- Not resistant to strong acids (pH<4) or oxidizing agents
- Lower abrasion resistant compared to the nylons

**APPLICATIONS**

- **Industrial & Automotive Applications:** Gears, cams, Bushings, clips, lugs, door handles, housings, fuel systems, seat-belt components, steering columns, window support brackets, cranks, handles.
- **Plumbing Products:** Utilise the lubricity and corrosion and hot water resistance of acetal polymer-valves, valve stems, pumps, faucets and impellers; Applications that have replaced brass or zinc components – shower head, faucet cartridges, various fittings.
- **Consumer Items:** Toys, garden sprayers, audio and video cassette parts, butane lighter bodies, zippers, telephone components.
- **Mechanical Components (require dimensional stability):** Watch gears, conveyor links, Aerosols, mechanical pens & pencils
- **FDA Approved Items:** Milk pumps, Coffee spigots, filter housings, food conveyors



**PROPERTIES of OMEGA-TAL® Acetals (Polyoxymethylene - POM)**

Criteria	Test Method	Units	POM - C	POM- H
<b>PHYSICAL</b>				
Specific Gravity	ISO1183	g/cm <sup>3</sup>	1,41	1,42
Specific Volume	ISO1183	cm <sup>3</sup> /g	0,71	0,70
Water absorption	ISO62	24h, 3mm thk (%)	0,22	0,25
<b>THERMAL</b>				
Min Service Temp		°C	-65	-65
Max Service Temp		°C	100	115
Max Service Temp Short Term		°C	130	140
Melting Point	ISO3146	°C	165	175
Thermal Conductivity	ISO8302	W/(mK)	1,1	0,8
Deflection temperature at 1.80Mpa	ISO75	°C	96	136
Deflection temperature at 0.45Mpa	ISO75	°C	158	149
Glass Transition	DSC	°C	n.a.	n.a.
Vicat Softening Temp	ISO306	°C	n.a.	n.a.
Specific Heat	ISO22007	J/g.K	1,5	1,5
Flammability	UL-94		HB	HB
Oxygen Index	ASTM D621	%	15	15
Coefficient of Thermal Expansion	ISO11359	10 <sup>-5</sup> m/m°C	15	18
<b>MECHANICAL</b>				
Impact resistance	ISO179	KJ/m <sup>2</sup>	no br.	no br.
Ball Indentation Strength	ISO2039	MPa	145	170
Hardness	ISO2039	Rockwell M	80	94
Izod impact strength (Notched -40°C)	ISO179	J/m	69	75
Izod impact strength (Unnotched -40°C)	ISO179	J/m	1068	1281
Moisture Absorption	ISO62	%	0,22	0,25
Moisture Absorption at Saturation	ISO62	%	0,51	0,62
Resistance to UV/ Weathering			NO	NO
Wear		m m/km	14	14
Friction Sliding Coefficient vs steel	ISO8295	MPa	0,15	0,15
Friction Sliding Coefficient vs self	ISO8295	MPa	0,35	0,30
Tensile Strength at Yield	ISO527	MPa	63	68
Compressive Strength	ISO604	MPa	19	19
Compressive Modulus	ISO604	MPa	2300	2300
Elongation at 5mm/min loading rate	ISO527	%	55	40
Creep Strength		MPa	2	2
Flexural Strength	ISO178	MPa	89	97
Flexural Modulus at 23°C	ISO178	MPa	2580	2826
Flexural Modulus at 71°C	ISO178	MPa	1240	1585
Tensile modulus	ISO527	MPa	2826	3858
<b>ELECTRICAL</b>				
Dielectric Strength at 0.13mm	IEC243	kV/mm	80	115
Volume Resistivity at 23°C, 50% RH	IEC93	Ω. Cm	10 <sup>14</sup>	10 <sup>15</sup>
Surface Resistivity	IEC60093	Ω	>10 <sup>14</sup>	>10 <sup>14</sup>
Dissipation Factor	IEC 250		0,003	0,005
Dielectric Constant at 1 kHz	IEC250		3,8	3,7
Arc Resistance	ASTM D495	s	240 (burns)	220 (burns, no tracking)
<b>CHEMICAL</b>				
Acids			VG	NR
Alkalis			VG	NR
Oils / Petroleum			VG	VG
Good Resistance			hot water, washing soda, hydrolysis, weak acids, weak and strong alkaline solutions, organic solvents, petrol, oil, greases	hydrolysis, organic solvents, fuels, hydrocarbons
Poor Resistance			strong acids(pH<4), oxidizing agents	hot water, washing soda, alcohols
Food Safe	FDA		YES	YES

## DELIVERY PROGRAM

**RODS:** 1000mm, 2000mm, 3000mm

**Diameters** – 6mm, 8mm, 10mm, 12mm, 14mm, 15mm, 16mm, 18mm, 20mm, 22mm, 25mm, 28mm, 30mm, 32mm, 35mm, 40mm, 45mm, 50mm, 55mm, 60mm, 65mm, 70mm, 75mm, 80mm, 85mm, 90mm, 95mm, 100mm, 110mm, 120mm, 125mm, 130mm, 135mm, 140mm, 150mm, 160mm, 170mm, 175mm, 180mm, 190mm, 200mm, 210mm, 220mm, 230mm, 240mm, 250mm, 260mm, 270mm, 280mm, 290mm, 300mm, 310mm, 350mm, 400mm, 450mm, 500mm,

**SHEETS:** Size 2000mm X 1000mm

**Thicknesses:** 1mm, 2mm, 3mm, 4.5mm, 6mm, 8mm, 10mm, 12mm, 15mm, 16mm, 18mm, 20mm, 25mm, 30mm, 35mm, 40mm, 45mm, 50mm, 60mm, 70mm, 80mm, 90mm, 100mm, 110mm, 110mm, 125mm, 150mm

## TUBES – Length 1000mm, 2000mm, 3000mm

OD x ID	Kg/m	OD x ID	Kg/m	OD x ID	Kg/m	OD x ID	Kg/m	OD x ID	Kg/m
25 x 10	0.68	70 x 40	4.28	110 x 80	7.77	180 x100	28.38	450 x 200	199.80
25 x12	0.62	70 x 45	3.81	110 x90	5.89	180 x 110	26.08	450 x 300	144.49
25 x 15	0.53	70 x 50	3.29	120 x 50	15.01	180 x120	23.54	500 x 200	255.40
25 x 20	0.34	70 x 55	2.71	120 x 60	13.84	180 x 140	17.78	500 x 300	200.09
30 x 15	0.85	70 x 60	2.07	120 x 70	12.41	180 x 150	14.55	500 x375	143.50
30 x 20	0.66	75 x 25	6.19	120 x 80	10.81	180 x 160	11.09		
35 x 15	1.30	75 x 35	5.55	120 x 90	8.95	190 x 70	38.26		
35 x 20	1.11	75 x 40	5.14	120 x 100	6.86	190 x 140	22.12		
35 x 25	0.87	75 x 45	4.67	125 x 80	12.25	190 x 160	15.44		
35 x 30	0.57	70 x 50	4.14	125 x 90	10.40	200 x 70	42.83		
40 x 15	1.75	75 x 60	2.92	125 x 100	8.31	200 x 90	39.37		
40 x 20	1.56	75 x 65	2.22	130 x 50	17.95	200 x 100	37.63		
40 x 25	1.32	80 x 30	6.81	130 x 60	16.78	200 x 130	30.06		
40 x 30	1.02	80 x 35	6.46	130 x 80	13.76	200 x140	27.08		
40 x 35	0.66	80 x 40	6.05	130 x90	11.90	200 x 150	23.87		
45 x 20	2.07	80 x 45	5.58	130 x 100	9.81	200 x 160	20.43		
45 x 25	1.82	80 x 50	5.06	130 x 110	7.49	210 x 150	28.68		
45 x 30	1.52	80 x 60	3.84	140 x 60	19.96	210 x 160	25.24		
45 x 35	1.16	80 x 65	3.14	140 x 70	18.56	220 x 70	52.97		
50 x 20	2.63	80 x 70	2.38	140 x 80	16.93	220 x75	52.20		
50 x 25	2.38	85 x 30	7.78	140 x 90	15.08	220 x 160	31.67		
50 x 30	2.08	85 x 40	7.02	140 x 100	12.99	220 x 190	20.03		
50 x 35	1.72	85 x 60	4.81	140 x 110	10.67	230 x 120	49.28		
50 x 40	1.31	85 x 65	4.11	140 x 120	8.12	230 x 160	36.99		
55 x 25	3.07	85 x 70	3.35	150 x 50	24.54	230 x 170	33.34		
55 x 30	2.77	85 x 75	2.54	150 x 70	21.97	230 x 190	25.35		
55 x 35	2.41	90 x 30	8.81	150 x 80	20.34	250 x 70	70.80		
55 x 45	1.53	90 x40	8.05	150 x 90	18.48	250 x 150	51.74		
55 x 50	1.00	90 x 50	7.32	150 x 100	16.39	250 x 170	44.67		
60 x 20	3.99	90 x 60	6.13	150 x 110	14.07	260 x 130	63.89		
60 x 25	3.75	90 x 70	4.71	150 x 120	11.52	260 x 160	54.33		
60 x 30	3.45	90 x 75	3.91	160 x 50	28.46	260 x 170	50.68		
60 x 35	3.09	90 x 80	3.06	160 x 60	27.31	260 x 190	42.69		
60 x 40	2.68	100 x 35	10.91	160 x 80	24.31	265 x 90	76.51		
60 x 45	2.21	100 x 40	10.52	160 x90	22.46	265 x 210	36.87		
60 x 50	1.68	100 x50	9.56	160 x100	20.39	270 x 90	79.66		
60 x 55	1.10	100 x60	8.37	160 x 120	15.55	280 x 100	84.09		
65 x 30	4.24	100 x 70	6.95	160 x 120	12.78	280 x 140	73.64		
65 x 35	3.89	100 x 80	5.30	160 x 140	9.78	280 x 210	46.49		
65 x 40	3.48	100 x85	4.39	170 x 60	31.19	280 x240	31.40		
65 x 45	3.01	100 x 90	3.42	170 x 80	28.19	300 x 90	99.76		
65 x 50	2.49	110 x 40	12.99	170 x 100	24.27	300 x 100	97.72		
65 x 55	1.91	110 x 45	12.54	170 x 120	19.43	310 x 130	97.39		
70 x 25	5.34	110 x 50	12.03	170 x 130	16.66	350 x 200	104.61		
70 x 30	5.04	110 x 60	10.84	170 x 140	13.67	400 x 200	148.58		
70 x 35	4.69	110 x 70	9.42	180 x70	33.92	400 x 300	93.04		