

**Quadrant EPP Acetron® GP Acetal, Unfilled, porosity-free copolymer acetal, extruded (ASTM Product Data Sheet)**
**Categories:** Polymer; Thermoplastic; Acetal (POM); Acetal Copolymer, Unreinforced

**Material Notes:** Acetron GP is Quadrant EPP's general purpose acetal and is the only porosity-free acetal product available today. Investments in process technology by Quadrant EPP now provide the performance and machinability of acetal without center core porosity. Our in-line photometric quality procedure assures every plate and rod is porosity-free as measured by Quadrant EPP's quick check dye penetrant test. For details of test methods, contact Quadrant EPP. Acetron GP natural is FDA, USDA, NSF, Canada AG and 3A-Dairy compliant.

Data provided by Quadrant Engineering Plastic Products.

- Low moisture absorption
- High strength, stiffness
- Easy to machine
- No centerline porosity in Acetron® GP
- Many formulation options: Copolymer, Homopolymer, PTFE filled, and Internally lubricated/enhanced wear grade

**Key Words:** POM, Polyoxymethylene; Polyformaldehyde; Polyacetal

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Water Absorption	0.20 %	0.20 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.90 %	0.90 %	Immersion; ASTM D570(2)
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	88	88	ASTM D785
Hardness, Rockwell R	120	120	ASTM D785
Hardness, Shore D	85	85	ASTM D2240
Tensile Strength	65.5 MPa	9500 psi	ASTM D638
Elongation at Break	30 %	30 %	ASTM D638
Tensile Modulus	2.76 GPa	400 ksi	ASTM D638
Flexural Strength	82.7 MPa	12000 psi	ASTM D790
Flexural Modulus	2.76 GPa	400 ksi	ASTM D790
Compressive Strength	103 MPa	15000 psi	10% Def.; ASTM D695
Compressive Modulus	2.76 GPa	400 ksi	ASTM D695
Shear Strength	55.2 MPa	8000 psi	ASTM D732
Izod Impact, Notched	0.534 J/cm	1.00 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.25	0.25	Dry vs. Steel; QTM55007
K (wear) Factor	403 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	200 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.0946 MPa-m/sec	2700 psi-ft/min	4:1 safety factor; QTM 55007
Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+13 ohm	>= 1.00e+13 ohm	EOS/ESD S11.11
Dielectric Constant	3.8	3.8	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	16.5 kV/mm	420 kV/in	Short Term; ASTM D149
Dissipation Factor	0.0050	0.0050	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Thermal Properties	Metric	English	Comments
CTE, linear	97.2 µm/m-°C	54.0 µin/in-°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
Thermal Conductivity	0.231 W/m-K	1.60 BTU-in/hr-ft <sup>2</sup> -°F	ASTM F433
Melting Point	168 °C	335 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	82.2 °C	180 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	104 °C	220 °F	ASTM D648
Flammability, UL94	HB	HB	1/8 inch (Estimated Rating)
Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	
Canada AG	Yes	Yes	
FDA	Yes	Yes	
NSF	Yes	Yes	STD 51 & 61 Natural Only
USDA	Yes	Yes	
USP Class VI	No	No	

<b>Chemical Resistance Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Acids, Strong (pH 1-3)	Unacceptable	Unacceptable	
Acids, Weak	Limited	Limited	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Limited	Limited	
Conductive / Static Dissipative	No	No	
Continuous Sunlight	Limited	Limited	
Hot Water / Steam	Limited	Limited	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Acceptable	Acceptable	
Inorganic Salt Solutions	Acceptable	Acceptable	
Ketones, Esters	Acceptable	Acceptable	

#### **Descriptive Properties**

Color	Natural / Black	
Machinability	1	1-10, 1=Easier to Machine