

# DuPont™ Delrin® PC699 NC010 (Preliminary Data)

## ACETAL RESIN

### Product Information

Common features of Delrin® acetal resins include mechanical and physical properties such as high mechanical strength and rigidity, excellent fatigue and impact resistance, as well as resistance to moisture, gasoline, lubricants, solvents, and many other neutral chemicals. Delrin® acetal resins also have excellent dimensional stability and good electrical insulating characteristics. They are naturally resilient, self-lubricating, and available in a variety of colors and speciality grades.

Delrin® acetal resin typically is used in demanding applications in the automotive, domestic appliances, sports, industrial engineering, electronics, and consumer goods industries.

**Delrin® PC699 is a lubricated low viscosity acetal homopolymer, developed for thin-walled parts requiring low wear and low friction and high precision molding in the healthcare industry.**

### PREMIUM CONTROL for HEALTHCARE APPLICATIONS

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. This product is also tested against ISO 10993-5 and -11 and selected parts of USP Class VI and US FDA drug and device master files (DMF and MAF) have been established. For details, individual compliance statements are available from your DuPont representative.

General information	Value	Unit	Test Standard
Resin Identification	POM	-	ISO 1043
Part Marking Code	POM	-	ISO 11469
Rheological properties	Value	Unit	Test Standard
Melt volume-flow rate	21	cm <sup>3</sup> /10min	ISO 1133
Temperature	190	°C	ISO 1133
Load	2.16	kg	ISO 1133
Melt mass-flow rate	25	g/10min	ISO 1133
Moulding shrinkage, parallel	1.9	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.8	%	ISO 294-4, 2577
Mechanical properties	Value	Unit	Test Standard
Tensile Modulus	3100	MPa	ISO 527-1/-2
Yield stress	63	MPa	ISO 527-1/-2
Yield strain	15	%	ISO 527-1/-2
Nominal strain at break	30	%	ISO 527-1/-2
Flexural Modulus	3050	MPa	ISO 178
Flexural Stress at 3.5%	82	MPa	ISO 178
Charpy impact strength			ISO 179/1eU
23 °C	160	kJ/m <sup>2</sup>	
-30 °C	175	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
23 °C	6.5	kJ/m <sup>2</sup>	
-30 °C	7.5	kJ/m <sup>2</sup>	
Hardness, Rockwell, M-scale	91	-	ISO 2039-2
Hardness, Rockwell, R-scale	119	-	ISO 2039-2
Coefficient of sliding friction, 1h against itself	0.1	-	ASTM 1894
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10° C/min	178	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	98	°C	
0.45 MPa	162	°C	
Coeff. of linear therm. expansion, parallel	100	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	105	E-6/K	ISO 11359-1/-2
Flammability	Value	Unit	Test Standard
Burning rate, Thickness 1 mm	28	mm/min	ISO 3795 (FMVSS 302)
Other properties	Value	Unit	Test Standard
Humidity absorption			Sim. to ISO 62
2mm	0.24	%	
1mm	1	%	

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

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Toll-Free (USA): 800 441-0575

Asia Pacific

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Europe/Middle East/Africa

Tel: +41 22 717 51 11



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Density	1400	kg/m <sup>3</sup>	ISO 1183
Injection	Value	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.05	%	-
Melt Temperature Optimum	215	°C	-
Min. melt temperature	210	°C	-
Max. melt temperature	220	°C	-
Mold Temperature Optimum	90	°C	-
Min. mould temperature	80	°C	-
Max. mould temperature	100	°C	-
Hold pressure range	80 - 100	MPa	-
Hold pressure time	8	s/mm	-
Annealing time, optional	30	min/mm	-
Annealing temperature	160	°C	-

### Characteristics

Processing	• Injection Moulding
Delivery form	• Pellets
Additives	• Lubricants • Release agent

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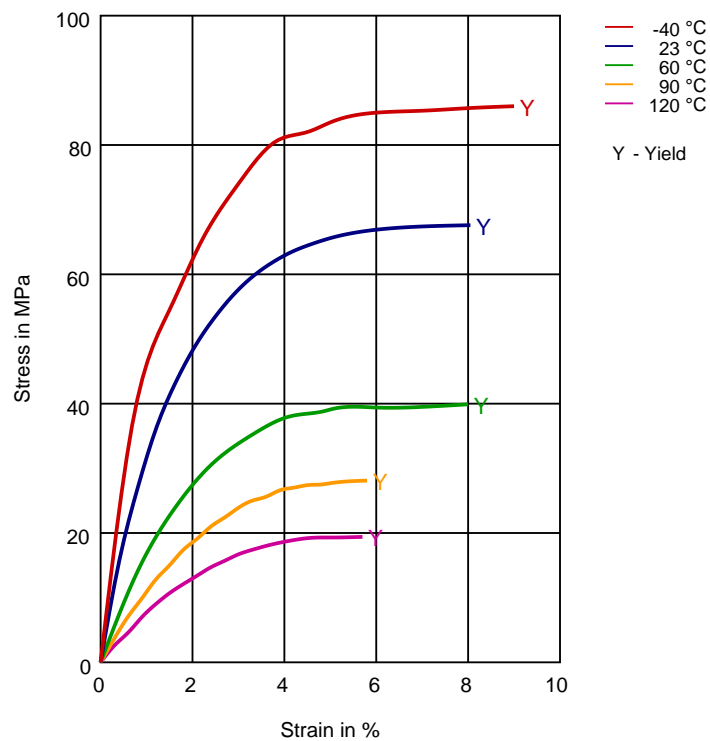


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## ACETAL RESIN

Diagrams

Stress-strain



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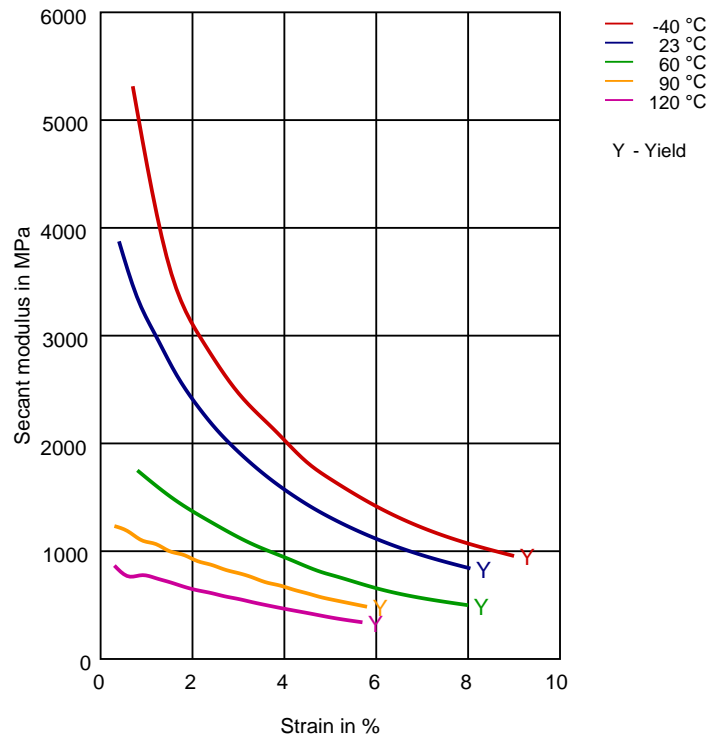
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## ACETAL RESIN

Secant modulus-strain



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## ACETAL RESIN

### Chemical Media Resistance

### Sterilisation methods

✓ Ethylene Oxyde

#### Symbols used:

✓ possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

✗ not recommended - see explanation

Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

**The above data are preliminary and are subject to change as additional data are developed on subsequent lots.**

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 4.0mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2.0mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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