DuPont™ Delrin® 500CL BK601

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® 500CL is a medium viscosity acetal homopolymer containing a chemical lubricant, designed for low wear and friction against metals.

General information	Value	Unit	Test Standard
Resin Identification	POM	-	ISO 1043
Part Marking Code	POM	-	ISO 11469
Rheological properties	**Value**	**Unit**	**Test Standard**
Melt mass-flow rate	15	g/10min	ISO 1133
Melt mass-flow rate, Temperature	190	°C	ISO 1133
Melt mass-flow rate, Load	2.16	kg	ISO 1133
Mechanical properties	**Value**	**Unit**	**Test Standard**
Tensile Modulus	3200	MPa	ISO 527-1/-2
Yield stress	67	MPa	ISO 527-1/-2
Yield strain	13	%	ISO 527-1/-2
Nominal strain at break	18	%	ISO 527-1/-2
Flexural Modulus	2900	MPa	ISO 178
Charpy notched impact strength			ISO 179/1eA
23°C	9	kJ/m²	
-30°C	8	kJ/m²	
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	90	°C	
0.45 MPa	160	°C	
RTI, electrical			UL 746B
0.75mm	50	°C	
1.5mm	100	°C	
3mm	100	°C	
RTI, impact			UL 746B
0.75mm	50	°C	
1.5mm	80	°C	
3mm	80	°C	
RTI, strength			UL 746B
0.75mm	50	°C	
1.5mm	85	°C	
3mm	85	°C	
Flammability	**Value**	**Unit**	**Test Standard**
Burning Behav. at 1.5mm nom. thickn.	HB	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
Burning Behav. at thickness h	HB	class	IEC 60695-11-10
Thickness tested	0.75	mm	IEC 60695-11-10
UL recognition	yes	-	UL 94
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	**Value**	**Unit**	**Test Standard**
Comparative tracking index	600	-	IEC 60112

To find out more, visit DuPont Performance Polymers or contact nearest DuPont location.

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Injection	Value	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
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	
Regional Availability	• North America • Europe	• Asia Pacific • South and Central America	• Near East/Africa • Global

Processing Texts

Injection molding

Drying is recommended, but not necessary for newly opened packaging stored in a dry location.

Follow the drying guidelines above in the following cases:
· If moisture is above the Processing Moisture Content recommendation,
· When a resin container is damaged,
· When the material is not properly stored in a dry place at room temperature, or
· When packaging stays open for a significant time.

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Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)
- ✗ Citric Acid solution (10% by mass) (23°C)
- ✗ Lactic Acid (10% by mass) (23°C)
- ✗ Hydrochloric Acid (36% by mass) (23°C)
- ✗ Nitric Acid (40% by mass) (23°C)
- ✗ Sulfuric Acid (38% by mass) (23°C)
- ✗ Sulfuric Acid (5% by mass) (23°C)
- ✗ Chromic Acid solution (40% by mass) (23°C)

Bases

- ✗ Sodium Hydroxide solution (35% by mass) (23°C)
- ✗ Sodium Hydroxide solution (1% by mass) (23°C)
- ✗ Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

- ✓ Isopropyl alcohol (23°C)
- ✓ Methanol (23°C)
- ✓ Ethanol (23°C)

Hydrocarbons

- ✓ n-Hexane (23°C)
- ✓ Toluene (23°C)
- ✓ iso-Octane (23°C)

Ketones

- ✓ Acetone (23°C)

Ethers

- ✓ Diethyl ether (23°C)

Mineral oils

- ✓ SAE 10W40 multigrade motor oil (23°C)
- ✗ SAE 10W40 multigrade motor oil (130°C)
- ✗ SAE 80/90 hypoid-gear oil (130°C)
- ✓ Insulating Oil (23°C)

Standard Fuels

- ✓ ISO 1817 Liquid 1 - E5 (60°C)
- ✓ ISO 1817 Liquid 2 - M15E4 (60°C)
- ✓ ISO 1817 Liquid 3 - M3E7 (60°C)
- ✓ ISO 1817 Liquid 4 - M15 (60°C)
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)

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✓	Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
✗	Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
✗	Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)

Salt solutions

✓	Sodium Chloride solution (10% by mass) (23°C)
✗	Sodium Hypochlorite solution (10% by mass) (23°C)
✗	Sodium Carbonate solution (20% by mass) (23°C)
✗	Sodium Carbonate solution (2% by mass) (23°C)
✗	Zinc Chloride solution (50% by mass) (23°C)

Other

✓	Ethyl Acetate (23°C)
✗	Hydrogen peroxide (23°C)
✗	DOT No. 4 Brake fluid (130°C)
✗	Ethylene Glycol (50% by mass) in water (108°C)
✓	1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C)
✓	50% Oleic acid + 50% Olive Oil (23°C)
✓	Water (23°C)
✗	Water (90°C)
✗	Phenol solution (5% by mass) (23°C)

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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 4mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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