

TYPICAL PROPERTIES

VESPEL® CP- 0301 0801



SHEET MOLDING COMPOUND SERIES

The sheet molding compound series of Vespel® CP parts consist of long, chopped fibers held in a variety of polymer matrices. The discontinuous nature of the fibers allows the fibers to align with the contours of the part, permitting the molding of relatively complex shapes, while providing the reinforcing strength where needed within the part. Superior strength versus aluminum at less weight, Vespel® CP frees the designer to explore ways to improve efficiency by reducing component weight and reducing friction.

CP-0301			
MECHANICAL	TEST METHOD	SI UNITS	ENGLISH UNITS
ULTIMATE TENSILE STRENGTH Room Temp. 260°C/500°F	ASTM D-3039	340 MPa 320 MPa	50 ksi 47 ksi
TENSILE MODULUS Room Temp. 260°C/500°F	ASTM D-3039	47,000 MPa 45,000 MPa	6,800 ksi 6,500 ksi
ULTIMATE FLEXURAL STRENGTH Room Temp. 260°C/500°F	ASTM D-790	490 MPa 340 MPa	71 ksi 50 ksi
FLEXURAL MODULUS Room Temp. 260°C/500°F	ASTM D-790	38,000 MPa 33,000 MPa	5,500 ksi 4,800 ksi
ULTIMATE COMPRESSIVE STRENGTH^a Room Temp. 260°C/500°F	ASTM D-695	370 MPa 240 MPa	53 ksi 35 ksi
NOTCHED IZOD	ASTM D-256	690 J/m	13 ft. lbs./in.
HARDNESS, ROCKWELL 15-T	ASTM D-2240	86	86

THERMAL	TEST METHOD	SI UNITS	ENGLISH UNITS
GLASS TRANSITION TEMPERATURE, T_g	Thermal Mechanical Analysis	335°C	635°F
THERMAL EXPANSION COEFFICIENT (21–316°C/70–600°F)	ASTM D-696	2.9x10 ⁻⁶ m/m/°C	1.6x10 ⁻⁶ in./in./°F
THERMAL EXPANSION COEFFICIENT^a (21–316°C/70–600°F)	ASTM E-228-85	27x10 ⁻⁶ m/m/°C	15x10 ⁻⁶ in./in./°F
THERMAL CONDUCTIVITY	ASTM C-177	0.30 W/m K	0.17 Btu/hr./ft./°F
OXIDATIVE STABILITY	See note ^b	2% Weight Loss	2% Weight Loss

OTHER PROPERTIES	TEST METHOD	SI UNITS	ENGLISH UNITS
WATER ABSORPTION (24 hrs. at 23°C/73°F)	ASTM D-570	0.5% Weight Gain	0.5% Weight Gain
SPECIFIC GRAVITY	ASTM D-792	1.54 g/cc	1.54 g/cc

Note: All values listed are for compression-molded samples and are measured in the plane perpendicular to the direction of molding pressure unless otherwise indicated.

^a Measured in the plane parallel to the direction of molding pressure.

^b 100 hours, 70 psia (483 kPa), 610°F (321°C) circulating air, saturated conditions, volume/surface area = .091 in.(2.31 mm).

CP-0301 may be processed using a variety of lay-up techniques with single or multiple debulking steps to optimize process capability for each part configuration. These design considerations can cause variation from the typical values listed above. Listed properties are based upon technical data that DuPont believes to be reliable. DuPont makes no warranties, expressed or implied, and assumes no liability in connection with use of this information.

CP-0801

MECHANICAL	TEST METHOD	SI UNITS	ENGLISH UNITS
ULTIMATE TENSILE STRENGTH Room Temp. 204°C/400°F	ASTM D-638	241 MPa 76 MPa	35 ksi 11 ksi
TENSILE MODULUS Room Temp. 204°C/400°F	ASTM D-638	15,900 MPa 11,000 MPa	2,800 ksi 1,600 ksi
ULTIMATE FLEXURAL STRENGTH Room Temp. 260°C/500°F	ASTM D-790	455 MPa 97 MPa	66 ksi 14 ksi
FLEXURAL MODULUS Room Temp. 260°C/500°F	ASTM D-790	18,000 MPa 9,700 MPa	2,600 ksi 1,400 ksi
ULTIMATE COMPRESSIVE STRENGTH^a Room Temp. 204°C/400°F	ASTM D-695	172 MPa 48 MPa	25 ksi 7 ksi
NOTCHED IZOD	ASTM D-256	1869 J/m	35 ft. lbs./in.

THERMAL	TEST METHOD	SI UNITS	ENGLISH UNITS
GLASS TRANSITION TEMPERATURE, T_g	ASTM D-4065	175°C	347°F
THERMAL EXPANSION COEFFICIENT (21–316°C/70–600°F)	ASTM D-696	12x10 ⁻⁶ m/m/°C	7.0x10 ⁻⁶ in./in./°F
THERMAL CONDUCTIVITY	ASTM C-177	0.35 W/m K	0.20 Btu/hr./ft./°F

OTHER PROPERTIES	TEST METHOD	SI UNITS	ENGLISH UNITS
SPECIFIC GRAVITY	ASTM D-792	1.82 g/cc	1.82 g/cc
POISSON'S RATIO	–	0.30	0.30
WATER ABSORPTION (24 hrs. at 23°C/73°F)	ASTM D-570	0.5% Weight Gain	0.5% Weight Gain

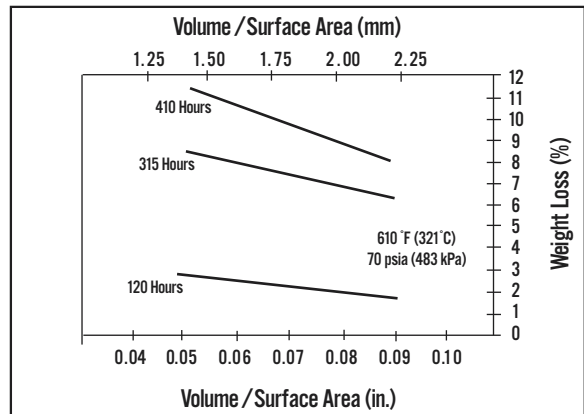
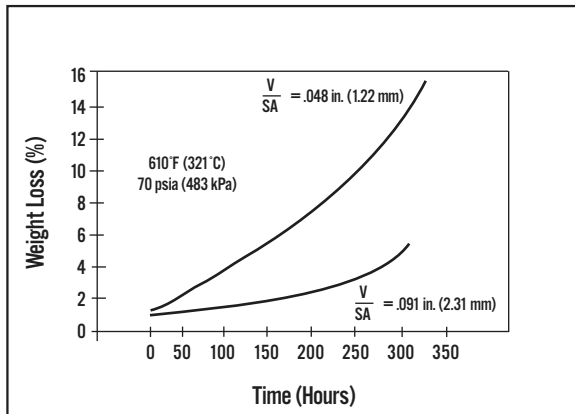
Note: All values listed are for compression-molded samples and are measured in the plane perpendicular to the direction of molding pressure unless otherwise indicated.

^a Measured in the plane parallel to the direction of molding pressure.

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THERMAL OXIDATION CURVES FOR CP-0301

(Tests performed in circulating air, saturated conditions.)



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Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement."