

## TYPICAL PROPERTIES

# VESPEL® TP- 8161



### THERMOPLASTIC PARTS FOR HIGH-TEMPERATURE APPLICATIONS

Vespel® TP-8161 is an unfilled thermoplastic polyimide for use in high-temperature environments. This unfilled general-purpose grade offers a unique balance of mechanical and thermal properties for superior performance in aggressive environments.

As part of the Vespel® parts and shapes product line, injection-molded Vespel® TP-8161 parts comply with the highest quality standards required in the industry.

MECHANICAL		TEST METHOD	SI UNITS	ENGLISH UNITS
TENSILE STRENGTH	23°C/73°F	ASTM D-638	80 MPa	11,500 psi
TENSILE ELONGATION	23°C/73°F	ASTM D-638	3%	3%
FLEXURAL STRENGTH	23°C/73°F	ASTM D-790	154 MPa	22,300 psi
FLEXURAL MODULUS	23°C/73°F	ASTM D-790	4.2 GPa	611,000 psi
NOTCHED IZOD 3.2 mm/1/8 in.	23°C/73°F	ASTM D-256	37 J/m	0.7 ft. lb./in.

THERMAL		TEST METHOD	SI UNITS	ENGLISH UNITS
HDT @ 1.8 MPa (264 psi)		ASTM D-648	295°C	563°F
CTE (23-150°C/73-302°F) FLOW DIRECTION		ASTM E-228	5.5x10 <sup>-5</sup> cm/cm/°C	3.0x10 <sup>-5</sup> in./in./°F
CTE (23-150°C/73-302°F) TRANSVERSE DIRECTION		ASTM E-228	5.5x10 <sup>-5</sup> cm/cm/°C	3.0x10 <sup>-5</sup> in./in./°F
THERMAL CONDUCTIVITY		ASTM C-177	0.17 W/m K	2.32 BTU in./hr. ft.°F

ELECTRICAL PROPERTIES		TEST METHOD	SI UNITS	ENGLISH UNITS
DIELECTRIC CONSTANT @ 1KHz		ASTM D-150	3.2	3.2
DIELECTRIC CONSTANT @ 1MHZ		ASTM D-150	3.1	3.1
DISSIPATION FACTOR @ 1KHz		ASTM D-150	0.0009	0.0009
DISSIPATION FACTOR @ 1MHZ		ASTM D-150	0.0034	0.0034
SURFACE RESISTIVITY		ASTM D-257	E17-E18 Ohms	E17-E18 Ohms
VOLUME RESISTIVITY		ASTM D-257	E17-E18 Ohms-cm	E17-E18 Ohms-cm

FLAMMABILITY		TEST METHOD	SI UNITS	ENGLISH UNITS
VERTICAL BURN TEST 0.4mm		UL-94	V-0	V-0
VERTICAL BURN TEST 2.0mm		UL-94	5VA	5VA
OXYGEN INDEX 3.2mm		ASTM D-2863	47%	47%

OTHER PROPERTIES		TEST METHOD	SI UNITS	ENGLISH UNITS
SPECIFIC GRAVITY		ASTM D-792	1.35	1.35
WATER ABSORPTION (24 hrs. @ 23°C/73°F)		ASTM D-570	0.16%	0.16%
MOISTURE ABSORPTION (24 hrs.)		23°C/73°F 60% RH	0.07%	0.07%



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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."