

# TECHNICAL DATA SHEET

## Kel-F (PCTFE)

(polychlorotrifluoroethylene)

Kel-F is inert to chemicals and functions over a -400 degree to +400 degree F temperature range. Kel-F has excellent electrical properties and may be machined to precise dimensions. It exhibits good compression, impact and tensile strength over a wide temperature range. PCTFE is known by the trade name of Kel-F 81. This was produced by 3M but has been discontinued since December 1995. Currently, PCTFE resin is produced by Daikin under the trade name Neoflon. Neoflon PCTFE resin has the same chemical structure and properties as the original Kel-F® brand material. It has the same excellent performance as PTFE in a wide range from extremely low to high temperatures. In addition, it has excellent transparency and mechanical strength at high temperature.

### TYPICAL PROPERTIES of PCTFE

ASTM or UL test	Property	PCTFE
<b>PHYSICAL</b>		
D792	Density (lb/in <sup>3</sup> ) (g/cm <sup>3</sup> )	0.077 2.13
D570	Water Absorption, 24 hrs (%)	< 0.01
<b>MECHANICAL</b>		
D638	Tensile Strength (psi)	5,300
D638	Tensile Modulus (psi)	207,000
D638	Tensile Elongation at Break (%)	150
D790	Flexural Strength (psi)	8,500
D790	Flexural Modulus (psi)	180,000
D695	Compressive Strength (psi)	5,500
D695	Compressive Modulus (psi)	180,000
D785	Hardness, Shore D	D90
D256	IZOD Notched Impact (ft-lb/in)	5
<b>THERMAL</b>		
D696	Coefficient of Linear Thermal Expansion (x 10 <sup>-5</sup> in./in./°F)	7.0
D648	Heat Deflection Temp (°F / °C) at 264 psi	258 / 126
D3418	Melting Temp (°F / °C)	415 / 212
-	Max Operating Temp (°F / °C)	270 / 132
C177	Thermal Conductivity (BTU-in/ft <sup>2</sup> -hr-°F) (x 10 <sup>-4</sup> cal/cm-sec-°C)	1.45 4.99
UL94	Flammability Rating	V-0
<b>ELECTRICAL</b>		
D149	Dielectric Strength (V/mil) short time, 1/8" thick	500
D150	Dielectric Constant at 1 MHz	-
D150	Dissipation Factor at 1 MHz	-
D257	Volume Resistivity (ohm-cm)at 50% RH	10 <sup>18</sup>

#### Benefits

- Excellent chemical resistance
- No water absorption
- Lowest water vapor permeability
- Excellent resistance to UV and X-ray radiation.
- Excellent Barrier properties
- Very low creep under load
- Non-Flammable
- FDA compliant
- Good electrical insulating properties
- Transparent

#### Applications

- Moisture Barrier
- LCD protection
- PCB Insulation
- Wire and cable insulation
- Phosphor coatings
- Cryogenics
- Valves
- Chemical tank lining
- O-rings
- Gaskets

### SHAPES AVAILABLE



KEL-F is a registered trademark of 3M Company.  
NEOFLON is a registered trademark of Daikin Industries.

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.  
All values at 73°F (23°C) unless otherwise noted.