

CTFE Sheet, Rod & Films

Property

Product Name: CTFE.
Chemical Name and Synonym: Chlorotrifluoroethylene .

Material Names

CTFE is sold under a variety of brand names including Kel-F, Neoflon, Aclar, Chemfluour 767

CTFE

Chlorotrifluoroethylene (CTFE) and polychlorotrifluoroethylene (PCTFE) are very similar materials and frequently referred to by brand names such as Kel-F, Neoflon, Aclar, and Chemfluour 767. CTFE and PCTFE are simply the generic names that reflect the chemical make-up of these materials.

PCTFE and CTFE differ from other common fluoropolymers as they replace a fluorine atom with a chlorine atom. This small change offers multiple advantages over similar materials in specific applications.

WHAT ARE THE BENEFITS OF CTFE AND PCTFE?

CTFE/PCTFE may be confused with other fluoropolymers such as PTFE — better known as Teflon — but the differences in the materials are quite notable. While there may be some overlap, it should be noted that CTFE/PCTFE and Teflon are each ideal for different purposes.

Choosing CTFE or PCTFE during manufacturing may be a beneficial choice for many designs. Both offer excellent stress-crack resistance and high mechanical strength. CTFE and PCTFE are frequently utilized in cryogenic valve seats, high-pressure gas seats and deals, and various electrical components. A low rate of moisture absorption ensures that CTFE/PCTFE products will maintain beneficial electrical properties even in the face of high humidity—a property that is largely unique among competitive materials.

CTFE and PCTFE offer a wide range of benefits, such as:

- Chemical resistance
- Long-term weathering
- Non-stick properties
- Non-flammable properties
- Low dielectric constant
- Low dissipation factor
- High arc resistance
- Surface and volume resistivity
- Flexibility at low temperatures
- Thermal stability at high temperatures
- Low deformation under load stresses
- Low coefficient of friction
- Resistant to radiation

APPLICATIONS OF CTFE/PCTFE

CTFE and PCTFE see use in a wide variety of industries. The material is non-flammable, chemical resistant, possesses near-zero moisture absorption, and boasts superior electrical capabilities over other thermoplastic fluoropolymers such as PTFE (Teflon). Common applications of CTFE/PCTFE include:

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Structures. With high levels of dimensional stability across low and high temperatures, CTFE/PCTFE materials make quality structural components. The materials remain stable in temperatures as low as -400° F and as high as 380° F, making them suitable for a wide range of structural purposes and use in harsh environments.

Medical/Research/Pharmaceutical. With low outgassing rates and permeability, CTFE and PCTFE often see use in specialized applications, such as laboratory instrumentation and tools. The pharmaceutical industry relies on the material to provide moisture barriers in packaging.

Electronics. PCTFE and CTFE see common use as moisture barriers for sensitive electronic components, such as LCD panels in televisions and computer monitors.

Semiconductors. Some semiconductor process components are often made from CTFE or PCTFE, such as wafer boats. The high strength and beneficial electrical properties of the materials make them ideal for these applications.

High-vacuum. High-vacuum applications benefit from CTFE and PCTFE due to their exceptional stability, crack resistance, and corrosion resistance.

CTFE and PCTFE are frequently utilized in the fabrication of:

Valve seats, seals, and stems

Gears, cams, and bearings

Gaskets

Fluid handling systems

Chemical apparatus

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