



Are KEL-F® and PCTFE the same?

Tyler Kent

What are the Benefits & Advantages of PCTFE?

- Excellent thermal and chemical stability
- Low gas permeation and outgassing
- Very low moisture absorption and permeation
- Highly resistant to cold flow
- Very rigid and tough
- Excellent dimensional stability
- Extremely good low temperature properties to -400°F
- High chemical-resistance
- Resistant to oxidation
- High compressive strength
- Non-flammable
- Radiation-resistant

What Types of Products can be Manufactured from PCTFE?

- Lip seals
- Valve seats & stems
- O-Rings
- Gaskets
- Washers
- Sleeve & thrust bearings
- Bushings
- Liner for chemical applications
- Impellers
- Diaphragms & plugs

What Applications are Products Made of PCTFE Used In?

- Cryogenic and chemical processing components
- Seals and gaskets
- Aerospace valve seats, pump parts, impellers, diaphragms and plugs
- Laboratory instruments
- Nuclear service / high radiation exposure
- Liquid oxygen and liquid nitrogen valve linings

What is Kel-F?

Kel-F® was a trade name for PCTFE (polychlorotrifluoroethylene) utilized by the 3M® Company.

In 1995, 3M sold the rights to Daikin® Industries, Ltd, who produces the raw material today under the trade name Neoflon®. PCTFE with the brand Kel-F is no longer available in the marketplace.

What is Neoflon PCTFE M-400H?

Neoflon PCTFE M-400H is a fluoropolymer that has high tensile strength, dimensional stability, and retains its high-performance properties over a large temperature range (-400° to 380°F).

This grade of PCTFE has superior mechanical characteristics and gas barrier properties to PFA and FEP. PCTFE is melt-processible, and can be extruded or molded into sheets, rods or tubes.





More About the History of PCTFE

PCTFE was discovered in 1934 by Fritz Schaffer and Otto Scherer of IG Farben. The Kel-F® 81 grade of PCTFE was commercialized by the M.W. Kellogg Company in the early 1950's, and subsequently acquired by the 3M Company in 1957. The 3M company discontinued production of Kel-F® in 1995 and sold the rights to Daikin® Industries, Ltd, who produces the resin today under the trade name Neoflon® M-400H.

What Standards is Neoflon PCTFE M-400H Manufactured to?

ASTM D 1430-89 Type 1, Grade 2
 ASTM D 1430-95 Type 1, Grade 3
 ASTM D 1430-17 Group 1, Class 1, Grade 3
 ASTM D 7211-13 (section 8.9)
 ASTM D 7194-12 (section 8.10)
 FDA compliant per 21 CFR177.1380

See Data Sheet For Complete Properties Table

What is Afton's Experience with Neoflon PCTFE M-400H?

Afton has been the largest processor of Neoflon PCTFE M-400H in the country for nearly 40 years.

What are Afton's Manufacturing Capabilities?

- Compression-molded sheets up to 6" x 6" in 1/32" thickness and up to 12" x 12" in 1/16" thickness
- Compression-molded sheets up to 24" x 24" in thicknesses from 1/8" to 2-3/4"
- Extruded rods from 1/8" to 2" diameter and spooled extruded rods from .022" to .100" diameter.
- Compression-molded rods from 2-1/4" to 2-3/4" diameter.
- Custom-sized rigid tubes – specify inner and outer dimensions
- Special-processed optically clear sheets in 1/32" to 1/16" thicknesses for sight glass applications
- Colorant addition to extruded rods for color-coding purposes
- Glass-fiber addition to extruded rods and/or compression-molded rods and tubes for strength



PCTFE with Colorant



Glass-Filled PCTFE

What if My Application Requires Traceability and Quality Documentation?

Afton has implemented a strictly-controlled quality process and generates a certification that is sent with each piece of Neoflon PCTFE M-400H ordered.

For more information on PCTFE, please visit our website aftonplastics.com.
 Call (800)-344-7499 for price and availability today.