Are KEL-F® and PCTFE the same?

Tyler Kent

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.

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
More About the History of PCTFE

PCTFE was discovered in 1934 by Fritz Schoffer 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 2-¾”
- 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

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.