



Kynar Flex[®] Resin Series For The CPI.

Kynar Flex Fluoropolymer Resin

High Purity • Chemical Resistant To Higher pH Range • High Temperature

Kynar Flex[®] resins, vinylidene fluoride-based polymers, are able to maintain many of the same characteristics of Kynar[®] PVDF with some notable differences. It is these differences that have significantly expanded the use of Kynar resins in the chemical process industry.

Kynar Flex Resin Has Chemical Resistance.

Kynar Flex resin grades have been thoroughly tested and found to be compatible with the following chemicals under laboratory conditions.

Chemical	Concentration	Temperature	Comments
Nitric Acid	71% aq	125°F	A
Sulfuric Acid	96% aq	Ambient	A,D
Hydrochloric Acid	37% aq	Ambient	A,B
Hydrofluoric Acid	49% aq	Ambient	A
Acetic Acid	50% aq	Ambient	A
Sodium Hydroxide	10% aq	194°F	C
Ammonium Hydroxide	30% aq	Ambient	C
Sodium Hypochlorite	5% aq	Ambient	A
Liquid Bromine		Ambient	C
Iodine	10% aq	Ambient	A
Ethylene Glycol	100%	Ambient	A
Distilled Water	100%	Ambient	A
Toluene	100%	175°F	C
Methyl-Chloroform	100%	125°F	A
Heptane	100%	194°F	A
Ethanol	100%	158°F	E
Diethylether	100%	86°F	A
Acetone	10% aq	133°F	C

- A. No changes observed.
B. Some discoloration after 12 weeks at 212°F. Little or no change in physicals including elongation, tensile strength and weight gain.
C. Darkened surface at listed temperature with little or no change in physicals.
D. At 98% concentration and 150°F some color change after 6 weeks with little or no change in physicals.
E. Darkened surface after 12 weeks with little or no change in physicals.

Kynar Flex Resin Offers Unique Properties.

- Notched IZOD impact strength up to 10 times greater than typical PVDF resin.
- Similar flexural properties to fluorinated ethylene-propylene (FEP).
- Increased clarity.

Additionally, Kynar Flex resin from ATOFINA is weldable to PVDF resins currently used in pipes and fittings. This function gives engineers the ability to specify a rigid polymer and a flexible polymer that are “fabrication compatible.” There is also an expanded ability to withstand impact at low temperatures with Kynar Flex.

Kynar Flex Resin Is Cost Effective.

Fact. Kynar Flex resin performs on the same level as many flexible fluoropolymers at demonstrated lower cost. Also, the relatively low specific gravity of 1.78 makes Kynar Flex resin lighter and easier to handle. Easier than other available fluoropolymers that range as high as 2.20 in specific gravity.

Can Give You All These Benefits:

Temperature Flexible PVDF • Increased Clarity • Expanded Impact Strength

Kynar Flex Resin Provides Multiple Applications.

Versatile is the word for Kynar Flex resin, because it provides a range of applications across a range of products.

- Sheet lining for trailers
- Injection molded parts

- Flexible corrosion resistant tubing
- Clear rigid piping
- Plastic lined steel piping and fittings
- Flexible films
- Rotomolded pressure vessels
- Rod, sheet and other stock shapes for machining

The bottom line?

Kynar Flex resin from ATOFINA gives you the solid benefits, unique properties and cost effectiveness that you're looking for.

Properties	Test	Units	Kynar® Homopolymer	Kynar Flex® 2850	Kynar Flex® 2800	Kynar Flex® 2750
Specific Gravity	D792		1.76	1.78	1.78	1.78
Melting Point	D3418	°F	329-338	311-320	285-293	269-280
Mechanical Properties						
Tensile Strength (Yield)	D882	psi	6000-8000	4500-5500	2900-3900	2600-3000
Elongation (Break)	D882	%	50-250	300-400	400-500	240-330
Tensile Modulus 1% scant	D638	psi	200-300x103	110-140x103	80-130x103	50-80x103
Flexural Modulus	D790	psi	200-325x103	160-180x103	90-120x103	49-58x103
Izod Impact Strength at Room Temp. (notched) (unnotched)	D256	ft-lb/in	2-4 20-80	6-10	12-18	No Break No Break
Heat Deflection Temperature 66 psi	TMA	°F	284	NA	NA	NA
264 psi			244	NA	104-122	NA
Hardness	D2240	Shore D	76-80	70	65-70	60-65

Specific grades of Kynar Flex resin have been listed % per ASTM-E-84 (UL 723) for flame and smoke testing.

DI Water Extractions

All results from independent laboratory tests.

Levels of Metallic Ions

Kynar Flex® 2800 • 24 hours/80°C

Element	Amount Detected (parts per billion)	Element	Amount Detected (parts per billion)
Aluminum	< 0.10 ppb	Mercury	< 0.01 ppb
Antimony	< 0.08 ppb	Molybdenum	< 0.02 ppb
Arsenic	< 0.03 ppb	Neodymium	< 0.09 ppb
Barium	< 0.08 ppb	Nickel	< 0.08 ppb
Beryllium	< 0.06 ppb	Niobium	< 0.03 ppb
Bismuth	< 0.15 ppb	Palladium	< 0.10 ppb
Boron	< 0.20 ppb	Platinum	< 0.13 ppb
Cadmium	< 0.08 ppb	Praseodymium	< 0.10 ppb
Cerium	< 0.04 ppb	Rhenium	< 0.10 ppb
Cesium	< 0.08 ppb	Rhodium	< 0.10 ppb
Chromium	< 0.26 ppb	Rubidium	< 0.01 ppb
Cobalt	< 0.10 ppb	Ruthenium	< 0.12 ppb
Copper	< 0.08 ppb	Samarium	< 0.06 ppb
Dysprosium	< 0.01 ppb	Silver	< 0.03 ppb
Erbium	< 0.05 ppb	Strontium	< 0.10 ppb
Europium	< 0.03 ppb	Tantalum	< 0.08 ppb
Gadolinium	< 0.05 ppb	Tellurium	< 0.25 ppb
Gallium	< 0.40 ppb	Terbium	< 0.10 ppb
Germanium	< 0.03 ppb	Thallium	< 0.08 ppb
Gold	< 0.03 ppb	Thorium	< 0.03 ppb
Hafnium	< 0.10 ppb	Thulium	< 0.04 ppb
Holmium	< 0.10 ppb	Tin	< 0.25 ppb
Indium	< 0.07 ppb	Titanium	< 0.10 ppb
Iridium	< 0.02 ppb	Tungsten	< 0.02 ppb
Lanthanum	< 0.05 ppb	Uranium	< 0.03 ppb
Lead	< 0.07 ppb	Vanadium	< 0.11 ppb
Lithium	< 0.30 ppb	Ytterbium	< 0.04 ppb
Lutetium	< 0.05 ppb	Yttrium	< 0.03 ppb
Magnesium	< 0.07 ppb	Zinc	< 0.05 ppb
Manganese	< 0.06 ppb	Zirconium	< 0.11 ppb

Method: ICP Mass Spectroscopy

KYNAR FLEX®

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