

ARKEMA

KYNAR®

HOMOPOLYMER  
Chemical Resistance  
Guide for Waste Drainage  
Systems



# KYNAR® POLYVINYLIDENE FLUORIDE (PVDF) RESIN

Kynar® polyvinylidene fluoride (PVDF) resin is a tough engineering thermoplastic that offers a unique balance of performance properties. It has the characteristic stability of fluoropolymers when exposed to harsh thermal, chemical and ultraviolet environments.

For chemical and high temperature resistance, low permeability and high mechanical strength, Kynar® PVDF resin is used as a contact surface for the production, storage and transfer of corrosive fluids. Kynar® PVDF resin is used in mechanical components, fabricated vessels, tanks, pumps, valves, filters, heat exchangers, tower packing, piping systems, as well as other applications.



Steiner Tunnel used for ASTM E-84 Testing

## Corrosive Waste Drainage and Plenum Applications

Select grades of Kynar® PVDF resin easily achieve the flame spread/smoke developed rating of 25/50 when tested in accordance **with ASTM E-84. This enables Kynar® PVDF resin pipe to** be used in the plenum for applications such as corrosive waste drainage and laboratory chemical systems.

These Kynar® PVDF resins are designed especially for harsh environments such as those of restrictive return air plenums and corrosive chemical waste streams. These environments are generally found in:

- Pharmaceutical industries
- Chemical industries
- College laboratories
- High school laboratories
- Hospital laboratories
- Food and Beverage Facilities

Independent testing of Kynar® PVDF resin has confirmed the resin and the piping fabricated from the resin meet the International Mechanical Code (IMC) requirements for material installed in the plenum.

Material	Flame Spread Rating	Smoke Developed Rating
NFPA & IMC Plenum Requirement	25	50
Kynar® PVDF 740-02	5	35
Kynar® PVDF 1000HD	0	10

Kynar® PVDF results are listed in ICC ES PMG 1060 and in IAPMO UNIFORM ES 0250 as compliant to ASTM F 1673 and ASTM E 84 25/50

In addition to its notable fire and smoke characteristics, Kynar® PVDF resin has these important properties:

- Mechanical strength and toughness
- High abrasion resistance
- High thermal stability
- High dielectric strength
- High purity
- Readily melt processable
- Resistant to most chemicals and solvents
- Resistant to ultraviolet and nuclear radiation
- Resistant to weathering
- Resistant to fungi
- Low permeability to most gases and liquids
- Low flame and smoke characteristics

The following pages list the guidelines for using Kynar® PVDF products in chemical waste drainage applications. Kynar® PVDF resin is suitable for short-term contact with many chemicals up to 150°C (300°F). If your application involves mixtures of chemicals and temperatures above 40°C, Kynar® PVDF resin will most likely be suitable, but Arkema recommends that you consult our technical staff prior to installing your system.

# RATING FOR LOW PRESSURE DRAINAGE SYSTEM

Chemical Substance	Concentration*	Rating
Acetaldehyde		A-
Acetamide		A-
Acetic Acid		A
Acetic Acid	10% in water	A+
Acetic Acid	50% in water	A+
Acetic Acid	80% in water	A+
Acetic Anhydride		A-
Acetone		A-
Acetone	10% in water	A
Acetonitrile		A-
Acetophenone		A-
Acetyl Bromide		A
Acetyl Chloride		A
Acetylacetone		A-
Acetylene		A+
Acrylonitrile		A-
Adipic Acid		A+
Air		A+
Alcoholic Spirits	40% Ethyl Alcohol	A+
Allyl Alcohol		A+
Allyl Chloride		A+
Aluminum Acetate	Aqueous solution or solid	A+
Aluminum Bromide		A+
Aluminum Chloride	Up to 40% in water	A+
Aluminum Fluoride	Aqueous solution or solid	A+
Aluminum Hydroxide		A+
Aluminum Nitrate	Aqueous solution or solid	A+
Aluminum Oxychloride		A+
Aluminum Sulfate	Aqueous solution or solid	A+
Ammonia, gas		A-
Ammonia, Liquid		A
Ammonium Acetate	Aqueous solution or solid	A+
Ammonium Alum	Aqueous solution or solid	A+
Ammonium Bifluoride	Aqueous solution or solid	A+
Ammonium Bromide	Aqueous solution or solid	A+
Ammonium Carbonate	Aqueous solution or solid	A+
Ammonium Chloride	Aqueous solution or solid	A+
Ammonium Dichromate	Aqueous solution or solid	A+
Ammonium Fluoride	Aqueous solution or solid	A+
Ammonium Hydroxide	Up to "concentrated"	A+
Ammonium Metaphosphate	Aqueous solution or solid	A+
Ammonium Nitrate	Aqueous solution or solid	A+
Ammonium Persulfate	Aqueous solution or solid	A
Ammonium Phosphate	Aqueous solution or solid	A+
Ammonium Sulfate	Aqueous solution or solid	A+
Ammonium Sulfide	Aqueous solution or solid	A+
Ammonium Thiocyanate	Aqueous solution or solid	A+
Amyl Acetate		A
Amyl Alcohol		A+
Sec-Amyl Alcohol		A
Amyl Chloride		A+
Aniline		A-
Aniline Hydrochloride	Aqueous solution or solid	A-
Aqua Regia		A
Arsenic acid	Aqueous solution	A+
Asphalt		A+
Barium Carbonate		A+
Barium Chloride	Aqueous solution or solid	A+
Barium Hydroxide		A+
Barium Nitrate	Aqueous solution or solid	A+
Barium Sulfate		A+
Barium Sulfide		A+
Beer		A+
Beet Sugar Liquors		A+

Chemical Substance	Concentration*	Rating
Benzaldehyde		A-
Benzene		A+
Benzenesulfonic Acid	Aqueous solution or solid	A+
Benzoic Acid		A+
Benzoyl Chloride		A+
Benzoyl Peroxide		A+
Benzyl Alcohol		A+
Benzyl Chloride		A+
Benzyl Ether		A-
Benzylamine	Aqueous solution or liquid	A-
Black Liquor		A+
Bleaching Agents		A+
Borax		A+
Boric Acid		A+
Boron Trifluoride		A+
Brine		A+
Brine, acid		A+
Brine, basic		A+
Brine, chlorinated acid		A+
Bromic Acid	Aqueous solution	A+
Bromine dry gas		A+
Bromine, liquid		A+
Bromine, water		A+
Bromobenzene		A+
Bromoform		A+
m-Bromotoluene		A+
Butadiene		A+
Butane		A+
Butanediol	Aqueous solution or liquid	A+
Butyl Acetate		A-
Butyl Acrylate		A
Butyl Alcohol	Aqueous solution or liquid	A+
sec-Butyl Alcohol	Aqueous solution or liquid	A+
t-Butyl Alcohol	Aqueous solution or liquid	A+
Butyl Bromide		A+
Butyl Chloride		A+
Butyl Ether		A-
Butyl Mercaptan		A+
Butyl Stearate		A
Butylamine	Aqueous solution or liquid	A-
sec-Butylamine	Aqueous solution or liquid	A-
t-Butylamine	Aqueous solution or solid	A-
1-Butylene		A+
Butylphenol		A+
Butyraldehyde		A
Butyric Acid		A+
Calcium Acetate	Aqueous solution or solid	A+
Calcium Bisulfate	Aqueous solution or solid	A+
Calcium Bisulfite	Aqueous solution or solid	A+
Calcium Bromide	Aqueous solution or solid	A+
Calcium Carbonate		A+
Calcium Chlorate	Aqueous solution or solid	A+
Calcium Chloride	Aqueous solution or solid	A+
Calcium Hydroxide		A+
Calcium Hypochlorite	Aqueous solution or solid	A+
Calcium Nitrate	Aqueous solution or solid	A+
Calcium Oxide		A+
Calcium Phosphate		A+
Calcium Sulfate		A+
Cane Sugar Liquors		A+
Caprylic Acid		A+
Carbon Dioxide		A+
Carbon Disulfide		A
Carbon Monoxide		A+

# RATING FOR LOW PRESSURE DRAINAGE SYSTEM

Chemical Substance	Concentration*	Rating
Carbon Tetrachloride		A+
Carbonic Acid		A+
Casein		A+
Castor Oil		A+
Chloral Hydrate		A
Chlorinated Phenol		A+
Chlorine	5% in CCl4	A+
Chlorine, gas		A+
Chlorine, liquid		A+
Chlorine Dioxide		A+
Chlorine Water		A+
Chloroacetic Acid	Aqueous solution or pure	A
Chloroacetyl Chloride		A
Chlorobenzene		A+
Chlorobenzene-sulfonic Acid	Aqueous solution or pure	A+
Chlorobenzyl Chloride		A+
Chlorofluorocarbon 11		A+
Chlorofluorocarbon 12		A+
Chlorofluorocarbon 13		A+
Chlorofluorocarbon 14		A+
Chlorofluorocarbon 21		A+
Chlorofluorocarbon 22		A+
Chlorofluorocarbon 113		A+
Chlorofluorocarbon 114		A+
Chloroform		A+
6-Chlorohexanol		A+
Chlorohydrin		A+
Chloropicrin		A+
Chlorosulfonic Acid		A
Chlorotrimethylsilane		A
Chrome Alum	Aqueous solution or solid	A+
Chromic Acid	Up to 40% in water	A+
Chromic Acid	50% in water	A+
Chromyl Chloride		A+
Cider		A+
Citric Acid	Aqueous solution or solid	A+
Coal Gas		A+
Coconut Oil		A+
Copper Acetate		A+
Copper Carbonate, basic		A+
Copper Chloride	Aqueous solution or solid	A+
Copper Cyanide		A+
Copper Fluoride		A+
Copper Nitrate	Aqueous solution or solid	A+
Copper Sulfate	Aqueous solution or solid	A+
Corn Oil		A+
Corn Syrup		A+
Cottonseed Oil		A+
Cresol		A+
Cresylic Acid		A+
Crotonaldehyde		A
Crude Oil		A+
Cryolite		A+
Cuprous Chloride		A+
Cyclohexane		A+
Cyclohexanol		A+
Cyclohexanone		A
Cyclohexyl Acetate		A+
Decane		A+
Dextrin	Aqueous solution or solid	A+
Diacetone Alcohol		A-
p-Dibromobenzene		A+
1,2-Dibromopropane		A+
Dibutyl Phthalate		A-

Chemical Substance	Concentration*	Rating
Dibutyl Sebacate		B
Dibutylamine	Aqueous solution or liquid	A-
Dichloroacetic Acid	Aqueous solution or liquid	A+
o-Dichlorobenzene		A+
Dichlorodimethylsilane		A+
Dichloroethylene		A+
2,2-Dichloropropionic Acid		A
aa-Dichlorotoluene		A+
Diesel Fuels		A+
Diethanolamine	Aqueous solution or liquid	A-
Diethylamine	Aqueous solution or liquid	A-
Diethyl Malonate		B
Diethylenetriamine	Aqueous solution or liquid	A-
Diglycolic Acid		A
Diisobutyl Ketone		A-
Diisobutylene		A+
Diisopropyl Ketone		A-
Dimethyl Acetamide		B
Dimethyl Formamide		A-
Dimethyl Phthalate		A-
Dimethyl Sulfate		A-
Dimethyl Sulfoxide		A-
Dimethylamine	Aqueous solution or gas	A-
Dimethylaniline		A-
2,6-Dimethyl-4-heptanol		A+
2,5-Dimethyl-1,5-hexadiene		A+
Diocetyl Phthalate		A-
Dipropylene Glycol Methyl Ether		A-
Disodium Phosphate	Aqueous solution or solid	A+
Divinyl Benzene		A
Epichlorohydrin		A-
Epsom Salts	Aqueous solution or solid	A+
Ethanethiol		A
Ethanolamine	Aqueous solution or liquid	A-
2-Ethoxyethyl Acetate	Aqueous solution or liquid	A+
Ethyl Acetate		A-
Ethyl Acetoacetate		A-
Ethyl Acrylate		A-
Ethyl Alcohol	Aqueous solution or liquid	A+
Ethyl Chloride		A+
Ethyl Chloroacetate		A-
Ethyl Chloroformate		A
Ethyl Cyanoacetate		A
Ethyl Ether		A
Ethyl Formate		A-
Ethylbenzene		A+
Ethylene Chlorohydrin	Aqueous solution or liquid	A
Ethylene Dichloride		A+
Ethylene Glycol	Aqueous solution or liquid	A+
Ethylene Oxide		A+
Ethylenediamine	Aqueous solution or liquid	A
2-Ethyl-1-hexanol		A+
Fatty Acids		A+
Fatty Acids, Sulfonates		A+
Ferric Chloride	Aqueous solution or solid	A+
Ferric Hydroxide		A+
Ferric Nitrate	Aqueous solution or solid	A+
Ferric Sulfate		A+
Ferric Sulfide		A+
Ferrous Chloride	Aqueous solution or solid	A+
Ferrous Hydroxide		A+
Ferrous Nitrate	Aqueous solution or solid	A+
Ferrous Sulfate		A+
Fluorine		A

## Guidelines for using Kynar® PVDF products in chemical waste drainage.

Kynar® PVDF is suitable for short term contact with many chemicals up to 150°C (300°F). If your application involves mixtures of chemicals and temperatures above 40°C, Kynar® PVDF resin will most likely be suitable, but Arkema recommends that you consult our technical staff prior to installing your system.

\*pure substance unless otherwise indicated.

**A+:** Suitable for elevated temperatures varying with chemical in question.

**A:** Suitable for continuous ambient conditions and for short term elevated temperature varying with chemical in question.

**A-:** Suitable for short term use at full strength under ambient conditions, and suitable for continuous use at ambient conditions in diluted form.

**B:** Suitable for short-term use if concentration will be less than 100% , please contact Arkema technical staff for assessment of a safe concentration at maximum exposure temperature.

# RATING FOR LOW PRESSURE DRAINAGE SYSTEM

Chemical Substance	Concentration*	Rating
Fluoroboric Acid	Aqueous solution	A+
Fluorosilic Acid		A+
Formaldehyde	37% in water	A
Formic Acid	Aqueous solution or liquid	A+
Fructose	Aqueous solution or solid	A+
Fruit Juices, Pulp		A+
Fuel Oil		A+
Fumaric Acid		A+
Furan		A-
Furfural		A
Furfuryl Alcohol	Aqueous solution or liquid	A
Gallic Acid		A
Gas, manufactured		A+
Gas, natural		A+
Gasoline, leaded		A+
Gasoline, sour		A+
Gasoline, unleaded		A+
Gelatin		A+
Gin		A+
Glucose	Aqueous solution or solid	A+
Glue		A+
Glutamic Acid		A+
Glycerin	Aqueous solution or liquid	A+
Glycine	Aqueous solution or solid	A
Glycolic Acid		A
Heptane		A+
Hexachloro-1,3-butadiene		A
Hexamethylenediamine		A-
Hexamethylphosphotriamide		A-
Hexane		A+
Hexyl Alcohol		A+
Hydrazine	Aqueous solution or liquid	A+
Hydrazine Dihydrochloride	Aqueous solution or solid	A
Hydrazine Hydrate	Aqueous solution or liquid	A+
Hydriodic Acid	Aqueous solution	A+
Hydrobromic Acid	Up to 50% in water	A+
Hydrochloric Acid	Up to "concentrated"	A+
Hydrocyanic Acid	Aqueous solution	A+
Hydrofluoric Acid	Up to 40% in water	A+
Hydrofluoric Acid	41-100% in water	A+
Hydrogen		A+
Hydrogen Chloride		A+
Hydrogen Cyanide		A+
Hydrogen Fluoride		A+
Hydrogen Peroxide	Up to 30% in water	A+
Hydrogen Peroxide	90% in water	A
Hydrogen Sulfide		A+
Hydrogen Sulfide	Aqueous solution	A+
Hydroquinone		A+
Hydrochlorous Acid	Aqueous solution	A
Iodine	10% in Non-Aqueous solvent	A+
Iodine, gas		A+
Iodoform		A+
Isoamyl Ether		A
Isobutyl Alcohol		A+
Isooctane		A+
Isophorone		A
Isopropyl Alcohol		A+
Isopropyl Chloride		A
Isopropyl Ether		A-
Isopropylbenzene		A
Jet Fuel (JP4, JP5)		A+
Kerosene		A+
Lactic Acid	Aqueous solution or pure	A+

Chemical Substance	Concentration*	Rating
Lanolin		A+
Lard Oil		A+
Lauric Acid		A+
Lauroyl Chloride		A+
Lauryl Mercaptan		A+
Lauryl Sulfate		A+
Lead Acetate	Aqueous solution or solid	A+
Lead Chloride		A+
Lead Nitrate	Aqueous solution or solid	A+
Lead Sulfate		A+
Lemon Oil		A+
Linoleic Acid		A+
Linseed Oil		A+
Lithium Bromide	Aqueous solution or solid	A+
Lithium Chloride	Aqueous solution or solid	A+
Lubricating Oil		A+
Magnesium Carbonate		A+
Magnesium Chloride	Aqueous solution or solid	A+
Magnesium Citrate		A+
Magnesium Hydroxide		A+
Magnesium Nitrate	Aqueous solution or solid	A+
Magnesium Sulfate	Aqueous solution or solid	A-
Maleic Acid	Aqueous solution or solid	A+
Maleic Anhydride		A-
Malic Acid	Aqueous solution or solid	A+
Manganese Sulfate	Aqueous solution or solid	A+
Mercuric Chloride		A+
Mercuric Cyanide		A+
Mercuric Nitrate	Aqueous solution or solid	A+
Mercury		A+
Methacrylic Acid		A
Methane		A+
Methanesulfonic Acid	Aqueous solution or liquid	A+
Methyl Acetate		A
Methyl Acrylate		A
Methyl Alcohol	Aqueous solution or liquid	A+
Methyl Bromide		A+
Methyl Chloride		A+
Methyl Chloroacetate		A
Methyl Chloromethyl Ether		A-
Methyl Ethyl Ketone		A-
Methyl Isobutyl Ketone		A-
Methyl Methacrylate		A
Methyl Salicylate		A+
Methylamine		A-
Methylchloroform		A+
Methylene Bromide		A+
Methylene Chloride		A+
Methylene Iodine		A+
Methylsulfuric Acid	Aqueous solution or liquid	A+
Methyltrichlorosilane		A+
Milk		A+
Mineral Oil		A+
Molasses		A+
Morpholine	Aqueous solution or liquid	A
Motor Oil		A+
Naphtha		A+
Naphthalene		A+
Nickel Acetate	Aqueous solution or solid	A+
Nickel Chloride	Aqueous solution or solid	A+
Nickel Nitrate	Aqueous solution or solid	A+
Nickel Sulfate	Aqueous solution or solid	A+
Nicotine		A
Nicotinic Acid		A+

## Guidelines for using Kynar® PVDF products in chemical waste drainage.

Kynar® PVDF is suitable for short term contact with many chemicals up to 150°C (300°F). If your application involves mixtures of chemicals and temperatures above 40°C, Kynar® PVDF resin will most likely be suitable, but Arkema recommends that you consult our technical staff prior to installing your system.

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# RATING FOR LOW PRESSURE DRAINAGE SYSTEM

Chemical Substance	Concentration*	Rating	Chemical Substance	Concentration*	Rating
Nitric Acid	Up to 10% in water	A+	Potassium Aluminum Chloride		A+
Nitric Acid	11-70% in water	A+	Potassium Bicarbonate	Aqueous solution or solid	A+
Nitric Acid, fuming		A-	Potassium Bisulfate	Aqueous solution or solid	A+
Nitrobenzene		A-	Potassium Borate	Aqueous solution or solid	A+
Nitroethane		A-	Potassium Bromate	Aqueous solution or solid	A+
Nitrogen		A+	Potassium Bromide	Aqueous solution or solid	A+
Nitrogen Dioxide		A+	Potassium Carbonate	Aqueous solution or solid	A+
Nitroglycerin		A+	Potassium Chlorate		A+
Nitromethane		A+	Potassium Chloride	Aqueous solution or solid	A+
Nitrotoluene		A+	Potassium Chromate	Aqueous solution or solid	A+
Nitrous Oxide		A-	Potassium Cyanide	Aqueous solution or solid	A+
Octane		A+	Potassium Dichromate		A+
Octene		A+	Potassium Ferricyanide	Aqueous solution or solid	A+
Oleic Acid		A+	Potassium Ferrocyanide	Aqueous solution or solid	A+
Oleum		A-	Potassium Fluoride	Aqueous solution or solid	A+
Olive oil		A+	Potassium Hydroxide	5 to 10% in water	A-
Oxalic Acid		A+	Potassium Hydroxide	Greater than 50% in water	A-
Oxygen		A+	Potassium Hypochlorite	Aqueous solution	A+
Ozone		A+	Potassium Iodide	Aqueous solution or solid	A+
Palm Oil		A+	Potassium Nitrate	Aqueous solution or solid	A+
Palmitic Acid		A+	Potassium Perborate		A+
Paraffin		A+	Potassium Perchlorate		A+
Paraffin Oil		A+	Potassium Permanganate	Aqueous solution or solid	A+
Peanut Oil		A+	Potassium Persulfate		A+
Perchloric Acid	10% in water	A+	Potassium Sulfate	Aqueous solution or solid	A+
Perchloric Acid	70% in water	A+	Potassium Sulfide		A+
Perchloroethylene		A+	Propane		A+
Perchloromethyl Mercaptan		A+	Propyl Acetate		A
Petrolatum		A+	Propyl Alcohol	Aqueous solution or liquid	A+
Petroleum		A+	Propylamine		A-
Phenol	5% in water	A+	Propylene Dibromide		A+
Phenol		A+	Propylene Dichloride		A+
1-Phenol-2-sulfonic-Acid		A+	Propylene Glycol	Aqueous solution or liquid	A+
Phenyl Ether		A	Propylene Oxide		A-
Phenylhydrazine		A	Pyridine		A-
Phenylhydrazine Hydrochloride	Aqueous solution or solid	A	Pyrogallol	Aqueous solution or solid	A
o-Phenylphenol		A+	Salicylaldehyde		A
Phosgene		A+	Selenic Acid	Aqueous solution or pure	A+
Phosphoric Acid	Less than 85% in water	A+	Silicon Tetrachloride		A+
Phosphoric Acid	85% in water	A+	Silicone Oil		A+
Phosphorus, red		A	Silver Cyanide		A+
Phosphorus, Oxychloride		A-	Silver Nitrate	Aqueous solution or solid	A+
Phosphorus, Pentachloride		A+	Silver Sulfate		A+
Phosphorus, Pentoxide		A+	Sodium Acetate	Aqueous solution or solid	A+
Phosphorus, Trichloride		A+	Sodium Benzoate	Aqueous solution or solid	A+
Phthalic Acid		A+	Sodium Bicarbonate	Aqueous solution or solid	A+
Picric Acid		A	Sodium Bisulfate	Aqueous solution or solid	A+
Plating Solutions: Brass		A+	Sodium Bisulfite	Aqueous solution or solid	A+
Cadmium		A+	Sodium Bromate	Aqueous solution or solid	A+
Chrome		A+	Sodium Bromide	Aqueous solution or solid	A+
Copper		A+	Sodium Carbonate	Aqueous solution or solid	A+
Iron		A+	Sodium Chlorate	Aqueous solution or solid	A+
Lead		A+	Sodium Chlorite	Aqueous solution or solid	A+
Nickel		A+	Sodium Chromate	Aqueous solution or solid	A+
Rodium		A+	Sodium Cyanide	Aqueous solution or solid	A+
Silver		A+	Sodium Dichromate	Aqueous solution or solid	A+
Speculum		A+	Sodium Dithionite	Aqueous solution or solid	A
Tin		A+	Sodium Ferricyanide	Aqueous solution or solid	A+
Zinc		A+	Sodium Ferrocyanide	Aqueous solution or solid	A+
Polyethylene Glycol		A+	Sodium Fluoride	Aqueous solution or solid	A+
Polyvinyl Acetate		A+	Sodium Fluosilcate		A+
Polyvinyl Alcohol		A+	Sodium Hydrogen Phosphate	Aqueous solution or solid	A+
Potassium Acetate	Aqueous solution or solid	A+	Sodium Hydroxide	Up to 10% in water *	A
Potassium Alum	Aqueous solution or liquid	A+	Sodium Hydroxide	Greater than 50% in water	A

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## RATING FOR LOW PRESSURE DRAINAGE SYSTEM

Chemical Substance	Concentration*	Rating
Sodium Hypochlorite	Up to 5% in water	A+
Sodium Hypochlorite	6-15% in water	A+
Sodium Iodide	Aqueous solution or solid	A+
Sodium Nitrate	Aqueous solution or solid	A+
Sodium Nitrite	Aqueous solution or solid	A+
Sodium Palmitate		A+
Sodium Perchlorate	Aqueous solution or solid	A+
Sodium Peroxide		A+
Sodium Phosphate	Aqueous solution or solid	A+
Sodium Thiocyanate	Aqueous solution or solid	A+
Sodium Thiosulfate	Aqueous solution or solid	A+
Sour Crude Oil		A+
Soybean Oil		A+
Stannic Chloride	Aqueous solution or solid	A+
Stannous Chloride	Aqueous solution or solid	A+
Starch		A+
Stearic Acid		A+
Stilbene		A+
Styrene		A+
Succinic Acid		A+
Sugar Syrup		A+
Sulfur		A+
Sulfur Chloride		A
Sulfur Dichloride		A
Sulfur Dioxide		A+
Sulfur Trioxide		A-
Sulfuric Acid	Up to 60% in water	A+
Sulfuric Acid	60-93% in water	A+
Sulfuric Acid	98% in water	A
Sulfuric Acid fuming		A-
Sulfuryl Chloride		A-
Tall Oil		A+
Tallow		A+
Tannic Acid		A+
Tar		A+
Tartaric Acid		A+
Tetrabromoethane		A+
Tetrachloroethane		A+
Tetrachlorophenol		A+
Tetraethyllead		A+
Tetrahydrofuran	Aqueous solution or liquid	A-
Tetramethylammonium Hydroxide	Up to 10% in water	A+
Tetramethylurea		A-

Chemical Substance	Concentration*	Rating
Thioglycol		A
Thioglycolic Acid		A+
Thionyl Chloride		A-
Triphosphoryl Chloride		A-
Thread Cutting Oils		A+
Titanium Tetrachloride		A+
Toluene		A+
Toluenesulfonyl Chloride		A
Tomato Juice		A+
Tributyl Phosphate		A
Trichloroacetic Acid	Up to 10% in water	A+
Trichloroacetic Acid	50% in water to pure	A
1,2,4-Trichlorobenzene		A+
1,1,2-Trichloroethane		A+
Trichloroethylene		A+
2,4,5-Trichlorophenol		A+
Tricresyl Phosphate		A-
Triethanolamine	Aqueous solution or liquid	A-
Triethylamine		A-
Trifluoroacetic Acid	50% in water	A+
Trifluoroacetic Acid		A
Trimethylamine	Aqueous solution or gas	A
Turpentine		A+
Urea	Aqueous solution or solid	A+
Varnish		A+
Varsol		A+
Vegetable Oil		A+
Vinegar		A+
Vinyl Acetate		A+
Vinyl Chloride		A+
Vinylidene Chloride		A+
Water		A+
Water, salt		A+
Water, sewage		A+
Whiskey		A+
Wine		A+
Xylene		A+
Zinc Acetate	Aqueous solution	A+
Zinc Bromide	Aqueous solution or solid	A+
Zinc Chloride	Aqueous solution or solid	A+
Zinc Nitrate	Aqueous solution or solid	A+
Zinc Sulfate	Aqueous solution or solid	A+

### Guidelines for using Kynar® PVDF products in chemical waste drainage.

Kynar® PVDF is suitable for short term contact with many chemicals up to 150°C (300°F). If your application involves mixtures of chemicals and temperatures above 40°C, Kynar® PVDF resin will most likely be suitable, but Arkema recommends that you consult our technical staff prior to installing your system.

\*pure substance unless otherwise indicated.

**A+:** Suitable for elevated temperatures varying with chemical in question.

**A:** Suitable for continuous ambient conditions and for short term elevated temperature varying with chemical in question.

**A-:** Suitable for short term use at full strength under ambient conditions, and suitable for continuous use at ambient conditions in diluted form.

**B:** Suitable for short-term use if concentration will be less than 100% , please contact Arkema technical staff for assessment of a safe concentration at maximum exposure temperature.

The ratings given on the previous pages are a guide and do not constitute a warranty of any kind, expressed or implied, with respect to the performance of Kynar® polyvinylidene fluoride resin in any specific application.



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