

HSW NORM-JECT® SYRINGES CHEMICAL RESISTANCE CHART



Reagent	21°C / 70°F	60°C / 140°F	Reagent	21°C / 70°F	60°C / 140°F
A			C		
Acetic acid (10-60%)	+	O	Beer	+	+
Acetic acid (1-10%)	+	+	Benzaldehyde	+	O
Acetic acid (80-100%)	+	O	Benzene	O	-
Acetic anhydride	+	+	Benzene sulfonic acid	+	+
Acetone	+	+	Benzoic acid	+	
Aluminum chloride	+	+	Bismuth carbonate saturated	+	+
Aluminum fluoride concentrated	+	+	Borax	+	+
Ammonia	+	+	Boric acid	+	+
Ammonium carbonate	+	+	Brine	+	+
Ammonium chloride saturated	+	+	Bromic acid (10%)	-	-
Ammonium fluoride (20%)	+	+	Bromine	-	-
Ammonium hydroxide	+	+	Butyl acetate	-	-
Ammonium nitrate	+	+	Butyl alcohol	+	+
Ammonium sulfate	+	+	C		
Ammonium sulfide	+	+	Calcium carbonate	+	+
Ammonium thiocyanate saturated	+	+	Calcium Chlorate	+	+
Amyl acetate (100%)	O	-	Calcium hydroxide	+	+
Amyl alcohol (100%)	+	O	Calcium hypochlorite	+	+
Amyl Chloride (100%)	-	-	Calcium nitrate	+	+
Aniline (100%)	+	-	Calcium sulfate	+	+
Antimony chloride	+	+	Camphor oil	-	-
Aqua Regia	O	O	Carbon dioxide (dry)	+	+
Arsenic	+	+	Carbon dioxide (wet)	+	+
B			Carbon disulphide	O	-
Barium carbonate	+	+	Carbon monoxide	+	+
Barium hydroxide	+	+	Carbon tetrachloride	-	-
Barium sulfate saturated	+	+	Carbonic acid	+	+
Barium sulfite saturated	+	+	Castor oil	+	+
			Caustic soda	+	O

Legend: + = satisfactory results
 O = some reaction
 - = unsatisfactory results

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Chlorine	-	-	F		
Chlorobenzene	-	-	Ferric chloride	+	+
Chloroform	-	-	Ferric nitrate	+	+
Chlorosulfonic acid	-	-	Ferrous chloride	+	+
Chromic acid (10-20%)	+	O	Ferrous sulfate	+	+
Chromic acid (50%)	+	O	Fluorine	+	-
Cider	+	+	Fluosilicic acid	+	+
Citric acid	+	+	Formaldehyde	+	+
Cooper cyanide	+	+	Formic acid (100%)	+	+
Copper chloride	+	+	Formic acid (20%)	+	+
Copper fluoride	+	+	Fructose saturated	+	+
Copper nitrate	+	+	Fuel oil	O	-
Copper sulfate	+	+	Furfural	-	-
Copper sulfate	+	+	G		
Corn oil	+	+	Gasoline	O	-
Cottonseed oil	+	+	Glucose	+	+
Cresols	+	O	Glycol	+	+
Cuprous chloride	+	+	H		
Cyclohexane	-	-	Heptane	-	-
Cyclohexanone	-	-	Hexachlorobenzene	+	+
D			Hexane	-	-
Decalin	-	-	Hydrobromic acid (50%)	+	+
Dextrin	+	+	Hydrochloric acid	+	+
E			Hydrogen chloride dry gas	+	+
Ethyl acetate (100%)	O	O	Hydrogen peroxide (30%)	+	O
Ethyl alcohol	+	+	Hydrogen sulfide	+	+
Ethyl alcohol	+	+	Hydroquinone	+	+
Ethylene glycol	+	+	I		
			Isopropyl alcohol	+	+

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K			Nickel nitrate	+	+
Kerosene	O	-	Nickel sulfate	+	+
L			Nitric acid (0-10%)	+	+
Lactic acid	+	+	Nitric acid, concentrated	-	-
Lanolin	+	+	Nitrobenzene (100%)	-	-
Lead acetate	+	+	O		
Lemon oil	O	O	Oleum	-	
Linseed oil	+	+	Olive oil	+	+
M			Orange juice	+	+
Magnesium carbonate	+	+	Oxalic acid	+	+
Magnesium chloride	+	+	Ozone	-	-
Magnesium hydroxide	+	+	P		
Magnesium nitrate	+	+	Peppermint oil	O	-
Magnesium sulfate	+	+	Perchloroethylene	-	-
Mercuric chloride	+	+	Phenol (10%)	+	+
Mercuric cyanide	+	+	Phosphoric acid	+	+
Mercurous nitrate	+	+	Potassium bicarbonate saturated	+	+
Mercury	+	+	Potassium bromide	+	+
Methyl ethyl ketone (100%)	-	-	Potassium carbonate	+	+
Methylene chloride (100%)	-	-	Potassium chlorate	+	+
Methylsulfuric acid	+	+	Potassium cyanide	+	+
Milk	+	+	Potassium dichromate	+	+
Mineral oil	+	-	Potassium ferrocyanide	+	+
Molasses	+		Potassium nitrate	+	+
Mustard	+		Potassium perborate saturated	+	+
N			Potassium permanganate	+	O
Naphtha	O	-	Potassium sulfate	+	+
Naphthalene	+	-	Potassium sulfide concentrated	+	+
Nickel chloride	+	+	Pyridine	+	O

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Reagent	21°C / 70°F	60°C / 140°F	Reagent	21°C / 70°F	60°C / 140°F
S			T		
Silver nitrate	+	+	Tannic acid (10%)	+	+
Sodium benzoate (35%)	+	+	Tartaric acid	+	+
Sodium bicarbonate saturated	+	+	Tea	+	+
Sodium bisulfate saturated	+	+	Tetrahydrofuran	O	O
Sodium bisulfite saturated	+	+	Toluene	-	-
Sodium carbonate concentrated	+	+	Tomato juice	+	+
Sodium chlorate saturated	+	+	Trichloroethylene	-	-
Sodium chloride saturated	+	+	Trisodium phosphate	+	+
Sodium cyanide	+	+	Turpentine	O	-
Sodium hydroxide concentrated	+	+	U		
Sodium hypochlorite	+	O	Urea	+	+
Sodium nitrate	+	+	Urine	+	+
Sodium perborate	+	+	V		
Sodium phosphate	+	+	Vanilla	+	+
Sodium sulfite	+	+	Vaseline	+	O
Sodium thiosulphate	+	+	Vinegar (commercial)	+	+
Soybean oil	+	+	W		
Stannic chloride	+	+	Whiskey	+	+
Stannous chloride	+	+	Wines	+	+
Starch solution	+	+	X - Y - Z		
Styrene	-	-	Xylene	-	-
Sulfuric acid (0-50%)	+	+	Yeast	+	+
Sulfuric acid (98% concentrated)	O	-	Zinc chloride saturated	+	+
Sulfuric acid (fuming)	-	-	Zinc oxide	+	+
Sulfuric-nitric	+	-	Zinc sulfate	+	+

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The data in this chart refers to general chemical resistance based on the raw material used for production of Norm-Ject® syringes. Full compatibility testing is required since other factors such as temperature, humidity and others also influence the chemical resistance. Staining of syringe barrel or syringe plunger is not considered in this chart.

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Legend: + = satisfactory results
0 = some reaction
- = unsatisfactory results