HSW NORM-JECT® SYRINGES CHEMICAL RESISTANCE CHART

Reagent	21°C / 70°F	60°C / 140°F
A		
Acetic acid (10-60%)	+	O
Acetic acid (1-10%)	+	+
Acetic acid (80-100%)	+	O
Acetic anhydride	+	+
Acetone	+	+
Aluminum chloride	+	+
Aluminum fluoride concentrated	+	+
Ammonia	+	+
Ammonium carbonate	+	+
Ammonium chloride saturated	+	+
Ammonium fluoride (20%)	+	+
Ammonium hydroxide	+	+
Ammonium nitrate	+	+
Ammonium sulfate	+	+
Ammonium sulfide	+	+
Ammonium thiocyanate saturated	+	+
Amyl acetate (100%)	O	-
Amyl alcohol (100%)	+	O
Amyl Chloride (100%)	-	-
Aniline (100%)	+	-
Antimony chloride	+	+
Aqua Regia	O	O
Arsenic	+	+
B		
Barium carbonate	+	+
Barium hydroxide	+	+
Barium sulfate saturated	+	+
Barium sulfite saturated	+	+

Reagent	21°C / 70°F	60°C / 140°F
Beer	+	+
Benzaldehyde	+	O
Benzene	O	-
Benzene sulfonic acid	+	+
Benzoic acid	+	
Bismuth carbonate saturated	+	+
Borax	+	+
Boric acid	+	+
Brine	+	+
Bromic acid (10%)	-	-
Bromine	-	-
Butyl acetate	-	-
Butyl alcohol	+	+
C		
Calcium carbonate	+	+
Calcium Chlorate	+	+
Calcium hydroxide	+	+
Calcium hypochlorite	+	+
Calcium nitrate	+	+
Calcium sulfate	+	+
Camphor oil	-	-
Carbon dioxide (dry)	+	+
Carbon dioxide (wet)	+	+
Carbon disulphide	O	-
Carbon monoxide	+	+
Carbon tetrachloride	-	-
Carbonic acid	+	+
Castor oil	+	+
Caustic soda	+	O

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

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HSW NORM-JECT® SYRINGES CHEMICAL RESISTANCE CHART

Reagent	21°C / 70°F	60°C / 140°F
Chlorine	-	-
Chlorobenzene	-	-
Chloroform	-	-
Chlorosulfonic acid	-	-
Chromic acid (10-20%)	+	O
Chromic acid (50%)	+	O
Cider	+	+
Citric acid	+	+
Cooper cyanide	+	+
Copper chloride	+	+
Copper fluoride	+	+
Copper nitrate	+	+
Copper sulfate	+	+
Copper sulfate	+	+
Corn oil	+	+
Cottonseed oil	+	+
Cresols	+	O
Cuprous chloride	+	+
Cyclohexane	-	-
Cyclohexanone	-	-
D		
Decalin	-	-
Dextrin	+	+
E		
Ethyl acetate (100%)	O	O
Ethyl alcohol	+	+
Ethyl alcohol	+	+
Ethylene glycol	+	+

Reagent	21°C / 70°F	60°C / 140°F
F		
Ferric chloride	+	+
Ferric nitrate	+	+
Ferrous chloride	+	+
Ferrous sulfate	+	+
Fluorine	+	-
Fluosilicic acid	+	+
Formaldehyde	+	+
Formic acid (100%)	+	+
Formic acid (20%)	+	+
Fructose saturated	+	+
Fuel oil	O	-
Furfural	-	-
G		
Gasoline	O	-
Glucose	+	+
Glycol	+	+
H		
Heptane	-	-
Hexachlorobenzene	+	+
Hexane	-	-
Hydrobromic acid (50%)	+	+
Hydrochloric acid	+	+
Hydrogen chloride dry gas	+	+
Hydrogen peroxide (30%)	+	O
Hydrogen sulfide	+	+
Hydroquinone	+	+
I		
Isopropyl alcohol	+	+

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Reagent	21°C / 70°F	60°C / 140°F
K		
Kerosene	O	-
L		
Lactic acid	+	+
Lanolin	+	+
Lead acetate	+	+
Lemon oil	O	O
Linseed oil	+	+
M		
Magnesium carbonate	+	+
Magnesium chloride	+	+
Magnesium hydroxide	+	+
Magnesium nitrate	+	+
Magnesium sulfate	+	+
Mercuric chloride	+	+
Mercuric cyanide	+	+
Mercurous nitrate	+	+
Mercury	+	+
Methyl ethyl ketone (100%)	-	-
Methylene chloride (100%)	-	-
Methylsulfuric acid	+	+
Milk	+	+
Mineral oil	+	-
Molasses	+	
Mustard	+	
N		
Naphtha	O	-
Naphthalene	+	-
Nickel chloride	+	+

Reagent	21°C / 70°F	60°C / 140°F
Nickel nitrate	+	+
Nickel sulfate	+	+
Nitric acid (0-10%)	+	+
Nitric acid, concentrated	-	-
Nitrobenzene (100%)	-	-
O		
Oleum	-	
Olive oil	+	+
Orange juice	+	+
Oxalic acid	+	+
Ozone	-	-
P		
Peppermint oil	O	-
Perchloroethylene	-	-
Phenol (10%)	+	+
Phosphoric acid	+	+
Potassium bicarbonate saturated	+	+
Potassium bromide	+	+
Potassium carbonate	+	+
Potassium chlorate	+	+
Potassium cyanide	+	+
Potassium dichromate	+	+
Potassium ferrocyanide	+	+
Potassium nitrate	+	+
Potassium perborate saturated	+	+
Potassium permanganate	+	O
Potassium sulfate	+	+
Potassium sulfide concentrated	+	+
Pyridine	+	O

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Reagent	21°C / 70°F	60°C / 140°F
S		
Silver nitrate	+	+
Sodium benzoate (35%)	+	+
Sodium bicarbonate saturated	+	+
Sodium bisulfate saturated	+	+
Sodium bisulfite saturated	+	+
Sodium carbonate concentrated	+	+
Sodium chlorate saturated	+	+
Sodium chloride saturated	+	+
Sodium cyanide	+	+
Sodium hydroxide concentrated	+	+
Sodium hypochlorite	+	O
Sodium nitrate	+	+
Sodium perborate	+	+
Sodium phosphate	+	+
Sodium sulfite	+	+
Sodium thiosulphate	+	+
Soybean oil	+	+
Stannic chloride	+	+
Stannous chloride	+	+
Starch solution	+	+
Styrene	-	-
Sulfuric acid (0-50%)	+	+
Sulfuric acid (98% concentrated)	O	-
Sulfuric acid (fuming)	-	-
Sulfuric-nitric	+	-

Reagent	21°C / 70°F	60°C / 140°F
T		
Tannic acid (10%)	+	+
Tartaric acid	+	+
Tea	+	+
Tetrahydrofuran	O	O
Toluene	-	-
Tomato juice	+	+
Trichloroethylene	-	-
Trisodium phosphate	+	+
Turpentine	O	-
U		
Urea	+	+
Urine	+	+
V		
Vanilla	+	+
Vaseline	+	O
Vinegar (commercial)	+	+
W		
Whiskey	+	+
Wines	+	+
X - Y - Z		
Xylene	-	-
Yeast	+	+
Zinc chloride saturated	+	+
Zinc oxide	+	+
Zinc sulfate	+	+

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HSW NORM-JECT® SYRINGES CHEMICAL RESISTANCE CHART

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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