Chemical Compatibility Reference Chart

Stainless Steel

Stainless Steel Chemical Compatibility Chart: Check the chemical compatibility of Stainless Steel with various chemicals, solvents, alcohols and other products.

Chemical	Compatibility
Acetaldehyde	A-Excellent
Acetamide	B-Good
Acetate Solvent	A-Excellent
Acetic Acid	D-Severe Effect
Acetic Acid 20%	B-Good
Acetic Acid 80%	D-Severe Effect
Acetic Acid, Glacial	C-Fair
Acetic Anhydride	B-Good
Acetone	A-Excellent
Acetyl Bromide	N/A
Acetyl Chloride (dry)	A-Excellent
Acetylene	A-Excellent
Acrylonitrile	A[1]-Excellent
Adipic Acid	A[1]-Excellent
Alcohols: Amyl	A-Excellent
Alcohols: Benzyl	B-Good
Alcohols: Butyl	A-Excellent
Alcohols: Diacetone	A-Excellent
Alcohols: Ethyl	A-Excellent
Alcohols: Hexyl	A-Excellent
Alcohols: Isobutyl	A-Excellent
Alcohols: Isopropyl	B-Good
Alcohols: Methyl	A-Excellent
Alcohols: Octyl	A-Excellent
Alcohols: Propyl	A-Excellent
Aluminum Chloride	B-Good
Aluminum Chloride 20%	D-Severe Effect
Aluminum Fluoride	D-Severe Effect
Aluminum Hydroxide	A[1]-Excellent
Aluminum Nitrate	A-Excellent
Aluminum Potassium Sulfate 10%	A-Excellent

Aluminum Potassium Sulfate 100%	D-Severe Effect
Aluminum Sulfate	B-Good
Alums	N/A
Amines	A-Excellent
Ammonia 10%	A-Excellent
Ammonia Nitrate	A-Excellent
Ammonia, anhydrous	A-Excellent
Ammonia, liquid	B[2]-Good
Ammonium Acetate	B-Good
Ammonium Bifluoride	D-Severe Effect
Ammonium Carbonate	B-Good
Ammonium Caseinate	N/A
Ammonium Chloride	C-Fair
Ammonium Hydroxide	A[1]-Excellent
Ammonium Nitrate	A[1]-Excellent
Ammonium Oxalate	A-Excellent
Ammonium Persulfate	A-Excellent
Ammonium Phosphate, Dibasic	B-Good
Ammonium Phosphate, Monobasic	B-Good
Ammonium Phosphate, Tribasic	B-Good
Ammonium Sulfate	B-Good
Ammonium Sulfite	B-Good
Ammonium Thiosulfate	N/A
Amyl Acetate	A[1]-Excellent
Amyl Alcohol	A-Excellent
Amyl Chloride	A[2]-Excellent
Aniline	A-Excellent
Aniline Hydrochloride	D-Severe Effect
Antifreeze	N/A
Antimony Trichloride	D-Severe Effect
Aqua Regia (80% HCl, 20% HNO3)	D-Severe Effect
Arochlor 1248	B-Good
Aromatic Hydrocarbons	N/A
Arsenic Acid	A[2]-Excellent
Arsenic Salts	N/A
Asphalt	B-Good
Barium Carbonate	B[1]-Good
Barium Chloride	A[1]-Excellent

Barium Cyanide	A[1]-Excellent
Barium Hydroxide	B[1]-Good
Barium Nitrate	B[1]-Good
Barium Sulfate	B[1]-Good
Barium Sulfide	B[1]-Good
Beer	A-Excellent
Beet Sugar Liquids	A-Excellent
Benzaldehyde	B-Good
Benzene	B-Good
Benzene Sulfonic Acid	B-Good
Benzoic Acid	B-Good
Benzol	A[1]-Excellent
Benzonitrile	D-Severe Effect
Benzyl Chloride	C[1]-Fair
Bleaching Liquors	N/A
Borax (Sodium Borate)	A-Excellent
Boric Acid	B[2]-Good
Brewery Slop	N/A
Bromine	D-Severe Effect
Butadiene	A-Excellent
Butane	A[2]-Excellent
Butanol (Butyl Alcohol)	A-Excellent
Butter	C-Fair
Buttermilk	A-Excellent
Butyl Phthalate	B[1]-Good
Butylacetate	B-Good
Butylene	A-Excellent
Butyric Acid	B[2]-Good
Calcium Bisulfate	N/A
Calcium Bisulfide	B-Good
Calcium Bisulfite	B-Good
Calcium Carbonate	A[1]-Excellent
Calcium Chlorate	N/A
Calcium Chloride	C2-Fair
Calcium Hydroxide	B[1]-Good
Calcium Hypochlorite	C[1]-Fair
Calcium Nitrate	C[1]-Fair
Calcium Oxide	A-Excellent

Calcium Sulfate	B-Good
Calgon	A-Excellent
Cane Juice	A-Excellent
Carbolic Acid (Phenol)	B-Good
Carbon Bisulfide	A-Excellent
Carbon Dioxide (dry)	A-Excellent
Carbon Dioxide (wet)	A-Excellent
Carbon Disulfide	A[1]-Excellent
Carbon Monoxide	A-Excellent
Carbon Tetrachloride	B-Good
Carbon Tetrachloride (dry)	B-Good
Carbon Tetrachloride (wet)	A[2]-Excellent
Carbonated Water	A-Excellent
Carbonic Acid	A[1]-Excellent
Catsup	A-Excellent
Chloric Acid	D-Severe Effect
Chlorinated Glue	N/A
Chlorine (dry)	A[1]-Excellent
Chlorine Water	C-Fair
Chlorine, Anhydrous Liquid	C[1]-Fair
Chloroacetic Acid	B[1]-Good
Chlorobenzene (Mono)	A-Excellent
Chlorobromomethane	N/A
Chloroform	A-Excellent
Chlorosulfonic Acid	D-Severe Effect
Chocolate Syrup	A-Excellent
Chromic Acid 10%	B-Good
Chromic Acid 30%	B[2]-Good
Chromic Acid 5%	B-Good
Chromic Acid 50%	C-Fair
Chromium Salts	N/A
Cider	A-Excellent
Citric Acid	B[1]-Good
Citric Oils	A-Excellent
Cloroxr (Bleach)	A-Excellent
Coffee	A-Excellent
Copper Chloride	D-Severe Effect
Copper Cyanide	B-Good

Copper Fluoborate	D-Severe Effect
Copper Nitrate	A-Excellent
Copper Sulfate>5%	B-Good
Copper Sulfate 5%	B-Good
Cream	A-Excellent
Cresols	A[2]-Excellent
Cresylic Acid	A[1]-Excellent
Cupric Acid	D-Severe Effect
Cyanic Acid	A-Excellent
Cyclohexane	A[1]-Excellent
Cyclohexanone	A[1]-Excellent
Detergents	A[1]-Excellent
Diacetone Alcohol	B[1]-Good
Dichlorobenzene	N/A
Dichloroethane	B-Good
Diesel Fuel	A[1]-Excellent
Diethyl Ether	B[1]-Good
Diethylamine	A-Excellent
Diethylene Glycol	A[1]-Excellent
Dimethyl Aniline	B[2]-Good
Dimethyl Formamide	A-Excellent
Diphenyl	B-Good
Diphenyl Oxide	B[1]-Good
Dyes	A-Excellent
Epsom Salts (Magnesium Sulfate)	A-Excellent
Ethane	A-Excellent
Ethanol	A-Excellent
Ethanolamine	A-Excellent
Ether	A-Excellent
Ethyl Acetate	B-Good
Ethyl Benzoate	N/A
Ethyl Chloride	A-Excellent
Ethyl Ether	B-Good
Ethyl Sulfate	D-Severe Effect
Ethylene Bromide	A-Excellent
Ethylene Chloride	B-Good
Ethylene Chlorohydrin	B-Good
Ethylene Diamine	B[1]-Good

Ethylene Dichloride	B-Good
Ethylene Glycol	B-Good
Ethylene Oxide	B-Good
Fatty Acids	B-Good
Ferric Chloride	D-Severe Effect
Ferric Nitrate	B-Good
Ferric Sulfate	B^1-Good
Ferrous Chloride	D-Severe Effect
Ferrous Sulfate	B-Good
Fluoboric Acid	B-Good
Fluorine	C-Fair
Fluosilicic Acid	C-Fair
Formaldehyde 100%	C-Fair
Formaldehyde 40%	A^1-Excellent
Formic Acid	B^1-Good
Freon 113	N/A
Freon 12	B^1-Good
Freon 22	A-Excellent
Freon TF	A-Excellent
Freonr 11	A-Excellent
Fruit Juice	A-Excellent
Fuel Oils	A-Excellent
Furan Resin	A^1-Excellent
Furfural	A-Excellent
Gallic Acid	A-Excellent
Gasoline (high-aromatic)	A-Excellent
Gasoline, leaded, ref.	A^1-Excellent
Gasoline, unleaded	A^1-Excellent
Gelatin	A^2-Excellent
Glucose	A^1-Excellent
Glue, P.V.A.	A^1-Excellent
Glycerin	A^2-Excellent
Glycolic Acid	A-Excellent
Gold Monocyanide	A-Excellent
Grape Juice	A-Excellent
Grease	N/A
Heptane	A-Excellent
Hexane	A-Excellent

Honey	A-Excellent
Hydraulic Oil (Petro)	A-Excellent
Hydraulic Oil (Synthetic)	A-Excellent
Hydrazine	A-Excellent
Hydrobromic Acid 100%	D-Severe Effect
Hydrobromic Acid 20%	D-Severe Effect
Hydrochloric Acid 100%	D-Severe Effect
Hydrochloric Acid 20%	D-Severe Effect
Hydrochloric Acid 37%	D-Severe Effect
Hydrochloric Acid, Dry Gas	D-Severe Effect
Hydrocyanic Acid	B[1]-Good
Hydrocyanic Acid (Gas 10%)	N/A
Hydrofluoric Acid 100%	B[1]-Good
Hydrofluoric Acid 20%	D-Severe Effect
Hydrofluoric Acid 50%	D-Severe Effect
Hydrofluoric Acid 75%	D-Severe Effect
Hydrofluosilicic Acid 100%	D-Severe Effect
Hydrofluosilicic Acid 20%	C2-Fair
Hydrogen Gas	A-Excellent
Hydrogen Peroxide 10%	B[2]-Good
Hydrogen Peroxide 100%	B[2]-Good
Hydrogen Peroxide 30%	B[2]-Good
Hydrogen Peroxide 50%	B[2]-Good
Hydrogen Sulfide (aqua)	C-Fair
Hydrogen Sulfide (dry)	C[1]-Fair
Hydroquinone	B-Good
Hydroxyacetic Acid 70%	N/A
Ink	C-Fair
Iodine	D-Severe Effect
Iodine (in alcohol)	N/A
Iodoform	A-Excellent
Isooctane	A[1]-Excellent
Isopropyl Acetate	C-Fair
Isopropyl Ether	A-Excellent
Isotane	N/A
Jet Fuel (JP3, JP4, JP5)	A-Excellent
Kerosene	A-Excellent
Ketones	A-Excellent

Lacquer Thinners	A[1]-Excellent
Lacquers	A[1]-Excellent
Lactic Acid	B[1]-Good
Lard	A-Excellent
Latex	A[2]-Excellent
Lead Acetate	B-Good
Lead Nitrate	B[1]-Good
Lead Sulfamate	C-Fair
Ligroin	N/A
Lime	A-Excellent
Linoleic Acid	B-Good
Lithium Chloride	A[1]-Excellent
Lithium Hydroxide	B-Good
Lubricants	A[2]-Excellent
Lye: Ca(OH)2 Calcium Hydroxide	B[1]-Good
Lye: KOH Potassium Hydroxide	B-Good
Lye: NaOH Sodium Hydroxide	B-Good
Magnesium Bisulfate	A[1]-Excellent
Magnesium Carbonate	B-Good
Magnesium Chloride	D-Severe Effect
Magnesium Hydroxide	B-Good
Magnesium Nitrate	B-Good
Magnesium Oxide	A-Excellent
Magnesium Sulfate (Epsom Salts)	A-Excellent
Maleic Acid	A-Excellent
Maleic Anhydride	A-Excellent
Malic Acid	A-Excellent
Manganese Sulfate	B-Good
Mash	A-Excellent
Mayonnaise	C-Fair
Melamine	N/A
Mercuric Chloride (dilute)	D-Severe Effect
Mercuric Cyanide	C-Fair
Mercurous Nitrate	A[1]-Excellent
Mercury	A-Excellent
Methane	A-Excellent
Methanol (Methyl Alcohol)	A-Excellent
Methyl Acetate	A-Excellent

Methyl Acetone	A-Excellent
Methyl Acrylate	A-Excellent
Methyl Alcohol 10%	A-Excellent
Methyl Bromide	A-Excellent
Methyl Butyl Ketone	A-Excellent
Methyl Cellosolve	B-Good
Methyl Chloride	A-Excellent
Methyl Dichloride	N/A
Methyl Ethyl Ketone	A-Excellent
Methyl Ethyl Ketone Peroxide	N/A
Methyl Isobutyl Ketone	B-Good
Methyl Isopropyl Ketone	A-Excellent
Methyl Methacrylate	B-Good
Methylamine	A-Excellent
Methylene Chloride	B-Good
Milk	A-Excellent
Mineral Spirits	A-Excellent
Molasses	A-Excellent
Monochloroacetic acid	A[1]-Excellent
Monoethanolamine	A-Excellent
Morpholine	N/A
Motor oil	A[1]-Excellent
Mustard	A-Excellent
Naphtha	A-Excellent
Naphthalene	A-Excellent
Natural Gas	A-Excellent
Nickel Chloride	D-Severe Effect
Nickel Nitrate	B-Good
Nickel Sulfate	B-Good
Nitrating Acid (<15% HNO3)	C-Fair
Nitrating Acid (>15% H2SO4)	C-Fair
Nitrating Acid (S1% Acid)	C-Fair
Nitrating Acid (S15% H2SO4)	C-Fair
Nitric Acid (20%)	A-Excellent
Nitric Acid (50%)	A[2]-Excellent
Nitric Acid (5-10%)	A-Excellent
Nitric Acid (Concentrated)	A[1]-Excellent
Nitrobenzene	B-Good

Nitrogen Fertilizer	N/A
Nitromethane	A-Excellent
Nitrous Acid	B-Good
Nitrous Oxide	B-Good
Oils: Aniline	A-Excellent
Oils: Castor	A-Excellent
Oils: Cinnamon	A-Excellent
Oils: Citric	A-Excellent
Oils: Clove	A-Excellent
Oils: Coconut	A-Excellent
Oils: Cod Liver	A-Excellent
Oils: Corn	A-Excellent
Oils: Cottonseed	A-Excellent
Oils: Creosote	B-Good
Oils: Diesel Fuel (20, 30, 40, 50)	A-Excellent
Oils: Fuel (1, 2, 3, 5A, 5B, 6)	A-Excellent
Oils: Ginger	D-Severe Effect
Oils: Hydraulic Oil (Petro)	A-Excellent
Oils: Hydraulic Oil (Synthetic)	A-Excellent
Oils: Lemon	A-Excellent
Oils: Linseed	A-Excellent
Oils: Mineral	A-Excellent
Oils: Olive	A-Excellent
Oils: Orange	A-Excellent
Oils: Palm	A-Excellent
Oils: Peanut	A-Excellent
Oils: Peppermint	A-Excellent
Oils: Pine	A-Excellent
Oils: Rapeseed	A-Excellent
Oils: Rosin	A[1]-Excellent
Oils: Sesame Seed	A-Excellent
Oils: Silicone	A-Excellent
Oils: Soybean	A-Excellent
Oils: Sperm (whale)	A-Excellent
Oils: Tanning	A-Excellent
Oils: Transformer	A-Excellent
Oils: Turbine	A-Excellent
Oleic Acid	A-Excellent

Oleum 100%	A-Excellent
Oleum 25%	B[2]-Good
Oxalic Acid (cold)	B-Good
Ozone	B-Good
Palmitic Acid	B[1]-Good
Paraffin	A-Excellent
Pentane	C-Fair
Perchloric Acid	C-Fair
Perchloroethylene	B-Good
Petrolatum	A-Excellent
Petroleum	A[1]-Excellent
Phenol (10%)	B-Good
Phenol (Carbolic Acid)	B-Good
Phosphoric Acid (>40%)	D-Severe Effect
Phosphoric Acid (crude)	D-Severe Effect
Phosphoric Acid (molten)	N/A
Phosphoric Acid (S40%)	D-Severe Effect
Phosphoric Acid Anhydride	N/A
Phosphorus	A[2]-Excellent
Phosphorus Trichloride	A[1]-Excellent
Photographic Developer	A-Excellent
Photographic Solutions	D-Severe Effect
Phthalic Acid	B[2]-Good
Phthalic Anhydride	A-Excellent
Picric Acid	B-Good
Plating Solutions, Antimony Plating 130°F	A-Excellent
Plating Solutions, Arsenic Plating 110°F	A-Excellent
Plating Solutions (Brass): Regular Brass Bath 100°F	A-Excellent
Plating Solutions (Bronze): Cu-Cd Bronze Bath R.T.	A-Excellent
Plating Solutions (Bronze): Cu-Sn Bronze Bath 160°F	A-Excellent
Plating Solutions (Bronze): Cu-Zn Bronze Bath 100°F	A-Excellent
Plating Solutions (Cadmium): Cyanide Bath 90°F	N/A
Plating Solutions (Cadmium): Fluoborate Bath 100°F	A-Excellent
Plating Solutions (Copper) (Acid): Copper Fluoborate Bath 120°F	A-Excellent
Potash (Potassium Carbonate)	B-Good
Potassium Bicarbonate	B-Good
Potassium Bromide	B-Good
Potassium Chlorate	B[1]-Good

Potassium Chloride	B[1]-Good
Potassium Chromate	B[1]-Good
Potassium Cyanide Solutions	B[1]-Good
Potassium Dichromate	B-Good
Potassium Ferricyanide	B[1]-Good
Potassium Ferrocyanide	B-Good
Potassium Hydroxide (Caustic Potash)	B-Good
Potassium Hypochlorite	C[1]-Fair
Potassium Iodide	A[1]-Excellent
Potassium Nitrate	B-Good
Potassium Oxalate	B-Good
Potassium Permanganate	B[1]-Good
Potassium Sulfate	B[1]-Good
Potassium Sulfide	B-Good
Propane (liquefied)	A-Excellent
Propylene	B[1]-Good
Propylene Glycol	B-Good
Pyridine	A-Excellent
Pyrogallic Acid	B[2]-Good
Resorcinal	N/A
Rosins	A[1]-Excellent
Rum	A-Excellent
Rust Inhibitors	A-Excellent
Salad Dressings	A-Excellent
Salicylic Acid	B[2]-Good
Salt Brine (NaCl saturated)	B[1]-Good
Sea Water	C-Fair
Shellac (Bleached)	A-Excellent
Shellac (Orange)	A-Excellent
Silicone	A-Excellent
Silver Bromide	D-Severe Effect
Silver Nitrate	B-Good
Soap Solutions	A-Excellent
Soda Ash (see Sodium Carbonate)	A-Excellent
Sodium Acetate	B-Good
Sodium Aluminate	A-Excellent
Sodium Benzoate	N/A
Sodium Bicarbonate	A-Excellent

Sodium Bisulfate	D-Severe Effect
Sodium Bisulfite	B[1]-Good
Sodium Borate (Borax)	B[2]-Good
Sodium Bromide	C-Fair
Sodium Carbonate	A-Excellent
Sodium Chlorate	A-Excellent
Sodium Chloride	B-Good
Sodium Chromate	B[1]-Good
Sodium Cyanide	A[1]-Excellent
Sodium Ferrocyanide	B-Good
Sodium Fluoride	D-Severe Effect
Sodium Hydrosulfite	N/A
Sodium Hydroxide (20%)	B-Good
Sodium Hydroxide (50%)	B-Good
Sodium Hydroxide (80%)	C-Fair
Sodium Hypochlorite (<20%)	C-Fair
Sodium Hypochlorite (100%)	D-Severe Effect
Sodium Hyposulfate	A-Excellent
Sodium Metaphosphate	A-Excellent
Sodium Metasilicate	A-Excellent
Sodium Nitrate	B[1]-Good
Sodium Perborate	B-Good
Sodium Peroxide	A-Excellent
Sodium Polyphosphate	B-Good
Sodium Silicate	A-Excellent
Sodium Sulfate	B-Good
Sodium Sulfide	B-Good
Sodium Sulfite	B-Good
Sodium Tetraborate	A[2]-Excellent
Sodium Thiosulfate (hypo)	A[2]-Excellent
Sorghum	A-Excellent
Soy Sauce	A-Excellent
Stannic Chloride	D-Severe Effect
Stannic Fluoborate	N/A
Stannous Chloride	C2-Fair
Starch	A-Excellent
Stearic Acid	B-Good
Stoddard Solvent	A-Excellent

Styrene	A-Excellent
Sugar (Liquids)	A-Excellent
Sulfate (Liquors)	B-Good
Sulfur Chloride	D-Severe Effect
Sulfur Dioxide	D-Severe Effect
Sulfur Dioxide (dry)	D-Severe Effect
Sulfur Hexafluoride	N/A
Sulfur Trioxide	A-Excellent
Sulfur Trioxide (dry)	D-Severe Effect
Sulfuric Acid (<10%)	D-Severe Effect
Sulfuric Acid (10-75%)	D-Severe Effect
Sulfuric Acid (75-100%)	C-Fair
Sulfuric Acid (cold concentrated)	C-Fair
Sulfuric Acid (hot concentrated)	D-Severe Effect
Sulfurous Acid	B[1]-Good
Sulfuryl Chloride	N/A
Tallow	A-Excellent
Tannic Acid	B[1]-Good
Tanning Liquors	A[2]-Excellent
Tartaric Acid	C2-Fair
Tetrachloroethane	B-Good
Tetrachloroethylene	N/A
Tetrahydrofuran	A-Excellent
Tin Salts	N/A
Toluene (Toluol)	A-Excellent
Tomato Juice	A-Excellent
Trichloroacetic Acid	D-Severe Effect
Trichloroethane	B-Good
Trichloroethylene	B-Good
Trichloropropane	A-Excellent
Tricresylphosphate	B-Good
Triethylamine	A-Excellent
Trisodium Phosphate	B-Good
Turpentine	A-Excellent
Urea	B-Good
Uric Acid	B-Good
Urine	A-Excellent
Varnish	A-Excellent

Vegetable Juice	A-Excellent
Vinegar	A-Excellent
Vinyl Acetate	B-Good
Vinyl Chloride	B[2]-Good
Water, Acid, Mine	B-Good
Water, Deionized	A[1]-Excellent
Water, Distilled	A-Excellent
Water, Fresh	A-Excellent
Water, Salt	B-Good
Weed Killers	A-Excellent
Whey	A-Excellent
Whiskey & Wines	A-Excellent
White Liquor (Pulp Mill)	A-Excellent
White Water (Paper Mill)	A-Excellent
Xylene	B-Good
Zinc Chloride	B-Good
Zinc Hydrosulfite	A-Excellent
Zinc Sulfate	B[1]-Good

Explanation of Footnotes
[1.] Satisfactory to 72°F (22°C)
[2.] Satisfactory to 120°F (48°C)

Ratings: Chemical Effect
A = Excellent.
B = Good, Minor Effect, slight corrosion or discoloration
C = Fair, Moderate Effect, not recommended for continuous use. Softening, loss of strength, or swelling may occur.
D = Severe Effect, not recommended for ANY use.
N/A = Information not available.

Please note that these charts are for general reference only. We have aggregated this data from dozens of original sources and any single piece of data cannot be guaranteed. Additionally, many factors affect the chemical resistance of a given plastic product including the concentration/purity of the chemical, working temperature, wall thickness and condition of the container, etc. It is **your responsibility** to test a container and chemical together ensure compatibility under your unique circumstances.

Visit www.cplabsafety.com/chemical-compatibility-charts for up to date information.