

## Trademarks

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## Corrosion Resistance of Coupling Material

### **Caution**

The following data has been compiled from generally available sources and should not be relied upon without consulting and following the specific recommendations of the manufacturer regarding particular coupling materials.

### Ratings

<b>Metal</b>	<b>Non-Metal</b>	<b>Gasket/Seal Material</b>
1 - excellent 2 - good 3 - fair X - not recommended -- contact factory	A - acceptable X - not recommended -- contact factory	T - Teflon® V - Viton® E - EPDM, EPR N - Neoprene B - Buna N

- Note:
1. Ratings given are based at 70°F. Chemical compatibility varies greatly with temperature. For applications at temperatures other than 70°F, contact the factory for recommendations.
  2. Gasket / seal materials are not necessarily listed in order of preference.
  3. Chemical resistance of a material does not necessarily indicate the suitability of a fitting in a given application due to variables such as improper clamp and coupling application, special hose construction, gasket material, etc.

**Special caution should be taken when handling hazardous materials.**

AGENT	Aluminum	Brass	Malleable Iron Carbon Steel	Stainless Steel, 316	Seal Material
Acetate Solvents (Crude)	1	X	2	1	T
Acetate Solvents (Pure)	1	1	X	1	T
Acetic Acid (80%)	3	X	X	1	TEVNB
Acetic Acid (50%)	2	X	X	1	TEVNB
Acetic Acid (20%)	2	X	X	1	TEVNB
Acetic Acid (10%)	2	X	X	1	TEVNB
Acetic Anhydride	2	X	2	2	TNB
Acetone	1	2	2	1	TE
Acetylene	1	X	2	1	TEVNB
Alcohols					
Amyl Alcohol	2	2	2	2	TEVNB
Benzyl Alcohol	2	2	2	1	TVB
Butyl Alcohol	1	2	2	1	TEVN
Diacetone Alcohol	1	1	2	2	TE
Ethyl Alcohol	1	2	2	2	TEVNB
Hexyl Alcohol	-	-	-	-	-
Isobutyl Alcohol	-	-	-	-	-
Isopropyl Alcohol	2	2	2	2	TEVNB
Methyl Alcohol (Methanol)	2	2	2	2	TENB
Octyl Alcohol	-	-	-	-	-
Propyl Alcohol	2	2	2	1	TEVNB
Aluminum					
Aluminum Chloride (Aqu.)	X	X	X	X	TEVNB
Aluminum Fluoride (Sat.)	2	-	X	2	TEVNB
Aluminum Nitrate (Sat.)	3	X	X	2	TEVNB
Aluminum Potassium Sulfate (Alum)	2	2	X	2	TEVNB
Aluminum Sulfate (Sat.)	X	X	X	2	TEVNB
Ammonia					
Ammonia Anhydrous	1	X	1	1	TENB
Ammonia Gas	X	X	1	1	TENB
Ammonia Nitrate	-	-	-	-	-
Ammonium					
Ammonium Bifluoride	-	X	X	-	TEVB
Ammonium Carbonate (Sat.)	2	X	2	2	TEVNB
Ammonium Casenate	-	-	-	-	-
Ammonium Chloride (Sat.)	X	X	X	X	TEVNB
Ammonium Hydroxide (Sat.)	2	X	1	2	TEVNB
Ammonium Nitrate	2	X	X	-	TENB
Ammonium Phosphate (10-40%)	X	X	X	2	TEVNB
Ammonium Sulfate (10-40%)	X	X	X	2	TEVNB
Aniline	-	X	X	1	TV
Arsenic Acid	X	X	X	2	TEVNB
Asphalt	-	-	2	2	TV
Barium					
Barium Carbonate (Sat.)	X	2	2	2	TEVNB
Barium Chloride (Sat.)	-	2	-	-	TEVNB
Barium Hydroxide (Sat.)	X	2	2	2	TEVNB
Barium Sulfate	2	2	X	2	TEVNB
Barium Sulfide	X	X	2	2	TEVNB
Beer	1	2	2	1	TEVNB
Benzaldehyde	2	2	X	2	TE
Benzene, Benzol	1	2	2	2	TV
Benzine	-	-	-	-	-
Benzoic Acid	2	2	X	2	TVN
Black Liquor	X	X	-	2	TEVNB
Bleach (12.5% Active Chlorine)	X	-	X	X	TEVN
Borax	X	2	2	1	TEVNB
Boric Acid	1	X	X	-	TEVNB
Brine Acid	-	2	-	-	TEVNB
Bromic acid	X	X	-	-	TEVN
Bromine Liquid	2	-	-	X	TV
Butadiene, Butylene	2	2	2	2	TVNB
Butane	2	2	1	2	TV
Butyl Acetate	1	2	2	2	T
Butyric Acid	2	2	X	2	TV

Ratings given are based at 70°F

# Swivel Joints

AGENT	Aluminum	Brass	Malleable Iron Carbon Steel	Stainless Steel, 316	Seal Material
<b>Calcium</b>					
Calcium Bisulfate	X	-	X	2	T
Calcium Bisulfide	-	-	-	2	TVB
Calcium Bisulfite	X	X	X	2	TVNB
Calcium Bromide	X	G	X	X	T
Calcium Carbonate	X	2	2	2	TEVB
Calcium Chloride (Sat.)	-	2	2	-	TEVNB
Calcium Hydroxide (Sat.)	X	2	2	2	TEVNB
Calcium Hypochlorite (Sat.)	X	X	X	2	TEV
<b>Carbon</b>					
Carbon Bisulfide	1	X	2	2	TV
Carbon Dioxide (Dry)	1	1	2	2	TENB
Carbon Dioxide (Wet)	1	X	3	2	TENB
Carbon Disulfide	1	X	2	2	TV
Carbon Monoxide	1	1	2	1	TEVNB
Carbon Tetrachloride	X	-	2	-	TV
Carbonic Acid	1	2	2	2	TEVNB
Castor Oil	2	2	2	2	TEVNB
Caustic Potash	X	-	X	2	TEVNB
Cellosolves	2	2	2	2	TE
Chlorine (Liquid)	-	-	2	3	TV
Chloroform	-	-	X	-	TV
Chlorosulfonic Acid	-	X	2	X	T
Clorox (Bleach, 5.5% CL)	X	-	X	2	TEVB
Chromic Acid (50%)	2	X	X	-	TVNB
Citric Acid	3	X	X	-	TEVNB
Coke Oven Gas	2	3	2	2	TEVN
<b>Copper</b>					
Copper Chloride	X	X	X	X	TEVNB
Copper Cyanide	X	X	-	2	TEVNB
Copper Sulfate	X	X	X	2	TEVNB
Crylic Acid (Conc.)	2	2	2	2	TEV
Cyclohexane	2	2	2	2	TVB
Detergents	2	2	2	2	TEVNB
Dextrose	2	-	-	-	TEVNB
Diesel Fuels	1	1	2	1	TVB
Diethylamine	2	-	X	2	TN
Disodium Phosphate	-	-	1	1	TEV
Ethers	2	2	2	1	TB
<b>Ethyl</b>					
Ethyl Acetate	-	-	2	2	T
Ethyl Chloride	-	-	2	1	TEVB
<b>Ethylene</b>					
Ethylene Chloride	-	-	2	-	TV
Ethylene Dichloride	-	2	2	2	TV
Ethylene Glycol	1	2	2	2	TEVNB
Ethylene Oxide	1	X	2	2	T
<b>Fatty Acids</b>	1	3	X	1	TVNB
<b>Ferric</b>					
Ferric Chloride	X	X	X	X	TEVNB
Ferric Hydroxide	-	-	-	1	TEVNB
Ferric Nitrate (10-50%)	X	X	X	2	TEVNB
Ferric Sulfate	X	X	X	-	TEVNB
<b>Ferrous</b>					
Ferrous Chloride (Sat.)	X	X	-	X	TEVNB
Ferrous Sulfate	2	2	X	-	TEVNB
Fluoboric Acid	X	-	1	-	TEVNB
Formaldehyde (50%)	-	2	X	1	TEN
Formic Acid (Anhyd.)	1	X	X	-	TEVN
<b>Freon</b>					
Freon 11	2	2	X	2	TVNB
Freon 12	2	2	X	2	TVNB
Freon 22	2	2	X	2	TN
Fruit Juices	2	2	X	2	TVNB
Fuel Oil	2	2	2	2	TVNB

Ratings given are based at 70°F

AGENT	Aluminum	Brass	Malleable Iron Carbon Steel	Stainless Steel, 316	Seal Material
Furfural	2	2	2	2	TEN
Gasoline					
Refined Gasoline	2	2	2	2	TVNB
Sour Gasoline	X	2	2	2	TVNB
Gelatin	2	2	X	2	TEVNB
Glucose	2	2	2	2	TEVNB
Glue	2	2	2	2	TEVNB
Glycerine	1	1	2	1	TEVNB
Glycols	2	2	2	2	TEVNB
Green Liquor	-	-	2	-	TEVNB
Heptane	2	2	2	2	TVNB
Hexane	2	2	2	1	TVNB
Hydrobromic Acid (50%)	X	X	X	X	TEV
Hydrobromic Acid (20%)	X	X	X	X	TEV
Hydrochloric Acid (20%)	X	X	X	X	TEVNB
Hydrochloric Acid (38%)	X	X	X	X	TEVN
Hydrocyanic Acid	2	X	2	2	TEVN
Hydrofluosilicic Acid (10-50%)	X	2	X	2	TEVNB
Hydrogen					
Hydrogen Peroxide (50%)	-	X	X	-	TEV
Hydrogen Sulfide (Aqu.)	-	-	-	2	TE
Hydrogen Chloride (Dry Gas)	X	2	2	-	TEVN
Hydrogen Gas	1	1	-	1	TEVNB
Hypochlorous Acid	X	X	X	X	TEV
Iodine	1	X	X	X	TEV
Isopropyl Ether	-	2	-	2	T
Jet Fuel (JP4, JP5)	2	1	2	2	TV
Kerosene	2	2	2	2	TVNB
Ketones	2	2	2	2	T
Lactic Acid (25%)	3	2	X	-	TEVN
Lactic Acid (80%)	2	2	X	-	TEVN
Lard Oil	2	-	3	2	TVB
Lead					
Lead Acetate	X	X	X	2	TENB
Lead Chloride	X	-	-	2	TVNB
Lead Sulfate	X	-	X	2	TEVNB
Lime Sulphur	X	X	X	2	TEVN
Linoleic Acid	2	X	X	2	TVB
Linseed Oil	2	2	2	2	TVNB
Lubricants (Oil)	2	1	2	2	TVNB
Magnesium					
Magnesium Carbonate	2	-	-	2	TEVNB
Magnesium Chloride	X	X	-	-	TEVNB
Magnesium Hydroxide	2	2	2	1	TEVNB
Magnesium Nitrate	2	2	2	2	TEVNB
Magnesium Oxide	-	-	-	-	-
Magnesium Sulfate	2	-	-	2	TEVNB
Maleic Acid	-	2	X	2	TEV
Mercuric					
Mercuric Chloride	X	X	X	-	TEVB
Mercuric Cyanide	X	X	X	2	TEVB
Mercury	X	X	2	1	TEVNB
Methane	1	1	2	1	TEVNB
Methanol	2	2	2	2	TENB
Methyl					
Methyl Bromide	X	-	2	2	TV
Methyl Ethyl Ketone	2	2	2	2	TE
Methyl Isobutyl Ketone	2	2	2	2	T
Methyl Methacrylate	2	-	X	2	T
Methylene Chloride	-	2	2	-	T
Milk	1	X	2	1	TEVNB
Mineral Oil	2	1	2	2	TVNB
Muriatic Acid	X	-	-	X	TV
Napthalene	2	2	2	1	TV
Naptha	2	2	2	2	TVB

Ratings given are based at 70°F

# Swivel Joints

AGENT	Aluminum	Brass	Malleable Iron Carbon Steel	Stainless Steel, 316	Seal Material
Nickel					
Nickel Chloride	X	X	X	-	TEVNB
Nickel Sulfate	X	X	-	2	TEVNB
Nitric					
Nitric Acid (100%)	1	X	X	-	TV
Nitric Acid (50%)	X	X	X	-	TV
Nitric Acid (30%)	X	X	X	-	TV
Nitrobenzene	1	2	2	2	T
Oils					
Castor Oil	2	2	2	2	TEVNB
Coconut Oil	2	-	3	2	TVB
Corn Oil	2	2	2	2	TVNB
Cotton Seed Oil	2	2	2	2	TVNB
Fuel Oil	2	2	2	2	TVNB
Linseed Oil	2	2	2	2	TVNB
Mineral Oil	2	1	2	2	TVNB
Silicon Oil	2	1	2	2	TEVB
Vegetable Oil	2	2	2	1	TVNB
Oleic Acid	2	3	2	1	TB
Oleum	2	X	2	2	TV
Oxalic Acid (Sat.)	2	-	X	X	TEV
Oxygen	2	2	2	2	TEVNB
Palmitic Acid (Sat.)	2	3	3	2	TVB
Paraffin	2	2	2	2	TVNB
Perchloroethylene	2	2	2	-	TV
Petrolatum	2	-	3	2	TVNB
Phenol (Carbolic Acid)	1	1	2	1	TV
Phosphoric Acid					
Phosphoric Acid (25-50%)	X	X	X	-	TEVN
Phosphoric Acid (50-85%)	X	X	X	-	TEV
Photographic Solutions	-	-	X	1	TVNB
Phthalic Anhydride	-	2	2	1	TEV
Picric Acid	1	X	X	2	TEVNB
Plating Solutions					
Brass Plating Solution	-	-	-	2	TEVNB
Cadmium Plating Solution	-	-	-	2	TEVNB
Chrome 40% Plating Solution	X	2	X	2	TEVN
Copper (Cyanide) Plating Solution	-	-	-	-	TEVNB
Gold Plating Solution	-	-	-	1	TEVNB
Iron Plating Solution	-	-	-	-	TEVB
Lead Plating Solution	-	-	-	1	TEVNB
Nickel Plating Solution	-	-	-	1	TEVNB
Silver Plating Solution	-	-	-	1	TEVNB
Tin Plating Solution	-	-	-	3	TEVNB
Zinc Plating Solution	-	-	-	-	TEVNB
Potassium					
Potassium Acetate	X	X	2	-	TEVB
Potassium Bicarbonate (30%)	X	2	2	1	TEVNB
Potassium Carbonate (50%)	X	2	2	1	TEVNB
Potassium Chlorate (30%)	2	X	2	1	TEVNB
Potassium Chloride (30%)	X	X	2	-	TEVNB
Potassium Chromate (30%)	2	2	-	2	TEVB
Potassium Cyanide Solution (30%)	X	X	2	2	TEVNB
Potassium Dichromate (30%)	1	2	2	1	TEVB
Potassium Hydroxide (90%)	X	X	-	-	TENB
Potassium Nitrate (80%)	1	2	2	2	TEVNB
Potassium Permanganate (20%)	2	2	2	2	TEVN
Potassium Sulfate (10%)	1	2	2	1	TEVNB
Propane	1	1	2	2	TVB
Propylene Glycol	2	2	2	2	TVNB
Propylene Oxide (90%)	-	-	-	1	TE
Pyridine	2	2	2	2	T
Pyrogalllic Acid	2	2	2	2	TVNB
Silver Nitrate	X	X	X	1	TEVNB
Soap Solutions	2	2	2	2	TEVNB

Ratings given are based at 70°F

AGENT	Aluminum	Brass	Malleable Iron Carbon Steel	Stainless Steel, 316	Seal Material
Sodium					
Sodium Acetate	1	2	X	2	TEN
Sodium Bicarbonate (20%)	2	2	3	1	TEVNB
Sodium Bisulfate	X	-	2	-	TEVNB
Sodium Bisulfite	X	2	X	-	TEVNB
Sodium Borate	2	2	3	2	TEVNB
Sodium Perborate (10%)	2	X	2	2	TEVNB
Sodium Carbonate	X	2	2	2	TEVNB
Sodium Chlorate (50%)	2	2	X	2	TEVNB
Sodium Cyanide	X	X	2	-	TEVNB
Sodium Dichromate	2	X	2	2	TE
Sodium Hydroxide (70%)	X	X	3	2	TENB
Sodium Hydroxide (50%)	X	X	3	-	TENB
Sodium Hydroxide (30%)	X	2	2	1	TENB
Sodium Chloride (30%)	X	2	2	-	TEVNB
Sodium Hypochlorite	X	X	X	-	TEV
Sodium Metaphosphate	X	X	X	2	TEVNB
Sodium Nitrate (40%)	1	2	2	1	TENB
Sodium Perborate (10%)	2	X	2	2	TEVNB
Sodium Peroxide (10%)	2	X	2	2	TEVNB
Sodium Silicate	1	2	2	2	TEVNB
Sodium Sulfate	-	2	2	1	TEVNB
Sodium Sulfide (50%)	X	X	2	2	TEVNB
Sodium Thiosulphate	2	X	X	2	TEVNB
Stannic Chloride	X	X	X	X	TEVNB
Stannous Chloride	X	X	X	-	TEVNB
Steam	-	-	-	-	-
Stearic Acid	2	3	3	1	TVNB
Stoddard's Solvent	2	2	2	2	TVB
Sugar Liquors (Cane)	1	2	2	2	TEVNB
Sugar Liquors (Beet)	1	2	2	1	TEVNB
Sulfate Liquors	2	X	3	2	TVNB
Sulfite Liquors	X	X	X	2	TVNB
Sulfur Chloride	X	-	X	-	TV
Sulfur Dioxide (Dry)	2	2	1	2	TE
Sulfur Trioxide	2	2	2	2	TEV
Sulfuric Acid (TO 10%)	X	2	X	X	TEVNB
Sulfuric Acid (100%)	X	X	2	-	TV
Sulfurous Acid	2	2	X	-	TV
Tannic Acid	X	-	X	2	TEVNB
Tanning Liquors	1	-	-	1	TVNB
Tartaric Acid	-	-	-	1	TVNB
Titanium Tetrachloride	X	X	2	2	TV
Toluene	1	1	1	1	TVB
Tetrahydrofuran	X	-	1	2	T
Tomato Juice	2	-	3	2	TEVNB
Trichloroethylene	1	-	2	-	TV
Triethanolamine	2	X	2	2	TEVN
Triethylamine	-	-	-	2	TVB
Trisodium Phosphate (10%)	X	2	2	1	TVNB
Turpentine	2	X	2	1	TVB
Urea (50%)	2	-	2	2	TEVNB
Urine	-	-	2	1	TEVNB
Vinegar	2	X	2	2	TEVN
Water Acid (Mine)	X	X	X	-	TEVNB
Water (Distilled)	X	2	X	2	TEVNB
Water (Sea)	2	2	X	2	TEVNB
Whiskey	X	2	2	1	TEVNB
White Liquor (Pulp)	2	-	X	2	TEVNB
Wine	X	2	X	1	TEVNB
Xylene	2	2	2	2	TV
Zinc					
Zinc Chloride	X	X	X	2	TEVNB
Zinc Nitrate	-	-	-	2	TEVNB
Zinc Sulfate (50%)	X	2	X	1	TEVNB

Ratings given are based at 70°F