Corrosion vs. Material

Corrosive Substance	Temp. °F	Temp. °C	Concentration	C. Steel	AISI 304 st. st.	AISI 316 st. st.	Bronze	Brass	Monel 400	Nickel	Hastelloy B	Hastelloy C	Tantalium	PVC	Halar	Teflon	VITON	Fluorolube
Acetic Acid	200	93.3	All	D	C	B	C	D	C	D	C	A	A	C	A	A	C	
Acetic Anhydride	175	79.4	All	D	D	B	D	D	C	C	B	A	A	D	A	A	C	
Acetone	100	37.8	All	B	B	B	A	A	A	A	A	A	A	D	A	A	C	
Acetylene, Dry	400	204.4	100	A	A	A	D	D	B	B	A	A	A	A	A	A	A	
Alcohols	212	100	All	B	B	A	A	A	A	A	A	A	A	A	A	A	A	
Alkali Cleaners	212	100	All	C	B	A	B	D	A	A	A	B	B	A	A	A	A	
Aluminum Chloride	212	100	All	D	D	D	D	D	D	D	A	B	A	A	A	A	A	
Aluminum Hydroxide	212	100	All	B	B	B	B	B	B	B	C	B	A	A	A	A	B	
Aluminum Sulphate	212	100	All	D	D	A	C	D	D	D	A	A	A	A	A	A	A	
Amil Acetate	250	121.1	All	B	B	A	A	A	A	A	A	A	A	D	C	A	C	
Ammonium Chloride	212	100	< 40	D	D	C	C	D	B	B	B	A	A	A	A	A	A	
Ammonium, Dry	600	315.6	100	A	A	A	D	D	A	A	A	A	C	A	A	A	C	
Ammonium Hydroxide	212	100	All	B	B	B	D	D	D	D	B	B	D	A	A	A	B	
Ammonium Nitrate	212	100	All	D	C	B	D	D	D	D	C	B	A	A	A	A	C	•
Ammonium Sulphate	212	100	< 50	D	D	B	C	D	B	B	C	B	A	A	A	A	C	
Aniline	250	121.1	100	A	A	A	D	D	B	B	B	B	A	D	C	A	C	
Argon	300	148.9	100	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Asphalt	250	121.1		B	B	A	B	B	A	A	B	A	A	B	A	A	A	
Atmosphere, Ind &Marine				B	A	A	A	B	A	A	A	A	A	A	A	A	A	
Atmosphere, Rural				B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Bauxite & Water	212	100	All	B	B	A	B	B	B	B	B	B	A	A	A	A	A	
Benzene	212	100	All	B	B	B	A	B	A	A	B	B	A	C	C	A	B	
Benzidine				B	B	B	B	B	B	B	B	B	A	C	A	A	B	
Benzoic Acid				D	D	B	C	C	B	B	A	A	A	A	A	A	A	
Bier	70	21.1		C	C	A	A	B	A	A	A	A	A	A	A	A	A	
Borax (sodium borate)	212	100	< 50	B	B	C	A	A	A	A	A	B	A	A	A	A	A	
Boric Acid	212	100	All	D	D	B	B	B	B	B	A	A	A	A	A	A	A	
Bromine, Dry	125	51.7	100	D	D	D	D	D	A	A	A	A	A	D	A	A	A	
Bromobenzene	212	100	100	C	B	B	B	B	B	B	B	B	A	C	B	A	B	
Butane	212	100		A	A	A	A	A	A	A	A	A	A	B	A	A	A	
Butyl Alcohol	212	100		B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Butyric Acid	212	100	All	D	C	B	C	D	B	C	B	A	A	C	A	A	C	
Calcium Bisolphite	212	100	All	D	C	B	D	D	D	D	D	C	A	A	A	A	A	
Calcium Chloride	212	100	All	C	C	C	B	C	B	A	B	A	A	A	A	A	A	
Calcium Hydroxide	212	100	10	B	B	B	B	B	B	B	B	A	C	A	A	A	A	
Calcium Hypochlorite	212	100	All	D	D	D	C	C	D	D	C	B	A	A	A	A	B	•
Carbon Dioxide, Dry	100	37.8		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Carbon Sulphide	125	51.7		B	B	A	B	A	B	B	A	A	A	D	A	A	A	
Carbon Tetrachloride, Dry	212	100	100	C	A	A	A	C	A	A	D	B	A	D	C	A	A	
Carbon Tetrachloride, Moist	212	100		D	D	C	D	D	A	A	D	B	A	D	C	A	A	
Carbonated Water	212	200	All	D	A	B	B	D	C	C	A	A	A	A	A	A	A	
Carbonic Oxide	300	148.9		A	A	A	A	B	A	A	A	A	A	A	A	A	A	
Caustic Potassium	212	100	<50	D	B	B	D	D	A	A	B	C	D	A	A	A	C	
Caustic Soda	212	100	All	C	C	C	D	D	B	B	B	C	D	A	A	A	C	
Caustic Soda	212	100	<40	C	B	A	B	D	A	A	A	B	D	A	A	A	C	
Cement Slurry	212	100	All	B	A	A	B	B	B	B	B	B	C	A	A	A	C	
Chloride	500	260		B	A	A	D	D	B	C	B	A	A	A	A	A	C	
Chlorine Dioxide	150	65.6		D	D	D	D	D	D	D	B	B	A	D	B	A	B	
Chlorine, Dry	200	93.3	100	B	B	C	B	C	B	B	C	A	A	C	A	A	A	•
Chlorine, Moist	200	93.3	All	D	D	D	D	D	D	D	D	A	A	C	A	A	A	•
Chloroacetic Acid	212	100	All	D	D	D	D	D	C	C	B	A	A	C	A	A	C	

A = Recommended	Best service life	Attack <0,05mm / year	This table is a guide. Purchaser will directly choose the most appropriate materials for the process conditions.
B = Suitable	Good service life	Attack 0,05…0,5mm / year	
C = Not recommended	Fair service life	Attack 0,5…1,27mm/ year	
D = Unsuitable	No service life	Attack > 1,27mm / year	

Corrosive Substance	Temp. °F	Temp. °C	Concentration	C. Steel	AISI 304 st. st.	AISI 316 st. st.	Bronze	Brass	Monel 400	Nickel	Hastelloy B	Hastelloy C	Tantalium	PVC	Halar	Teflon	VITON	Fluorolube
Chlorobenzene	150	65.6	100	C	B	B	B	C	B	B	B	B	A	D	B	A	A	
Choroform, Dry	150	65.6	All	A	B	C	B	B	A	A	B	B	A	C	B	A	A	
Chromic Acid	212	100	All	C	D	D	D	D	D	D	D	D	A	C	A	A	A	
Chromium Plating Solution	212	100	All	C	D	D	D	D	D	D	D	D	A	C	A	A	A	
Citric Acid	212	100	All	D	C	A	C	D	C	C	A	A	A	A	A	A	A	
Coffee	212	100	All	D	B	A	A	C	B	B	B	A	A	A	A	A	A	
Copper Chloride	212	100	All	D	D	D	C	D	D	D	D	D	A	A	A	A	A	
Copper Nitrate	212	100	All	D	B	B	D	D	D	D	D	D	A	A	A	A	A	•
Copper Plating Solutions (Acid)	212	100	All	D	C	B	D	D	B	B	C	C	A	A	A	A	A	
Copper Plating Solutions (cyanide)	212	100	All	B	A	A	D	D	B	B	B	A	A	A	A	A	A	
Copper Sulphate	212	100	<40	D	C	B	C	D	D	D	C	A	A	A	A	A	A	
Corn Oil	500	260	All	D	B	A	A	C	B	B	A	A	A	A	A	A	A	
Creosol	212	100	All	B	A	A	B	C	B	B	B	A	A	D	A	A	A	
Creosote	212	100		B	B	B	B	C	B	B	B	A	A	D	A	A	A	
Crude Oil	300	148.9	All	B	B	B	B	C	A	B	B	C	A	B	A	A	A	
Ethanol	212	100	All	B	A	A	A	A	A	A	B	A	A	A	A	A	A	
Ethyl Acetate	212	100	100	D	B	B	B	B	B	C	C	B	A	D	C	A	C	
Ethyl Chloride, Dry	212	100		B	C	A	A	A	B	A	B	B	A	D	A	A	A	
Ethylene Glycol	212	100	All	C	B	B	B	B	B	B	A	A	A	A	A	A	A	
Ethylene Oxide	75	23.9	100	B	A	B	D	D	B	B	A	A	A	C	B	A	C	
Fatty Acids	500	260	100	D	C	A	C	C	B	A	A	A	A	A	A	A	A	
Ferric Chloride	150	65.6	<50	D	D	D	D	D	D	D	D	B	A	A	A	A	A	
Ferric Sulphate	150	65.6	10	D	B	A	D	D	D	B	B	A	A	A	A	A	A	
Ferrous Chloride	212	100	<50	D	D	D	C	D	D	D	B	B	A	A	A	A	A	
Ferrous Sulphate	212	100	All	D	C	B	C	D	C	D	B	B	A	A	A	A	A	
Fluorine, Gas	300	148.9	100	D	A	A	C	C	A	A	C	B	D	B	A	A	C	
Fluorine, Liquid	75	23.9	100	D	A	A	B	C	A	A	C	B	C	B	B	A	C	
Fluorosilicic Acid	75	23.9	10	D	B	B	C	C	A	B	B	A	C	A	A	A	B	
Formaldehyde	212	100	<50	D	B	A	B	B	B	B	B	A	A	B	B	A	B	
Formic Acid	212	100	All	D	B	D	B	C	B	B	A	A	A	B	A	A	A	
Gasoline	200	93.3		A	A	A	A	A	C	A	A	A	A	B	A	A	A	
Glucose	300	148.9	All	B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Glue	300	148.9	All	C	A	A	A	B	A	A	A	A	A	A	A	A	A	
Glycerine	212	100	All	B	A	A	B	B	A	A	A	A	A	A	A	A	A	
Hexane, Dry	212	100		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Hydrobromic Acid	212	100	All	D	D	D	D	D	D	D	B	D	A	B	A	A	A	
Hydrochloridric Acid	212	100	All	D	D	D	D	D	D	D	B	C	A	B	A	A	A	
Hydrofluoric Acid	212	100	All	D	D	D	C	D	B	D	B	B	D	C	A	A	C	
Hydrogen	500	260		B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Hydrogen Chloride	400	204.4		D	C	C	D	D	A	A	A	A	A	A	A	A	A	
Hydrogen Fluoride, Dry	200	93.3	100	C	B	B	C	C	B	B	C	B	C	A	A	A	C	
Hydrogen Peroxide	212	100	30	D	C	B	D	D	C	C	C	C	A	A	A	A	A	•
Hydrogen Peroxide	212	100	100	D	C	C	D	D	C	C	D	C	A	A	A	A	A	•
Kerosene	300	148.9		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Lacquers & Thinners	200	93.3	All	B	A	A	A	B	A	A	A	A	A	D	C	A	C	
Lactic Acid	212	100	All	D	C	B	D	D	D	D	B	B	A	A	C	A	A	
Lime	212	100	All	B	B	B	B	B	B	B	B	A	A	A	A	A	A	
Linseed Oil	75	23.9		A	A	A	B	C	B	B	B	B	A	A	A	A	A	
Magnesium Chloride	212	100	<40	D	D	C	B	C	B	A	A	A	B	A	A	A	A	
Magnesium Oxide	212	100	All	B	B	B	A	B	B	A	B	B	D	A	A	A	A	
Magnesium Sulphate	212	100	<50	B	A	A	A	B	A	A	C	A	A	A	A	A	A	
Mercuric Chloride	75	23.9	10	D	D	D	D	D	D	C	C	B	A	A	A	A	A	

A = Recommended	Best service life	Attack <0,05mm / year	This table is a guide. Purchaser will directly choose the most appropriate materials for the process conditions.
B = Suitable	Good service life	Attack 0,05…0,5mm / year	
C = Not recommended	Fair service life	Attack 0,5…1,27mm/ year	
D = Unsuitable	No service life	Attack > 1,27mm / year	

Corrosive Substance	Temp. °F	Temp. °C	Concentration	C. Steel	AISI 304 st. st.	AISI 316 st. st.	Bronze	Brass	Monel 400	Nickel	Hastelloy B	Hastelloy C	Tantalium	PVC	Halar	Teflon	VITON	Fluorolube
Mercury				A	A	A	D	D	C	B	B	B	A	A	A	A	A	
Methyl Chloride, Dry	212	100	100	A	B	A	A	B	B	B	B	B	A	D	A	A	A	
Methylene Chloride	212	100	100	C	C	C	C	B	B	C	A	A	A	D	C	A	B	
Milk				D	A	A	B	C	C	A	B	B	A	A	A	A	A	
Naphta	75	23.9	100	B	A	A	A	A	A	A	B	A	A	B	A	A	A	
Naphtaline	212	100	100	A	A	A	B	B	B	B	B	B	A	C	A	A	A	
Nickel Chloride	212	100	<40	D	D	C	D	D	B	C	A	B	A	A	A	A	A	
Nickel Sulphate	212	100		D	C	B	B	C	B	B	B	B	A	A	A	A	A	
Nitric Acid	75	23.9	All	D	A	A	D	D	D	D	D	B	A	A	A	A	A	•
Nitric Acid	212	100	All	D	C	C	D	D	D	D	D	D	A	C	B	A	C	•
Oxalic Acid	212	100	All	D	D	D	B	C	B	C	B	B	A	A	A	A	A	
Oxygen	300	148.9	All	A	A	A	A	A	A	A	A	A	A	A	A	A	A	•
Perchloric Acid	120	48.9	All	D	D	D	D	D	D	D	C	D	A	D	A	A	A	
Phenol	175	79.4	100	B	B	A	A	B	A	A	A	A	A	C	A	A	A	
Phosphoric Anhydride	212	100	All	D	C	C	D	D	D	D	B	C	A	A	A	A	A	
Phthalic Anhydride	250	121.1	100	B	A	A	C	C	A	A	B	A	A	C	B	A	B	
Picric Acid	212	100	All	D	B	B	D	D	D	D	D	B	A	C	A	A	A	
Propan	300	148.9		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Quinine	212	100	100	D	B	B	B	B	B	B	B	B	A	A	A	A	A	
Resin Solution	150	62.6	All	D	B	A	B	B	B	B	B	A	A	D	A	A	C	
Rochelle Salt	212	100	100	D	B	B	B	C	B	B	B	B	A	A	A	A	A	
Rosin	700	371.1	100	D	B	B	B	B	A	A	B	A	A	A	A	A	A	
Sea Water	75	23.9		D	C	C	D	C	A	A	A	A	A	A	A	A	A	
Silicate Solutions	212	100	All	B	A	A	B	B	A	A	A	A	A	A	A	A	A	
Silicone Fluids	212	100	100	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Silver Nitrate	212	100	<60	D	B	B	D	D	D	D	B	C	A	A	A	A	A	•
Soap & Detergents	212	100	All	B	A	A	A	B	A	A	A	A	A	A	A	A	A	
Sodium Bicarbonate	212	100	20	B	A	A	B	B	A	A	B	B	A	A	A	A	A	
Sodium Bisulphate	212	100	<10	D	B	B	B	D	B	B	B	B	A	A	A	A	A	
Sodium Bisulphite	212	100	<40	D	D	C	C	C	B	C	C	B	A	A	A	A	A	
Sodium Carbonate	212	100	<40	B	B	B	B	C	B	B	B	B	A	A	A	A	A	
Sodium Chloride	212	100	<40	C	C	C	B	B	B	B	B	B	A	A	A	A	A	
Sodium Cyanide	212	100	10	B	A	A	D	D	D	D	B	C	A	A	A	A	A	
Sodium Hydroxide	180	82.2	<60	C	B	A	B	C	A	A	A	B	D	A	A	A	C	
Sodium Hypochlorite	75	23.9	10	D	D	D	D	D	D	D	C	A	A	A	A	A	A	•
Sodium Nitrate	212	100	<50	B	A	A	C	C	B	B	C	B	A	A	A	A	B	•
Sodium Nitrate	212	100	60	B	C	B	B	B	B	B	B	B	A	A	A	A	B	
Sodium Peroxide	212	100	10	B	B	B	C	D	B	B	B	B	A	A	A	A	A	•
Sodium Phosphare (Tribasic)	212	100	All	B	A	A	B	B	B	B	A	B	A	A	A	A	A	
Sodium Silicate	212	100	All	B	A	A	B	B	B	B	B	B	A	A	A	A	A	
Sodium Sulphate	212	100	<50	B	B	B	B	B	B	B	B	B	A	A	A	A	A	
Sodium Sulphate	212	100	10	D	A	A	C	D	B	B	C	B	A	A	A	A	A	
Sodium Sulphide	175	79.4	20	D	A	A	D	D	B	B	B	B	D	A	A	A	A	
Steam	800	426.7		A	A	A	D	D	B	B	B	B	A	C	A	A	B	
Sulphur Chloride, Dry	212	100	100	D	B	C	C	C	C	B	C	B	A	A	A	A	A	
Sulphur Dioxide, Dry	500	260	100	B	B	B	C	D	B	B	B	B	A	A	A	A	C	
Sulphur Trioxide, Dry	300	148.9		B	B	B	C	C	B	B	A	B	D	A	A	A	A	
Sulphuric Acid	212	100	10	D	D	D	D	D	D	D	C	B	A	A	A	A	A	
Sulphuric Acid	212	100	<30	D	D	D	D	D	D	D	B	C	A	B	A	A	A	
Sulphuric Acid	212	100	100	D	D	D	D	D	D	D	B	B	A	C	A	A	A	
Sulphuric Acid, Fuming	175	79.4	100	D	A	B	D	D	D	D	B	B	C	C	A	A	B	
Sulphurous Acid	212	100	All	D	C	C	C	C	C	C	B	B	A	A	A	A	A	
Tannic Acid	212	100	All	C	B	B	B	C	B	B	B	B	A	A	A	A	A	
Tartaric Acid	212	100		D	A	A	B	C	B	B	B	B	A	A	A	A	A	

A = Recommended	Best service life	Attack <0,05mm / year	This table is a guide. Purchaser will directly choose the most appropriate materials for the process conditions.
B = Suitable	Good service life	Attack 0,05…0,5mm / year	
C = Not recommended	Fair service life	Attack 0,5…1,27mm/ year	
D = Unsuitable	No service life	Attack > 1,27mm / year	

Corrosive Substance	Temp. °F	Temp. °C	Concentration	C. Steel	AISI 304 st. st.	AISI 316 st. st.	Bronze	Brass	Monel 400	Nickel	Hastelloy B	Hastelloy C	Tantalium	PVC	Halar	Teflon	VITON	Fluorolube
Tin Chloride	125	51.7	All	D	D	D	D	D	D	D	B	B	A	A	A	A	A	
Titanium Tetrachloride, Dry	75	23.9	100	A	B	B	D	D	B	B	B	B	A	A	A	A	A	
Toluene	212	100		A	A	A	A	A	A	A	A	A	A	D	A	A	B	
Trichloroacetic Acid	212	100	All	D	D	D	D	D	B	C	B	B	A	D	C	A	C	
Trichloroethane, Dry	125	51.7		A	A	A	A	A	A	A	A	A	A	D	C	A	B	
Trichloroethylene, Dry	300	148.9		B	B	B	B	B	A	A	B	A	A	D	D	A	A	
Turpentine	75	23.9	100	B	A	A	A	B	A	B	A	A	A	C	A	A	A	
Urea	100	37.8	50	C	A	A	B	B	B	B	B	B	A	A	A	A	A	
Varnish	250	121.1		A	A	A	B	B	A	A	A	A	A	D	A	A	A	
Vynil Chloride	150	65.5	100	C	B	B	C	C	A	A	B	A	A	D	A	A	A	
Water (demineralized)	212	100		C	A	A	A	B	A	A	A	A	A	A	A	A	A	
Whiskey (hot mash)	212	100		C	A	A	B	B	A	B	A	A	A	B	A	A	A	
Zinc Chloride	212	100	<40	D	D	D	C	D	B	B	B	B	A	A	A	A	A	
Zinc Sulphate	212	100	<30	D	A	A	B	D	B	B	B	B	A	A	A	A	A	

A = Recommended	Best service life	Attack <0,05mm / year	This table is a guide. Purchaser will directly choose the most appropriate materials for the process conditions.
B = Suitable	Good service life	Attack 0,05…0,5mm / year	
C = Not recommended	Fair service life	Attack 0,5…1,27mm/ year	
D = Unsuitable	No service life	Attack > 1,27mm / year	