FLANGE GUARDS™

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Chemical resistance Guide

Environmental conditions in industrial plants may vary and thus, affect material performance. Since chemical attack and resistance are very complex phenomena, this Chemical Resistance Guide is intended only as a "guide" subject to adjustment by engineers and piping designers for local conditions and individual industrial plant experience.

The data presented in the following table were obtained from various sources including field reports from end-users as well as source material from suppliers and the published literature.

Consequently, it is the end-user and not the manufacturer who assumes all responsibility and risk for proper evaluation, application and performance of safety shields for any and all specific uses.

PVC Polyvinyl Chloride
ECTFE Clear Teflon
PTFE Woven Teflon
316 316 Stainless Steel
NR Not Recommended
- No Data Available

Fluid	PVC °C	Clear ECTFE °C	PTFE °C	316 °C
Acetaldehyde	NR		232	
Acetic acid (10%)	60	100	232	500
Acetic acid (50%)	60	100	232	500
Acetic acid (80%)	23	148	232	500
Acetic acid (glacial)	NR	100	232	500
Acetone (10-100%)	NR	49	232	500
Acetophenone	NR	49	232	500
Acetyl chloride	NR	49	232	500
Acetylene tetrabromide	NR		232	
Acetylene tetrachloride	NR		232	500
Aluminum chloride	60	149	232	
Aluminum hydroxide	60	149	232	500
Aluminum nitrate	60	149	232	500
Aluminum oxychloride	60	149	232	
Aluminum sulfate	60	149	232	500
Ammonia (liquid)	NR		232	500
Ammonium bromide (50%)	NR		232	500
Ammonium carbonate (saturated)	60	149	232	500
Ammonium chloride	60	149	232	500
Ammonium dichromate	NR	121	232	
Ammonium fluoride (25%)	60	149	232	
Ammonium fluoride (saturated)			232	
Ammonium hydroxide (10%)	60	149	232	500
Ammonium hydroxide (cone)	NR		232	500
Ammonium nitrate	60	149	232	500
Ammonium phosphate	60	149	232	500
Ammonium sulfate	60	149	232	500
Amyl alcohol	40	149	232	
Aniline	NR	100	232	

Fluid	PVC °C	Clear ECTFE °C	PTFE °C	316 °C
Aqua regia	23	100	232	
Arsenic acid	60	149	232	500
Barium carbonate	60	149	232	500
Barium chloride	60	149	232	500
Barium hydroxide	60	149	232	500
Barium sulfate	60	149	232	500
Barium sulphide	23	149	232	
Benzaldehyde	NR	49	232	500
Benzenesulfonic acid	60	49	232	500
Benzoic acid	60	121	232	500
Benzylamine			232	
Benzyl chloride			232	
Bismuth carbonate	60	149	232	
Black liquor	60	149	232	500
Boric acid	60	149	232	500
Bromine (liquid)	NR	49	232	NR
Bromine chloride	NR		121	
Butyl acetate	NR	22	232	500
Butyl alcohol (butanol)	60	149	232	
Butyl bromide	NR		232	
Butyl chloride	NR		232	
Butyric acid	23	121	232	500
Calcium bisulfide	60	149	232	500
Calcium bisulfite	60	149	232	500
Calcium carbonate	60	149	232	500
Calcium chlorate	60	149	232	500
Calcium chloride (saturated)	60	149	232	500
Calcium chlorite	60		232	500
Calcium hydroxide (saturated)	60	149	232	500
Calcium hypochlorite	60	149	232	500
Calcium nitrate	60	149	232	
Calcium oxide	60	149	232	
Calcium sulfate	60	149	232	500
Carbon tetrachloride	NR	149	232	500
Chlorine dioxide	NR	100	232	NR
Chromic acid (50%)	23	100	232	500
Chromic acid (100%)	NR		232	500
Chromium trioxide (30%)	60		232	500
Copper carbonate (basic)	60	149	232	500
Copper chloride (saturated)	60	149	232	NR
Copper cyanide (10%)	60	149	232	500
Copper fluoride	60	149	232	500
Copper nitrate	60	149	232	500
Copper sulfate (saturated)	60	149	232	500
Cresol	23	100	232	500
Cresylic ac id (50%)	60	49	232	500
Cyclohexanone	NR	49	232	500
Diethylamine	NR		232	
Diethyl ether	NR	23	232	
Diisobutyl ketone	NR	100	232	500

Fluid	PVC °C	Clear ECTFE °C	PTFE °C	316 °C
Disodium phosphate	60	149	232	500
Ethyl acetate	NR	49	232	500
Ethyl alcohol (ethanol)	60	149	232	500
Ethyl chloride	NR	149	232	500
Ethylene dibromide	NR		232	500
Ethylene dichloride	NR	23	232	500
Ethylene glycol	60	149	232	500
Ferric chloride	60	149	232	NR
Ferric nitrate	60	149	232	500
Ferric sulfate	60	149	232	500
Ferrous chloride	60	149	232	NR
Ferrous nitrate	60	149	232	
Fluosilicic acid	60	149	232	
Formaldehyde (50%)	60		232	500
Formic acid	23	121	232	500
Gasoline (petroleum)		149	232	500
Glucose	60	149	232	500
Hydrobromic acid (10%)	60	149	232	
Hydrobromic acid (50%)	60	149	232	NR
Hydrochloric acid (10-20%)	60	149	232	500
Hydrochloric acid (35%)	60	149	232	500
Hydrofluoric acid (30%)	20	NR	NR	500
Hydrofluoric acid (50-60%)	20	NR	NR	500
Hydrofluoric acid (100%)	NR	NR	NR	500
Hydrogen peroxide (8-90%)	20	49	232	500
Hydrogen sulfide (aqueous)	60	49	232	500
Lactic acid (80%)	20	49	232	500
Lauryl chloride	23	100	232	
Magnesium carbonate	60	149	232	500
Magnesium chloride	60	149	232	500
Magnesium hydroxide	60	149	232	500
Magnesium nitrate	60	149	232	500
Magnesium sulfate (10%)	60	149	232	500
Magnesium sulfate (saturated)		149	232	500
Manganese sulfate (10%-saturated)	60		232	500
Mercuric chloride	60	121	232	500
Mercuric nitrate	60		232	500
Mercury	60	149	232	500
Methyl alcohol (methanol)	60	149	232	500
Methyl bromide	NR	149	232	500
Methyl chloride	NR	149	232	500
Methyl ethyl ketone	NR	49	232	500
Methyl salicylate	NR		232	500
Naphtha	60		232	500
Nickel chloride	60	149	232	500
Nitric acid (10%)	60	121	232	500
Nitric acid (50%)	60	100	232	500
Nitric acid (70%)	23	100	232	500
Nitric acid (fuming)	NR		232	500

Fluid	PVC °C	Clear ECTFE °C	PTFE °C	316 °C
Oleum	NR	23	232	500
Perchloric acid (10%)	40	100	232	500
Perchloric acid (70%)	NR	49	232	500
Phenol (5%)	23	49	232	500
Phenol (100%)		49	232	500
Phosgene (wet)	NR		232	
Phosphoric acid (10-50%)	60	149	232	500
Phosphoric acid (50-85%)	60	149	232	500
Phthalic acid	20		232	500
Potassium aluminum chloride	60		232	
Potassium aluminum sulfate (50%)	60	149	232	
Potassium bicarbonate	60		232	500
Potassium borate	60	121	232	
Potassium bromate	60		232	
Potassium bromide	60	149	232	500
Potassium carbonate	60	149	232	500
Potassium chlorate	60	149	232	500
Potassium chloride	60	149	232	500
Potassium chromate	60	149	232	
Potassium cyanide	60	149	232	500
Potassium fluoride	60		232	
Potassium hydroxide (10%)	60	149	232	500
Potassium hydroxide (50%)	60	149	232	500
Potassium hydroxide (60-90%)			232	500
Potassium hypochlorite	60		232	
Potassium nitrate	60	149	232	500
Potassium sulfate	60	149	232	500
Potassium sulfide	40		232	500
Propylene dibromide			232	
Propylene dichloride	N R		232	500
Sodium bromide	60	149	232	500
Sodium chlorate	60	149	232	500
Sodium chloride	60	149	232	500
Sodium chlorite	60	121	232	500
Sodium fluoride (saturated)	60	149	232	500
Sodium hydroxide (<10%)	60	149	232	500
Sodium hydroxide (10-50%)	60	121	232	500
Sodium hydroxide (>50%)	0		232	
Sodium hypochlorite	60	121	232	500
Sodium iodide	40	149	232	500
Sodium nitrite	60	149	232	500
Sodium peroxide	60	149	232	500
Sodium phosphate	60	149	232	500
Sodium silicate	60	149	232	500
Sodium sulfate	60	149	232	500
Sodium sulfide	40	149	232	500
Sodium sulfite	40	149	232	500
Stannic chloride	60	149	232	NR
Sulfur chloride	60	23	232	NR

Fluid	PVC °C	Clear ECTFE °C	PTFE °C	316 °C
Sulfuric acid (10%)	60	100	232	500
Sulfuric acid (16%)	60	100	232	500
Sulfuric acid (30%)	60	100	232	500
Sulfuric acid (60%)	60	121	232	500
Sulfuric acid (85%)	NR	121	232	500
Sulfuric acid (93-98%)	NR	121	232	500
Sulfuric acid fuming (>98%)	NR		232	500
Tannie acid	60	149	232	500
Titanium tetrachloride	NR		232	500
Toluene	NR	23	232	500
Trichloroacetic (10%)	23	49	232	
Trichloroacetic (100%)	20	49	232	NR
Urea	60	60	232	500
Zinc chloride	60	149	232	500
Zinc nitrate	60	149	232	500
Zinc sulfate	60	149	232	500