

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins

Chemical Environment	Concentration	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Acetaldehyde	20	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acetaldehyde	100	NR	NR	NR	NR	NR	NR	NR	NR
Acetic Acid	0.5 - 25	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
Acetic Acid	26 - 50	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Acetic Acid	51 - 75	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Acetic Acid, Glacial	76 - 85	45/110	45/110	45/110	45/110	45/110	45/110	45/110	45/110
Acetic Acid, Glacial	100	NR	NR	NR	NR	NR	NR	NR	NR
Acetic Anhydride	100	NR	NR	NR	NR	NR	NR	NR	NR
Acetic Acid/Nitric Acid/Chromic Oxide	3/5/3	65/150	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Acetic Acid/Sulfuric Acid	20/10	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
Acetone	10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Acetone	20	30/85	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acetone	100	NR	NR	NR	NR	NR	NR	NR	NR
Acetone, Fumes, no condensation or coalescence	fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Acetonitrile	20	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acetonitrile	100	NR	NR	NR	NR	NR	NR	NR	NR
Acetonitrile, Fumes, no condensation or coalescence	fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Acrylamide	50	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acrylic Acid <7>	25	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acrylic Acid	100	NR	NR	NR	NR	NR	NR	NR	NR
Acrylic Latex	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Acrylonitrile	7 (max. solubility at 20°C.)	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acrylonitrile	100	NR	NR	NR	NR	NR	NR	NR	NR
Acrylonitrile Latex dispersion <7>	2	25/80	25/80	25/80	25/80	25/80	25/80	25/80	25/80
Activated Carbon Beds, Water Treatment	23	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Adipic Acid (1.5 g sol. in water at 25°C, sol. hot water)	23	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Air (max. surface temperature of the FRP) <16>	180/360	180/360	200/392	160/320	160/320	160/320	160/320	160/320	160/320
Alachlor, Herbicide <4>	All	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Alcohol, Amyl	100	50/120	60/140	65/150	50/120	60/140	65/150	50/120	60/140
Alcohol, Butyl	100	50/120	65/150	50/120	65/150	50/120	65/150	50/120	65/150
Alcohol, Ethyl	95	25/80	25/80	40/100	25/80	25/80	40/100	25/80	25/80
Alcohol, Isodecyl	100	50/120	65/150	80/180	50/120	65/150	80/180	50/120	65/150
Alcohol, Propyl	100	40/100	40/100	50/120	40/100	40/100	50/120	40/100	40/100
Alkaline Cleaner (see Sodium and Potassium Hydroxides)									
Alkaline Solutions: See sodium, potassium, and ammonium hydroxides, and carbonates									
Alkane Sulfonate, see Sodium Dodecylbenzene Sulfonate									
Alkyl (C8-C10) Dimethyl Amine Sulfonate	100	80/180	95/200	100/210	80/180	95/200	100/210	80/180	95/200
Alkyl (C8-C18) Chloride	> 0.5	80/180	95/200	100/210	80/180	95/200	100/210	80/180	95/200
Alkyl Aryl Sulfonic Acid, see Alkyl Benzene Sulfonic Acid									
Alkyl Benzene Sulfonic Acid <6>	> 0.5	80/180	95/200	100/210	80/180	95/200	100/210	80/180	95/200
Alkylidiphenyloxide Disulfonate (Surfactant type: Anionic)	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120

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	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Alkyl Toly Trimethyl Ammonium Chloride		40/100	50/120	50/120	40/100	50/120	
Allyl Alcohol		100	NR	NR	NR	NR	NR
Allyl Chloride		100	25/80	25/80	NR	NR	NR
Alpha-Cleum Sulfates		100	50/120	50/120	50/120	50/120	NR
Alpha-Methylstyrene		100	25/80	40/100	25/80	40/100	NR
Alum		Sat'd	100/210	120/250	100/210	120/250	80/180
Alumina Hydrate		All	80/180	80/180	80/180	80/180	80/180
Aluminum Chloride		Sat'd	100/210	120/250	100/210	120/250	80/180
Aluminum Chlorohydrate		> 0.5	100/210	100/210	100/210	100/210	80/180
Aluminum Chlorohydrate/ Hydrochloric Acid	> 0.5 / <15	80/180	100/210	100/210	80/180	100/210	65/150
Aluminum Chlorohydroxide		50	100/210	100/210	100/210	100/210	80/180
Aluminum Fluoride		All	25/80	25/80	25/80	25/80	25/80
Aluminum Hydroxide		100	80/180	80/180	95/200	80/180	80/180
Aluminum Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Aluminum Potassium Sulfate		Sat'd	100/210	120/250	100/210	120/250	80/180
Aluminum Sulfate		Sat'd	100/210	120/250	100/210	120/250	80/180
Aluminum Sulfate Reactor <10>	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Amite Salts		All	50/120	65/150	50/120	65/150	
Amino Acids		All	40/100	40/100	40/100	40/100	40/100
Ammonia	Liquid Gas	NR	NR	NR	NR	NR	NR
Ammonia Gas		100	40/100	40/100	40/100	40/100	40/100
Ammonia Vapors (wet)	40 vol-%	80/180	80/180	80/180	80/180	80/180	
Ammonia, Aqueous (see Ammonium Hydroxide)							
Ammonium Acetate	> 0.5	25/80	25/80	40/100	25/80	25/80	NR
Ammonium Bicarbonate	0.5 - 50	70/160	70/160	70/160	70/160	70/160	70/160
Ammonium Bifluoride <1>	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Bisulfite black liquor		80/180	80/180	80/180	80/180	80/180	
Ammonium Bisulfite cooking liquor		80/180	80/180	80/180	80/180	80/180	
Ammonium Bromate	0.5 - 43	70/160	70/160	70/160	70/160	70/160	70/160
Ammonium Bromide	0.5 - 43	70/160	70/160	70/160	70/160	70/160	70/160
Ammonium Carbonate	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ammonium Citrate	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Fluoride <1>	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Hydroxide	0.5 - 5	80/180	80/180	80/180	80/180	80/180	80/180
Ammonium Hydroxide	6 - 20	65/150	65/150	40/100	40/100	40/100	65/150
Ammonium Hydroxide	30 (as NH3)	40/100	40/100	40/100	40/100	40/100	40/100
Ammonium Hydroxide/ Ammonium Chloride/ 35/5	30 (as NH3)	40/100	40/100	40/100	40/100	40/100	40/100
Ammonium Lauryl Sulfate	0.5 - 30	50/120	50/120	50/120	50/120	50/120	50/120
Ammonium Ligno Sulfonate	0.5 - 50	80/180	80/180	80/180	80/180	80/180	65/150
Ammonium Molybdate	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Nitrate	Sat'd	100/210	120/250	120/250	105/220	120/250	80/180
Ammonium Oxalate	> 0.5	65/150	65/150	65/150			
Ammonium Pentaborate	0.5 - 12	50/120	50/120	50/120			50/120
Ammonium Perchlorate	0.5 - 15	75/170					
Ammonium Persulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ammonium Phosphate, dibasic	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ammonium Phosphate, monobasic	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ammonium Polysulfide	> 0.5	50/120	50/120	65/150			50/120
Ammonium Propionate	> 0.5	25/80	25/80	40/100	25/80	25/80	NR
Ammonium Sulfate	Sat'd	100/210	120/250	120/250	105/220	120/250	80/180
Ammonium Sulfate/ Ethyl Alcohol/ Ethoxyate	60/15/3	40/100	50/120	65/150	40/100	50/120	40/100
Ammonium Sulfite (Bisulfide)	Sat'd	50/120	50/120	50/120			50/120
Ammonium Sulfite	Sat'd	65/150	65/150	65/150			65/150
Ammonium Thiocyanate	0.5 - 20	100/210	100/210	100/210	100/210	100/210	80/180
Ammonium Thiocyanate							

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40.

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	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Ammonium Thioglycolate	All	40/100	40/100	40/100	40/100	40/100	40/100
Ammonium Thiosulfate	All	60/140	60/140	60/140	60/140	60/140	60/140
Amyl Acetate	> 0.5	20/70	40/100	50/120	50/120	50/120	50/120
Amyl Alcohol	100	50/120	60/140	50/120	50/120	60/140	50/120
Amyl Alcohol, Vapor	100	50/120	100/210	50/120	50/120	100/210	50/120
Amyl Chloride	100	50/120	50/120	40/100	40/100	50/120	50/120
Aniline	20	40/100	40/100	40/100	40/100	40/100	40/100
Aniline Hydrochloride	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Aniline Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210
Animal Fat	100	80/180	100/210	100/210	100/210	100/210	100/210
Anionic Surfactant	All	40/100	50/120	50/120	40/100	50/120	50/120
Anionic/Cationic Polymer Emulsions in Kerosene or Petroleum Distillates/Water	0-50	40/100	50/120	50/120			
Anodize (15% Sulfuric acid)		100/210	100/210	100/210	100/210	100/210	100/210
Antimony Pentachloride, for aqueous solutions	> 99	40/100	40/100	40/100	40/100	40/100	40/100
see Hydrochloric Acid							
Aqua Regia <6>							
Aromatic Naphthalene/ Naphthalene/ Isopropanol	60/5/10		50/120	50/120	50/120	50/120	50/120
Arsenic Acid	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Arsenic Acid/ Copper Sulfate/ Sodium Dichromate	17/3/7/20	80/180	80/180	80/180	80/180	80/180	80/180
Arsenic Pentoxide/ Copper Oxide/ Chromic Acid	17/9/24	40/100	40/100	40/100	40/100	40/100	40/100
Arsenous Acid	19°Be	80/180	80/180	80/180	80/180	80/180	65/150
Barium Acetate	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Barium Bromide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Barium Carbonate (slurry)	All	80/180	80/180	80/180	80/180	80/180	80/180
Barium Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Barium Cyanide	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Barium Hydroxide	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Barium Sulfate	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Barium Sulfide	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Barley Solution <18>	> 0.5	75/170	75/170	50/120			
Beer <18>	> 0.5	50/120	50/120	50/120			
Beet Sugar Liquor <18>	> 0.5	80/180	80/180	80/180			
o-Benzoyl Benzoic Acid	All	100/210	100/210	100/210	100/210	100/210	65/150
Benzaldehyde	100	NR	NR	20/70	NR	NR	NR
Benzalkonium Chloride	Dilute	40/100	40/100	40/100			40/100
Benzene	100	NR	NR	40/100	NR	LS	NR
Benzene, 50°C/120°F	100	NR	NR	40/100	NR	LS	NR
Benzene Sulfonic Acid <6>	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Benzene, Vapor	25/80	25/80	25/80	50/120	NR	25/80	NR
Benzene/ Methyl Tertiary Butyl Ether	80/20	NR	NR	40/100	NR	LS	NR
Benzene/Ethyl Benzene/Toluene/ Trimethyl Benzene/ Xylene	All	NR	NR	40/100	NR	LS	NR
Benzene: Ethylbenzene	33/67	NR	25/80	40/100	NR	25/80	NR
Benzene: Ethylbenzene	100	NR	NR	LS	NR	NR	NR
Benzene: Ethylbenzene	100	NR	NR	40/100	NR	NR	NR
Benzyl Alcohol	100	NR	25/80	40/100	NR	25/80	NR
Benzyl Chloride <2>	100	NR	NR	40/100	NR	NR	NR
Benzyltrimethylammonium Chloride	60	40/100	40/100	40/100	40/100	40/100	40/100
Black Liquor (Pulp & Kraft Mill) <1,2>	Thin	80/180	80/180	80/180	80/180	80/180	80/180
Black Liquor (Pulp & Kraft Mill) Thick, Heavy	Thick	95/200	105/220	105/220	105/220	105/220	105/220
Black Liquor recovery, furnace gases <6,16>		165/325	175/350	205/400	165/325	175/350	

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	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Blow Down (Non-Condensable Gases from Pulp Digester, i.e. Dimethyl Sulfide and Mercaptanes)	<8>	120/250	120/250	120/250	120/250	120/250	120/250
Borax	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210
Boric Acid	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210
Boron Trichloride Scrubbing	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150
Brake Fluids	100	50/120	50/120	50/120	50/120	50/120	50/120
Brass Plating Solution: 3% Copper, 1% Zinc, 5.6% Sodium Cyanides, 3.0% Sodium Carbonate <1>		80/180	80/180	80/180	80/180	80/180	80/180
Brine Mixture (0.4% MgSO ₄ , 9.5% NaCl, 5.0% Na ₂ SO ₄ , 2.0% K ₂ SO ₄ , 7% CaSO ₄ ·2H ₂ O, 3% Na ₂ SO ₃ ·9H ₂ O, pH 7)		100/210	100/210	100/210	100/210	100/210	100/210
Brine, Chlorinated, see Chlorinated Brine							
Brine, Salt	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210
Brine, Salt	Sat'd	100/210	120/250	120/250	110/230	120/250	80/180
Brominated Phosphate Ester	> 0.5			40/100			40/100
Bromine, Dry Gas	100	40/100	40/100	40/100	<7>	40/100	40/100
Bromine in Water (no pure Bromine phase)	< Sat'd			80/180			
Bromine, Liquid	100	NR	NR	NR	NR	NR	NR
Bromine, Wet Gas	100	40/100	40/100	40/100	40/100	40/100	40/100
Brown Stock		95/200	95/200	80/180	95/200	80/180	
Bunker C Fuel Oil (heavy fraction)	100	100/210	105/220	105/220	100/210	105/220	65/150
Butadiene (Gas) <2>	100	45/110	45/110	45/110	45/110	45/110	45/110
Butane	100	60/140	60/140	60/140	60/140	60/140	60/140
Butanol	100	50/120	50/120	50/120	50/120	50/120	NR
Butyl Acetate	100	NR	25/80	30/90	NR	25/80	NR
Butyl Acrylate	100	NR	NR	25/80	NR	25/80	NR
Butyl Alcohol	100	50/120	50/120	50/120	50/120	50/120	NR
Butyl Alcohol/Benzene	93/4	NR	40/100	50/120	NR	40/100	NR
Butyl Amine	100	NR	NR	LS	NR	NR	NR
Butyl Benzoate	70			40/100			
Butyl Benzyl Phthalate	100	80/180	100/210	100/210	80/180	100/210	
Butyl Chloride	0.1-100	NR	LS	25/80	NR	LS	NR
Butyl Hypochlorite	98	NR	NR	NR	NR	NR	NR
Butyl Stearate (5% in Mineral Spirits)	40/100	40/100					
Butylene Glycol	100	70/160	80/180	80/180	70/160	80/180	
Butylene Oxide	100	NR	NR	LS	NR	NR	NR
Butyraldehyde	100	NR	NR	40/100	NR	NR	NR
Butyric Acid	0.5 - 50	100/210	100/210	100/210	100/210	100/210	100/210
Butyric Acid	100	25/80	50/120	50/120	25/80	50/120	
Cadmium Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Cadmium Cyanide Plating Bath, (3% Cadmium Oxide, 10% Sodium Cyanide, 1.2% Sodium Hydroxide) <1>		80/180	80/180	80/180	80/180	80/180	80/180
Calcium Bisulfite	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Bromide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Carbonate (slurry)	All	80/180	80/180	80/180	80/180	80/180	80/180
Calcium Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Chloride	Sat'd	100/210	120/250	120/250	105/220	120/250	80/180
Calcium Hydroxide <1>	100	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Hydroxide Slurry <1>	0.5 - 25	80/180	65/150	40/100	80/180	65/150	65/150
Calcium Hypochlorite <2,3,5,9>	All	80/180	80/180	40/100	80/180	80/180	80/180
Calcium Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Sulfate Slurry	All						

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Calcium Sulfite	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Cane Sugar Liquor & Sweetwater <18>	All	80/180	80/180	80/180	80/180	80/180	80/180
Capric Acid (Decanoic Acid) <4>	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Capric Acid/Lauric Acid/Fatty Acids (C10-C18)	70/15/15	80/180	80/180	80/180	80/180	80/180	80/180
Caproic Acid (Hexanoic Acid)	100	25/80	50/120	50/120	25/80	50/120	25/80
Caprolactam	0-50	40/100	40/100	40/100	40/100	40/100	40/100
Caprolactone	100	NR	NR	NR	NR	NR	NR
Caprolactone	100	NR	NR	NR	NR	NR	NR
Caprylic Acid (Octanoic Acid)	100	NR	NR	NR	NR	NR	NR
Caramel <18>	All	50/120	50/120	205/400	165/325	175/350	80/180
Carbon Dioxide Gas <16>	All	165/325	175/350	205/400	165/325	175/350	80/180
Carbon Monoxide Gas <16>	All	165/325	175/350	205/400	165/325	175/350	80/180
Carbon Tetrachloride	100	65/150	80/180	80/180	65/150	80/180	80/180
Carbon Tetrachloride, vapor	All	80/180	95/200	95/200	80/180	95/200	80/180
Carboxyethyl Cellulose	10	65/150	65/150	65/150	65/150	65/150	65/150
Cashew Nut Oil	100	65/150	65/150	70/160	70/160	70/160	70/160
Castor Oil (Ricinus Oil)	100	70/160	70/160	70/160	70/160	70/160	70/160
Cationic/Anionic Polymer Emulsions in Kerosene or Petroleum Distillates/Water	0-50	40/100	50/120	50/120			
Caustic (See Sodium Hydroxide)							
Cetyl alcohol (hexadecanol)	100	65/150	80/180	80/180	65/150	80/180	80/180
Chloroform Insecticide	100	25/80	50/120	50/120	25/80	50/120	50/120
Chloric Acid	All	25/80	25/80	25/80	25/80	25/80	25/80
Chlorinated Brine, pH < 2.5 <8>	Sat'd Cl2	80/180	80/180	80/180	95/200	80/180	95/200
Chlorinated Brine, pH > 9 (Hypochlorite), <2,3,9>	Sat'd Cl2	80/180	80/180	65/150	80/180	65/150	65/150
Chlorinated Brine, pH 2.5-9 <6>	Sat'd Cl2	80/180	90/190	90/190	95/200	90/190	95/200
Chlorinated Pulp <6>	All	80/180	90/190	90/190	95/200	90/190	95/200
Chlorinated Solvent Recovery (See specific solvents)							
Chlorinated Wax	All	80/180	80/180	80/180	80/180	80/180	80/180
Chlorination Washer (Hoods & Vent Systems) Vapors, All	80/180	80/180	95/200	95/200	80/180	95/200	65/150
Chlorine Dioxide Generator Effluent, R2 System	65/150	80/180	80/180	80/180	65/150	80/180	65/150
Chlorine Dioxide Scrubber <1,2,3>	75/170	75/170	75/170	75/170			
Chlorine Dioxide, Chlorine (Bleaching Solution, with or without Pulp) <6>	All	80/180	90/190	90/190	95/200	90/190	95/200
Chlorine Dioxide, No Chlorine (Bleaching Solution, with or without Pulp) <6>	All	80/180	90/190	90/190	95/200	90/190	95/200
Chlorine Dioxide, Solution Storage	Sat'd	20/70	20/70	20/70	20/70	20/70	20/70
Chlorine Water (See Chlorinated brine)							
Chlorine, dry gas <2,8,17>	100	80/180	90/190	100/210	80/180	100/210	65/150
Chlorine, wet gas <2,8,17>	100	80/180	90/190	100/210	80/180	100/210	65/150
Chlorine/ Chlorine Dioxide/ Sulfur Dioxide	0.8/2/0.7	95/200	95/200	95/200	95/200	95/200	80/180
Chlorine-Hydrogen Chloride, with aqueous condensate, <8,9,12,16>	8-10% HCl	80/180	100/210	100/210, 175/350	80/180	100/210	80/180
Chloroacetic Acid	0-25	50/120	50/120	50/120	50/120	50/120	50/120
Chloroacetic Acid	26-50	40/100	40/100	40/100	40/100	40/100	40/100
Chloroacetic Acid	51-79	25/80	25/80	30/90	25/80	30/90	30/90
Chloroacetic Acid	80-85	25/80	25/80	25/80	25/80	25/80	25/80
Chloroacetic Acid	86-100	NR	NR	LS	NR	NR	NR
Chlorobenzene	100						

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 °C/F	441 °C/F	470 °C/F	510A/C °C/F	510N °C/F	8084 °C/F
Chlorofluorocarbon (CFC): R-11 (Trichlorofluoromethane), R-12 (Dichlorodifluoromethane)	100	25/80	40/100	40/100	25/80	40/100	NR
Chlorofluorocarbon (CFC): CFC-113 (Trichlorotrifluoroethane)	40/100	40/100	40/100	40/100	40/100	40/100	NR
Chloroform, Fumes, no condensation or coalescence	100	NR	NR	LS	NR	NR	NR
Chloroform	100	NR	NR	LS	NR	NR	NR
N-Chloro-o-tolyl (insecticide emulsion)	10	50/120	50/120	50/120	50/120	50/120	NR
Chloroethane	100	25/80	40/100	40/100	25/80	40/100	NR
Chlorosulfonic Acid	10	NR	NR	NR	NR	NR	NR
Chloropyridine (tetra)	100	25/80	50/120	50/120	25/80	50/120	NR
Chloropicrin (Nitrochloroform)	100	NR	NR	LS	NR	NR	NR
Chloropentane (1 to 5 Cl)	100	40/100	50/120	55/130	40/100	50/120	NR
Chloroform/ Dichloroethane/ Methylene Chloride	All	NR	NR	LS	NR	NR	NR
Chromic Acid	0.5 - 10	65/150	65/150	65/150	65/150	65/150	65/150
Chromic Acid Reduction Process <6>	25	90/190	90/190	90/190	90/190	90/190	NR
Chromic Acid	11 - 20	50/120	65/150	65/150	65/150	65/150	50/120
Chromic Acid	30	LS	LS	LS	LS	LS	NR
Chromic Acid	40	NR	NR	LS	NR	NR	NR
Chromic Acid/ Sodium Metabisulfite	15/45	50/120	65/150	65/150	65/150	65/150	50/120
Chromic Acid: Nitric Acid Mixture	5/10	40/100	50/120	65/150	40/100	40/100	40/100
Chromic Acid: Sulfuric Acid Mixture (Maximum Total Concentration 10%)	10	50/120	65/150	65/150	50/120	65/150	50/120
Chromium Plate, Electroplating with a Salt Solution (with Sulfuric Acid: Not Recommended)	55/130	55/130	55/130	55/130	55/130	55/130	55/130
Chromium Sulfate (water soluble forms)	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Citric Acid	> 0.5	100/210	100/210	100/210	100/210	100/210	65/150
Clodol <4>	All			40/100	40/100	40/100	
Cobalt Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Cobalt Chloride Reactor (Hydrochloric/Sulfuric Acid) <10>	40	95/200					
Cobalt Citrate	12	80/180	80/180	80/180	80/180		50/120
Cobalt Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Coconut Oil <18>	100	80/180	95/200	95/200	80/180	95/200	80/180
Cod-liver Oil <18>	100	40/100	40/100				
Copper Chloride	Sat'd	100/210	120/250	120/250	105/220	120/250	80/180
Copper Chloride/ Ammonium Chloride/ Ammonium Hydroxide, see Ammonium Hydroxide	26/5/2						
Copper Cyanide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Copper Cyanide Plating Bath (10.5% Copper and 14% Sodium Cyanides; 6% Rochelle Salts)	70/160	70/160	70/160	70/160	70/160	70/160	70/160
Copper Cyanide, Potassium Cyanide, Potassium Hydroxide <1>	7:2.5:2%	65/150	40/100	25/80	65/150	25/80	
Copper Matte Dipping Bath, (30% FeCl3, 19% Hydrochloric acid) <8,9,13>	80/180	95/200	95/200	95/200	95/200	95/200	80/180
Copper Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Copper Plating Solution (45% Cu(BF4)2; 19% Copper Sulfate; 8% Sulfonic) <1>	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Copper Sulfate	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Corn Oil <18>	100	80/180	100/210	100/210	80/180	100/210	80/180
Corn Starch <18>	Slurry	100/210	100/210	100/210			

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40.

Derakane Chemical Resistance Guide

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	%C/F	%C/F	%C/F	%C/F	%C/F	%C/F
Diethylamine	100	NR	NR	LS	NR	NR	NR
Diethylamine (Aminoethoxyethanol)	20	40/100	50/120	40/100	40/100	50/120	40/100
Diethylamine (Aminoethoxyethanol)	50	40/100	40/100	40/100	40/100	40/100	40/100
Diglycolamine (Aminoethoxyethanol)	100	NR	NR	LS	NR	NR	NR
Diisobutyl Ketone	100	NR	NR	NR	NR	NR	NR
Diisobutyl Phthalate	100	65/150	65/150	65/150	65/150	65/150	NR
Diisobutylene	100	40/100	40/100	40/100	40/100	40/100	25/80
Diisopropylamine	100	50/120	50/120	50/120	50/120	50/120	40/100
Dimethyl Acetamide	20	40/100	40/100	40/100	40/100	40/100	NR
Dimethyl Acetamide	100	NR	NR	LS	NR	NR	NR
Dimethyl Acetamide, Fumes, no condensation or coalescence	fumes			80/180	80/180	80/180	NR
Dimethyl Amine	20	40/100	40/100	40/100	40/100	40/100	40/100
Dimethyl Amine	40	LS	LS	LS	LS	LS	NR
Dimethylammonium Hydrochloride (Dimethylamine HCl, DMA-HCl)	70	40/100	40/100	50/120	40/100	40/100	40/100
2,4-D, Dimethylamine salt	67	50/120	50/120	50/120	50/120	50/120	50/120
Dimethyl Aniline	100	NR	LS	40/100	NR	25/80	LS
Dimethylcarbonate	100	NR	NR	NR	NR	NR	NR
Dimethylethanolamine	20	50/120	60/140	60/140	60/140	60/140	NR
Dimethylethanolamine	100	25/80	30/85	40/100	25/80	30/85	NR
Dimethylformamide	20	40/100	40/100	40/100	40/100	40/100	40/100
Dimethylformamide	100	NR	NR	LS	NR	NR	NR
Dimethylformamide, Fumes, no condensation or coalescence	fumes			80/180	80/180	80/180	NR
Dimethylformamide/Acetonitrile/Methanol	26/9/7	NR	NR	LS	NR	NR	NR
Dimethyl Morpholine	100	NR	25/80	50/120	NR	25/80	NR
Dimethyl Phthalate	100	65/150	80/180	80/180	65/150	80/180	NR
Dimethyl Phthalate	20	40/100	50/120	50/120	40/100	50/120	40/100
Dimethyl Sulfate	100	NR	NR	LS	NR	NR	NR
Dimethyl Sulfide	100	NR	LS	25/80	NR	25/80	NR
Dimethyl Sulfoxide (DMSO)	20	40/100	40/100	40/100	40/100	40/100	40/100
Dimethyl Sulfoxide (DMSO)	100	NR	LS	LS	NR	NR	NR
2,2-Dimethyl Thiazolidine	1	65/150	80/180	80/180	65/150	80/180	NR
Dimethyl Tin Dichloride / Methyl Tin Trichloride (90/10) in aqueous solution <7>	50			45/110			
Dioctyl Phthalate	100	65/150	100/210	100/210	65/150	100/210	65/150
Diphenylmethane-4,4'-Diisocyanate (MDI)	100	NR	NR	NR	NR	NR	NR
Diphenyl Oxide (Diphenyl Ether, Phenyl Ether)	100	25/80	40/100	50/120	25/80	50/120	NR
Dipotassium phosphate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Dipropylene Glycol	100	80/180	100/210	100/210	80/180	100/210	65/150

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Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 °C/F	470 °C/F	510A/C °C/F	510N °C/F	8084 °C/F
Dipropylene Glycol Methyl Ether, Propanol, (2-Methoxy-methylethoxy)- : CAS 34590-94-8	20	40/100	50/120	65/150	50/120	65/150
Dipropylene Glycol Methyl Ether, Propanol, (2-Methoxy-methylethoxy)- : CAS 34590-94-8	100	NR	LS	20/70	NR	NR
Diswashing Detergent in Solution <14>	All	80/180	80/180	80/180	80/180	80/180
Distilled Water <2>	100	80/180	80/180	80/180	80/180	80/180
Divinylbenzene	100	40/100	50/120	50/120	40/100	50/120
Dodecanol (Lauryl Alcohol)	100	65/150	80/180	80/180	65/150	80/180
Dodecene	100	65/150	80/180	80/180	65/150	80/180
Dodecyl Benzene Sulfonic Acid <6>	100	80/180	95/200	100/210	95/200	100/210
Dodecyl Benzene Sulfonic Acid: Sulfuric Acid: Water: Oil	85:10:4:1	65/150	65/150	65/150	65/150	65/150
Dodecylmethylamine	100	80/180	95/200	100/210	80/180	95/200
Dodecylmercaptan	100	80/180	95/200	100/210	80/180	95/200
DOWTHERM® Heat Transfer Agent	100	50/120	65/150	65/150	50/120	65/150
Epichlorohydrin	100	LS	LS	25/80	NR	NR
Epoxidized Castor Oil	100	40/100	40/100	40/100	40/100	40/100
Epoxidized Soybean Oil	100	65/150	65/150	65/150	65/150	65/150
Esters, Fatty Acid	100	80/180	80/180	80/180	80/180	80/180
Ethanol (Ethyl Alcohol)	10	50/120	50/120	50/120	50/120	50/120
Ethanol (Ethyl Alcohol)	50	40/100	40/100	40/100	40/100	40/100
Ethanol (Ethyl Alcohol)	90-95	25/80	25/80	40/100	25/80	NR
Ethanol (Ethyl Alcohol)	100	NR	LS	40/100	NR	NR
Ethoxylated Alkyl Amines, C12 and higher	100	25/80	40/100	50/120	25/80	40/100
Ethoxylated Nonyl Phenol	100	NR	LS	40/100	NR	NR
Ethyl Acetate	100	NR	LS	25/80	NR	NR
Ethyl Acetate, Fumes, no condensation or coalescence	fumes	50/120	80/180	80/180	80/180	80/180
Ethanol/ Ethylacetate/ Methanol/ DMF	35/29/10/10	NR	NR	LS	NR	NR
Ethanolamine	20	40/100	45/110	50/120	40/100	50/120
Ethanolamine	100	25/80	30/90	40/100	25/80	30/90
Ethephon	100	40/100	40/100	40/100	40/100	40/100
Ethoxy Acetic Acid	10	40/100	40/100	40/100	40/100	40/100
Ethoxy Acetic Acid	100	NR	NR	LS	NR	NR
Ethyl Amine	20	40/100	40/100	40/100	40/100	40/100
Ethyl Amine	70	NR	NR	LS	NR	NR
Ethyl Benzyl Chloride <2>	100	NR	NR	40	NR	NR
Ethyl Bromide	100	NR	LS	LS	NR	NR
Ethyl Chloride	100	NR	LS	25/80	NR	25/80
Ethyl Ether	100	NR	NR	NR	NR	NR
Ethyl Silicate	100	40/100	40/100	40/100	40/100	40/100
Ethyl Sulfate	100	40/100	40/100	40/100	40/100	40/100
2-Ethylhexyl Alcohol	100	65/150	70/160	80/180	80/180	50/120
Ethyl-3-Ethoxy Propionate	100	NR	LS	25/80	NR	LS
Ethylbenzene	100	25/80	40/100	50/120	25/80	40/100
Ethylbenzene: Benzene	67/33	NR	25/80	40/100	NR	25/80
Ethylene Chloride (See Dichloroethane)						
Ethylene Chlorohydrin	20	40/100	50/120	65/150	50/120	65/150
Ethylene Chlorohydrin	100	40/100	40/100	40/100	40/100	40/100
Ethylene Diamine	20	40/100	40/100	40/100	40/100	40/100
Ethylene Diamine	100	NR	NR	LS	NR	NR
Ethylene Dibromide	100	NR	NR	NR	NR	NR
Ethylene Dichloride (See Dichloroethane)	100	NR	NR	NR	NR	NR

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Ethylene Dichloride/Ethylene Dibromide/ Tetraethyl Lead (above water solubility)	5:5:5	NR	NR	LS	NR	NR	NR
Ethylene Glycol	100	100/210	100/210	100/210	100/210	100/210	65/150
Ethylene Glycol based Coolants	> 0.5	100/210	100/210	100/210	100/210	100/210	40/100
Ethylene Glycol n-Butylether: Ethanol, 2-butoxy; CAS N°111-76-2	20	40/100	50/120	65/150	50/120	65/150	40/100
Ethylene Glycol n-Butylether: Ethanol, 2-butoxy; CAS N°111-76-2	100	40/100	40/100	65/150	40/100	40/100	NR
Ethylene Glycol/Sulfuric Acid	0-40/0-10	65/150	80/180	80/180	80/180	80/180	NR
Ethylene Oxide	100	NR	NR	NR	NR	NR	NR
Ethylbenzenesulfonic acid, sodium salt <6>	All	80/180	80/180	80/180	80/180	80/180	80/180
Eucalyptus Oil <18>	100	60/140	60/140	60/140	60/140	60/140	60/140
Fatty Acid/Sterol/ Triglyceride	All	100/210	120/250	100/210	100/210	100/210	65/150
Fatty Acid/Sulfuric Acid <10>	5:2	100/210	100/210	100/210	100/210	100/210	65/150
Fatty Acids	All	100/210	120/250	100/210	100/210	100/210	65/150
Ferric Acetate	All	80/180	80/180	80/180	80/180	80/180	80/180
Ferric Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ferric Chloride: Ferrous Chloride	5:20	100/210	100/210	100/210	100/210	100/210	80/180
Ferric Chloride/ Ferrous Chloride/ Hydrochloric Acid	48/0.2/0.2	100/210	105/220	105/220	105/220	105/220	80/180
Ferric Chloride/ Hydrochloric Acid <8,9,12>	0-29/1-20	80/180	105/220	105/220	105/220	105/220	80/180
Ferric or Ferrous Sulfate/ Sulfuric Acid	0-40/0-25	100/210	100/210	100/210	100/210	100/210	80/180
Ferric Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ferric Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ferrous Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ferrous Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ferrous Chloride/ Hydrochloric Acid <8,9,12>	0-29/1-20	80/180	100/210	100/210	100/210	100/210	80/180
Ferrous Chloride+Manganese Chloride+Ferric Chloride / Hydrochloric Acid <8,9,12>	1-60/0-20	80/180	100/210	100/210	100/210	100/210	80/180
Ferrous Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Ferrous Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Fertilizer 32-0-0 (32% wt of total nitrogen), Urea-Ammonium Nitrate solution.		65/150	65/150	65/150	65/150	65/150	65/150
Fertilizer 8-8-8 (% wt of total nitrogen, phosphorus, and potassium)		65/150	65/150	65/150	65/150	65/150	65/150
Fine Gas, Wet	All	80/180	100/210	100/210	100/210	100/210	80/180
Fine Gas, Dry <16>	All	165/325	175/350	205/400	160/320	160/320	80/180
Fluoroboric Acid <1,2>	All	80/180	100/210	100/210	100/210	100/210	80/180
Fluoroboric Acid <1,2>	All	80/180	100/210	100/210	100/210	100/210	80/180
Fluoride Salts + Hydrochloric Acid <1,2>	30:10	50/120	50/120	50/120	50/120	50/120	50/120
Fluorine in Fine Gas, Wet <1>	2	80/180	100/210	100/210	100/210	100/210	80/180
Fluorosulfonic Acid, Fluotitanic Acid, Ammonium Hydroxide <1,2>	5:4:3	40/100	40/100	40/100	40/100	40/100	40/100
Fly Ash Slurry	All	80/180	80/180	80/180	80/180	80/180	80/180
Formaldehyde	All	50/120	65/150	65/150	65/150	65/150	80/180
Formaldehyde/Methanol	0-37/0-15	50/120	65/150	65/150	65/150	65/150	80/180
Formamide	20	40/100	50/120	65/150	50/120	65/150	40/100
Formamide	100	20/70	20/70	20/70	20/70	20/70	40/100
Formic Acid	10	80/180	80/180	80/180	80/180	80/180	65/150
Formic Acid	25	50/120	65/150	65/150	65/150	65/150	50/120
Formic Acid	50	50/120	50/120	50/120	50/120	50/120	50/120
Formic Acid	85	25/80	25/80	25/80	25/80	25/80	25/80
Formic Acid	98	40/100	40/100	40/100	40/100	40/100	25/80

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Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 °C/F	470 °C/F	510A/C °C/F	510N °C/F	8084 °C/F
Fuel C (50/50 Isooctane/Toluene)	100		50/120			
Fuel C / Methyl t-Butyl Ether (MTBE) Note: Fuel C is 50% toluene and 50% isooctane)	85:15		50/120			
Fuel Oil	100	80/180	100/210	80/180	100/210	65/150
Furfural <1>	0 - 10	40/100	50/120	40/100	50/120	65/150
Furfural	100	NR	NR	LS	NR	NR
Furfural in organic solvent <4>	0 - 20	NR	25/80	40/100	NR	40/100
Furfural/ Acetic Acid/ Methanol	30/10/5	NR	NR	LS	NR	NR
Furfuryl Alcohol <2>	20	40/100	50/120	65/150	40/100	40/100
Furfuryl Alcohol <2>	100	NR	NR	25/80	NR	NR
Gallie Acid	Sat'd	80/180	80/180	80/180	80/180	80/180
Gasohol (1-100% Alcohol)	100			40/100		
Gasoline, no alcohol	100			50/120		
Glucose <18>	100	80/180	80/180			
Glutamic Acid <18>	50	50/120	50/120	50/120	50/120	50/120
Glutaraldehyde	50	50/120	50/120	50/120	50/120	50/120
Glutaric Acid	50	50/120	50/120	50/120	50/120	50/120
Glycerine	100	100/210	100/210	100/210	100/210	100/210
Glycol	100	100/210	100/210	100/210	100/210	100/210
Glycolic Acid (Hydroxyacetic acid)	70	40/100	40/100	40/100	40/100	40/100
Glyconic Acid	50	80/180	80/180	80/180	80/180	80/180
Glyoxal	40	40/100	40/100	40/100	40/100	40/100
Glyphosate	All					
Gold Plating Solution (23% Potassium Ferrocyanide with Potassium Gold Cyanide and Sodium Cyanide)		100/210	100/210	100/210	100/210	80/180
Green Liquor <1,2>	All	80/180	80/180	80/180	80/180	80/180
Gypsum Slurry (see also Calcium Sulfate)	All	100/210	100/210	100/210	100/210	80/180
Hard Chrome Plating Baths (with Sulfuric Acid - Not Recommended)		60/140	60/140			
Heptane	100	100/210	100/210	100/210	100/210	80/180
Heptane, Fumes	fumes	100/210	100/210	100/210	100/210	80/180
Herbicides <6>						
Hexachloroethane	100	LS	40/100	50/120	LS	40/100
Hexadecanol	100	65/150	80/180	80/180	65/150	80/180
Hexamethylenetetramine	40	40/100	50/120	50/120	40/100	50/120
Hexane	100	70/160	70/160	70/160	70/160	70/160
Hexanoic Acid	100	25/80	50/120	50/120	25/80	25/80
Hot Stack Gas (see Flue Gas)	100					
Hydraulic Fluid (Glycols) <14>	100	80/180	80/180	80/180	80/180	80/180
Hydrazine	20	LS	LS	LS	LS	NR
Hydrazine	100	NR	NR	LS	NR	NR
Hydrazine/ Sodium Phosphate	5:10	LS	LS	LS	LS	LS
Hydrotic Acid	40	65/150	65/150	65/150	65/150	65/150
Hydrotic Acid	57	40/100	40/100	40/100	40/100	40/100
Hydrotic Acid	0 - 25	80/180	80/180	80/180	80/180	80/180
Hydrotic Acid	48	65/150	65/150	65/150	65/150	65/150
Hydrotic Acid/ Bromine	40/2	40/100	40/100	40/100	40/100	40/100
Hydrochloric Acid <8,9,12>	1 - 15	80/180	105/220	110/230	100/210	105/220
Hydrochloric Acid <8,9,12>	16 - 20	80/180	105/220	110/230	100/210	105/220
Hydrochloric Acid <8,9,12>	21 - 25	65/150	80/180	95/200	80/180	80/180
Hydrochloric Acid <8,9,12>	26 - 30	65/150	80/180	95/200	80/180	80/180
Hydrochloric Acid <8,9,13>	31 - 32	65/150	70/160		65/150	65/150
Hydrochloric Acid <8,9,13>	33 - 34		50/125	70/160	50/125	50/125

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 °C/F	441 °C/F	470 °C/F	510A/C °C/F	510N °C/F	8084 °C/F
Hydrochloric Acid <8,9,13>	37	40/100	45/110	50/125	60/140	50/125	60/140
Hydrochloric Acid <8,9,13>	35 - 36	50/125	50/125	50/125	60/140	50/125	60/140
Hydrochloric Acid <8,9,13>	0 - 33% HCl	NR	NR	NR	NR	NR	NR
Hydrochloric Acid + Aluminum (Reactor), Aluminum chloride <9,10,12>	< 15% HCl	80/180	100/210	80/180	80/180		
Hydrochloric Acid/ Aluminum Chloride <8,9,12>	30/0-40	65/150	70/160	80/180	80/180	65/150	80/180
Hydrochloric Acid + Chlorine <8,9,12>	0.5 - 20% HCl	80/180	90/190	100/210	80/180	80/180	100/210
Hydrochloric Acid, Fumes + Free Chlorine, dry above 210°F/100°C <8,9,12,16>			175/350	175/350	175/350	175/350	175/350
Hydrochloric Acid, Fumes <9,16>			100/210	175/350	100/210	175/350	100/210
Hydrochloric Acid/ Bromine/ Chlorine <8,9,12>	22/0.1/0.1	65/150	80/180	100/210	80/180	80/180	80/180
Hydrochloric Acid/ Calcium Chloride <8,9,12>	27/15	65/150	80/180	95/200	80/180	80/180	80/180
Hydrochloric Acid/ Diethylene Tiamine (as Hydrochloride)/ Ammonium Chloride <8,9,13>	33/10/10			65/150			
Hydrochloric Acid/ Ferric Chloride/ Organics <2,8,9,13>	1-20/0-29	80/180	105/220	105/220	80/180	105/220	80/180
Hydrochloric Acid/ Ferric Chloride <8,9,12>	28/35/1	NR	NR	65/150	NR	NR	NR
Hydrochloric Acid/ Ferrous Chloride <8,9,12>	1-20/0-29	80/180	100/210	100/210	80/180	100/210	80/180
Hydrochloric Acid/ Formaldehyde <2,8,9,13>	25/3	NR	NR	65/150	NR	NR	NR
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,13>	36/1		40/100	40/100	40/100	40/100	40/100
Hydrochloric / Hydrofluoric Acid <1,2,8,13>	Max Total 20	40/100	40/100	40/100	40/100	40/100	40/100
Hydrochloric/ Hydrofluoric Acid <1,2,8,13>	15/0.1-1	80/180	100/210	100/210	100/210	100/210	80/180
Hydrochloric/ Hydrofluoric Acid <1,2,8,13>	25/6	40/100	45/110	50/120	40/100	50/120	40/100
Nitrobenzene, <1,2>	15/11/0.5	NR	LS	40/100	NR	LS	NR
Hydrochloric/ Hydrofluoric/ Phosphoric Acid, Nitrobenzene, <1,2>	15/15/70			NR			
Hydrochloric/Hydrofluoric Acid <1,2,8,13>	0.5 - 20/0 - 1	65/150	80/180	80/180	65/150	80/180	80/180
Hydrochloric/Hydrofluoric Acid <1,2,8,13>	30/15			40/100			
Hydrocyanic Acid	All	100/210	100/210	100/210	100/210	100/210	80/180
Hydrofluoric Acid <1,2>	10	65/150	65/150	65/150	65/150	65/150	65/150
Hydrofluoric Acid <1,2>	20	40/100	40/100	40/100	40/100	40/100	40/100
Hydrofluoric/ Nitric Acid <1,2>	15/15			40/100			
Hydrofluoric/ Nitric Acid <1,2>	6/20	50/120	50/120	60/140	55/130	60/140	40/100
Hydrofluoric/ Nitric Acid <1,2>	3-5/30-35	NR	NR	LS	NR	LS	NR
Hydrofluoric/ Nitric/Sulfuric Acid <1,2>	8/20/2			60/140			
Hydrofluosilicic Acid / Polyaluminum Hydroxide (or Polyaluminum Chloride, PAC) <1,2>	1 - 22/1 - 35	40/100	40/100	40/100	40/100	40/100	40/100
Hydrofluosilicic Acid <1> (See Fluosilicic Acid)							
Hydrofluosilicic Acid / Zinc Chloride <1>	20/All	40/100	40/100	40/100	40/100	40/100	40/100
Hydrogen Bromide, dry gas	100	80/180	80/180	100/210	80/180	100/210	80/180
Hydrogen Bromide, wet gas	100	80/180	80/180	100/210	80/180	100/210	80/180
Hydrogen Chloride, dry gas <6,16>	100	100/210	175/350	175/350	100/210	175/350	80/180
Hydrogen Chloride, wet gas	100	100/210	110/230	110/230	100/210	110/230	80/180
Hydrogen Fluoride, Dry Gas/Vapor (if wet max. 40°C/100°F) <1,2,6>		80/180	80/180	80/180	80/180	80/180	80/180
Hydrogen Peroxide <2,3,6>	5	65/150	65/150	65/150	65/150	65/150	65/150
Hydrogen Peroxide <2,3,6>	30	40/100	40/100	40/100	65/165	40/100	40/100

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40. In bold: preferred resin

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Hydrogen Peroxide <2,3,6>	35	25/80	30/90	40/100	30/90	40/100	NR
Hydrogen Peroxide <2,3,6>	50	NR	NR	LS	NR	NR	NR
Hydrogen Sulfide <6,16>	5	100/210	175/350	175/350	100/210	175/350	80/180
Hydrogen Sulfide, aqueous	All	100/210	100/210	100/210	100/210	100/210	80/180
Hydrogen Sulfide, dry gas	All	100/210	100/210	100/210	100/210	100/210	80/180
Hydrogenated tallow alkyl amine (C8-C18)	100	40/100	40/100	40/100	40/100	40/100	80/180
Hydrosulfite Bleach, Aqueous Solution containing 5% Zinc Hydrosulfite and 2.5% Hydrosulfite	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Triphosphosphate <5>	20	40/100	50/120	65/150	40/100	50/120	40/100
Hydroxyacetic Acid (Glycolic Acid)	70	40/100	40/100	40/100	40/100	40/100	40/100
Hydroxylamine Acid Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210
(Hydroxylamine Acid Sulfate, HSA), Reaction of Hydroxylamine Acid Disulfate with steam to form HAS, Sulfuric Acid, Ammonium Sulfate							
Hypophosphorous Acid <6>	0-50	50/120	50/120	50/120	50/120	50/120	50/120
Imidazoline Acetate/Solvent <2,4>	20	40/100	45/110	50/120	40/100	45/110	NR
Imidazoline Acetate/Solvent <2,4>	60	NR	LS	40/100	NR	NR	NR
Incidides emulsions <6>							
Iodine, Crystals	100	65/150	65/150	65/150	65/150	65/150	65/150
Iodine, Vapor	100	65/150	65/150	65/150	65/150	65/150	65/150
Ion Exchange Resin, fine mesh resins		80/180	80/180	80/180	80/180	80/180	80/180
Iron and Steel Cleaning Bath, 9% Hydrochloric, 23% Sulfuric acid		80/180	100/210	100/210	80/180	100/210	80/180
Iron Plating Solution 45% FeCl ₂ ; 15% CaCl ₂ ; 20% FeSO ₄ ; 11% (NH ₄) ₂ SO ₄		80/180	120/250	120/250	80/180	120/250	80/180
Isaomy Alcohol	20	65/150	65/150	80/180	65/150	65/150	65/150
Isaomy Alcohol	100	65/150	65/150	65/150	65/150	65/150	65/150
Isaomy Alcohol	20	65/150	65/150	80/180	65/150	65/150	65/150
Isaomy Alcohol	100	65/150	65/150	65/150	65/150	65/150	65/150
Isodecanol	100	50/120	65/150	80/180	50/120	65/150	50/120
Isomonyl Alcohol	100	65/150	65/150	65/150	65/150	65/150	40/100
Isocetyl Adipate	100	50/120	65/150	65/150	50/120	65/150	40/100
Isocetyl Alcohol	100	65/150	65/150	65/150	65/150	65/150	50/120
Isopanol Amine	100	50/120	50/120	50/120	50/120	50/120	NR
Isopropyl Alcohol (Isopropanol)	100	50/120	50/120	50/120	50/120	50/120	NR
Isopropyl Amine	0.5-50	40/100	40/100	40/100	40/100	40/100	NR
Isopropyl Amine	100	NR	NR	NR	LS	NR	NR
Isopropyl Myristate	100	100/210	110/230	110/230	100/210	110/230	65/150
Isopropyl Palmate	0.5-40	60/140	60/140	60/140	60/140	60/140	60/140
Itaconic Acid	100	60/140	60/140	60/140	60/140	60/140	60/140
Jet Fuel, General	100	60/140	60/140	60/140	60/140	60/140	60/140
Kerosene	100	80/180	80/180	80/180	80/180	80/180	65/150
Kraft Recovery Boiler Breaching (see Flue Gas)							
Lactic Acid	All	100/210	100/210	100/210	100/210	100/210	65/150
Latex (Emulsion in Water), for specific latices see under chemical/polymer name	All	50/120	50/120	50/120	50/120	50/120	50/120
Lauryl Chloride	100	40/100	50/120	50/120	50/120	50/120	50/120
Lauryl Alcohol	100	65/150	80/180	80/180	65/150	80/180	50/120
Lauryl Chloride	100	100/210	100/210	100/210	100/210	100/210	65/150
Lauryl Mercaptan	100	80/180	95/200	100/210	80/180	95/200	65/150
Lead Acetate	Sat'd	100/210	110/230	110/230	100/210	110/230	
Levulinic Acid	Sat'd	100/210	110/230	110/230	100/210	110/230	65/150
Lignin Sulfonate	All	80/180	80/180	80/180	80/180	80/180	65/150
Lime Slurry (see Calcium Hydroxide)							

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Limestone Slurry (see Calcium Carbonate)	All	80/180	80/180	80/180	80/180	80/180	80/180
Linseed Oil	100	100/210	110/230	110/230	100/210	110/230	65/150
Liquid Petroleum Gas (LPG)	100	60/140	60/140	60/140	60/140	60/140	60/140
Lithium Bromide	Sat'd	100/210	120/250	100/210	100/210		80/180
Lithium Chloride <1>	All	80/180	80/180	80/180	80/180	80/180	80/180
Lithium Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Lithium Chloride (35-40)	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Lithium Hydroxide <1>	All	80/180	80/180	40/100	80/180	80/180	80/180
Lithium Hypochlorite <2,3,5,9>	All	80/180	80/180	40/100	80/180	80/180	80/180
Magnesium Bisulfite	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Magnesium Carbonate	All	80/180	80/180	80/180	80/180	80/180	80/180
Magnesium Chloride	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Magnesium Fluosilicate <1>	All	80/180	80/180	80/180	80/180	80/180	80/180
Magnesium Hydroxide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Magnesium Nitrate	All	100/210	100/210	100/210	100/210	100/210	80/180
Magnesium Phosphate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Magnesium Sulfate	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Magnesium Sulfate, Phosphoric Acid	1-40/0-36	100/210	100/210	100/210	100/210	100/210	100/210
Floculant MW>40,000, cationic polyamine <6>	All	60/140	60/140	60/140	60/140	60/140	60/140
Maleic Acid	> 0.5	80/180	100/210	100/210	80/180	100/210	80/180
Manganese Chloride (Manganous Chloride)	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Manganese Nitrate (Manganous)	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Manganese Sulfate (Manganous Sulfate)	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
MDI, see Diphenylmethane-4,4'-Diisocyanate	100						
Melamine Formaldehyde Resin	All	40/100	50/120	50/120	40/100	50/120	40/100
Mercaptoacetic Acid	All	NR	25/80	40/100	NR	25/80	NR
Mercaptoethanol	10	80/180	80/180	80/180	80/180	80/180	80/180
Mercuro Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Mercuro Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Mercuro Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Mercury	100	100/210	120/250	120/250	100/210	120/250	65/150
Metal Pickling Solutions (Sulfuric-, Hydrochloric-, and/or Phosphoric Acids) <9>	0.5-15 Total	100/210	100/210	100/210	100/210	100/210	
Methacrylic Acid <7>	25	40/100	40/100	50/120	40/100	40/100	40/100
Methacrylic Acid	100	NR	NR	LS	NR	NR	NR
Methane / Nitrogen	70/30	60/140	80/180	95/200	80/180	95/200	60/140
Methane Sulfonic Acid <6>	20-100	NR	LS	40/100	NR	NR	NR
Methanol (Methyl Alcohol)	5	50/120	50/120	50/120	50/120	50/120	50/120
Methanol (Methyl Alcohol)	20	NR	NR	LS	NR	NR	NR
Methanol (Methyl Alcohol)	40 - 100	NR	LS	40/100	NR	40/100	NR
Methanol, Fumes, no condensation or coalescence	fumes		65/150	80/180	80/180	80/180	
Methanol/ Ethanolamine	0-60/0-20	NR	LS	40/100	NR	NR	NR
Methanol/ Formaldehyde/ Sulfuric	60/20/2	NR	LS	40/100	NR	NR	NR
Methanol/Formaldehyde	0-15/0-37	50/120	65/150	65/150	50/120	65/150	NR
Methanol/Formaldehyde	35/4	NR	NR	NR	40/100	NR	NR
1-Methoxy-2-Propanol	100	NR	LS	20/70	NR	NR	NR
Methyl Acetate	20	40/100	40/100	40/100	40/100	40/100	40/100
Methyl Acetate	100	NR	NR	LS	NR	NR	NR
Methylamine	20	40/100	40/100	40/100	40/100	40/100	40/100
Methylamine	40	LS	LS	LS	LS	LS	NR
Methylamine	100	NR	NR	LS	NR	NR	NR
Methyl Bromide	10	25/80	25/80	25/80	25/80	25/80	NR
2-Methyl-3-Butenenitrile	100	NR	NR	LS	40/100	NR	NR
Methyl Butyl Ketone (MBK), includes Methyl t-Butyl Ketone (MTBK) and other isomers	All	25/80	40/100	40/100	25/80	40/100	

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40.

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Methyl Chloride, Gas	All	40/100	65/150	65/150	40/100	65/150	NR
Methyl Chloride, Fumes, no condensation or coalescence	fumes		80/180	80/180	80/180	80/180	NR
Methyl Chloroform (also 1,1,1-Trichloroethane inhibited)	100	40/100	50/120	50/120	40/100	50/120	NR
Methyl chloroform / Perchloroethylene	75/25	40/100	50/120	50/120	40/100	50/120	NR
Methyldiethanolamine	20	50/120	65/150	65/150	50/120	65/150	40/100
Methyldiethanolamine	100	50/120	50/120	50/120	50/120	50/120	NR
Methyl Diisobutyl Ammonium Chloride/ Isopropanol	75/25	50/120	50/120	50/120	50/120	50/120	NR
Methylene Chloride	100	NR	NR	LS	NR	NR	NR
Methylene Chloride, Fumes, no condensation or coalescence	fumes		80/180	80/180	80/180	80/180	NR
Methylene Chloride: Methanol: Water	1:4:95	40/100	40/100	50/120	40/100	40/100	40/100
Methyl Ethyl Ketone	20	40/100	40/100	40/100	40/100	40/100	40/100
Methyl Ethyl Ketone	100	LS	LS	20/70	LS	LS	NR
Methyl Ethyl Ketone, 2-Butanol, Triethylamine, 2-butoxy Ethanol	<25 Total	LS	25/80	40/100	LS	25/80	NR
Methyl Formate	5	40/100	45/110	50/120	45/110	50/120	NR
Methyl Isobutyl Ketone (MIBK)	100	25/80	40/100	50/120	25/80	40/100	NR
Methyl Mercaptan (Gas)	All	40/100	65/150	65/150	40/100	65/150	NR
Methyl Methacrylate	All	NR	LS	25/80	NR	20/70	NR
N-methyl-2-pyrrolidone	10			LS			
N-methyl-2-pyrrolidone	100	NR	NR	LS	NR	NR	NR
N-methyl-2-pyrrolidone	100	25/80	40/100	50/120	25/80	40/100	NR
Methylstyrene (alpha)	100	NR	25/80	25/80	NR	25/80	NR
Methyl t-Butyl Ether	100	NR	25/80	25/80	NR	25/80	NR
Methyl t-Butyl Ether (MTBE) / Fuel C is 50% toluene and 50% isooctane)	15:85	40/100	50/120	50/120	40/100	50/120	NR
Methyl t-Butyl Ether, Fumes, no condensation or coalescence	fumes		80/180	80/180	80/180	80/180	NR
Methyl Tin Trichloride / Dimethyl Tin Di-chloride (10/90) in aqueous solution <7>	50		45/110				
Mineral Oils, aliphatic	100	100/210	120/250	120/250	100/210	120/250	65/150
Molasses	100	80/180	80/180				
Monochloroacetic Acid, see Chloroacetic Acid	100	NR	25/80	40/100	NR	25/80	NR
Monochloroamine (See Ethanolamine)	100	NR	NR	LS	NR	NR	NR
Monomethylhydrazine	100	NR	NR	NR	NR	NR	NR
Morpholine <2>	20	40/100	45/110	50/120	45/110	50/120	40/100
Morpholine <2>	100	NR	NR	25/80	NR	NR	NR
Morpholine/ Cyclohexylamine	All	NR	NR	25/80	NR	NR	NR
Motor Oil	100	100/210	120/250	120/250	100/210	120/250	65/150
Muriatic Acid (See Hydrochloric Acid)	100	100/210	120/250	120/250	100/210	120/250	65/150
Myristic Acid	100	100/210	120/250	120/250	100/210	120/250	65/150
Naphtha	100	80/180	100/210	100/210	80/180	100/210	80/180
Naphtha, Heavy Aromatic	100	50/120	50/120	50/120	50/120	50/120	NR
Naphthalene	100	100/210	100/210	100/210	100/210	100/210	80/180
Neutralizer & Desmut	All	65/150	65/150	65/150	65/150	65/150	65/150
Nickel Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Nickel Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Nickel Plating Solution #1 (1% Nickel Sulfate; 2% Nickel Chloride: 1% Boric Acid)		80/180	80/180	80/180	80/180	80/180	80/180
Nickel Plating Solution #2 (4% Nickel Sulfate; 4% Ammonium Chloride: 4% Boric Acid)		80/180	80/180	80/180	80/180	80/180	80/180
Nickel Plating Solution #3 (15% Nickel Sulfate/ 5% Nickel Chloride/ 3% Boric Acid)		100/210	100/210	100/210	100/210	100/210	80/180
Nickel Sulfamate	All						80/180

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Nickel Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Nitric Acid	0-5	65/150	80/180	80/180	65/150	80/180	65/150
Nitric Acid	6-10	65/150	65/150	65/150	65/150	65/150	50/120
Nitric Acid	11-20	50/120	50/120	50/120	50/120	65/150	50/120
Nitric Acid <2>	21-29	40/100	40/100	40/100	40/100	40/100	40/100
Nitric Acid <2>	30-35	25/80	30/90	30/90	30/90	40/100	NR
Nitric Acid <2>	36-40	NR	NR	40/100	NR	25/80	NR
Nitric Acid Fumes <2>	70	NR	NR	LS	NR	NR	NR
Nitric Acid Fumes <2>	< 60 (sohn.)	80/180	80/180	80/180	80/180	80/180	80/180
Nitric Acid Fumes, no condensation <2>	> 60 (sohn.)	80/180	80/180	80/180	80/180	80/180	80/180
Nitric Acid/Hexavalent Chrome (Chromic Acid)	10/5	40/100	50/120	65/150	40/100	40/100	40/100
Nitric Acid/ Hydrogen Peroxide/ Hydrofluoric Acid <1,2,3>	30/50.5	25/80	30/90	40/100	30/90	40/100	NR
Nitric/ Hydrofluoric <1,2>	25/3	40/100	40/100	50/120	40/100	50/120	40/100
Nitric/ Hydrofluoric Acid	30-35/3-5	NR	NR	LS	NR	LS	NR
Nitric/ Hydrofluoric Acid <1,2>	15/15	40/100	40/100	40/100	40/100	40/100	40/100
Nitric/ Hydrofluoric Acid <1,2>	20/6	50/120	50/120	60/140	55/130	60/140	40/100
Nitric/Hydrofluoric/Sulfuric Acid <1,2>	20/8/2	40/100	40/100	60/140	60/140	60/140	40/100
Nitric/ Phosphoric Acid <2>	24/23	40/100	40/100	50/120	40/100	50/120	40/100
Nitric/ Sulfuric Acid <2>	20/20	40/100	40/100	50/120	40/100	50/120	40/100
Nitric/ Sulfuric/ Phosphoric Acid	20/5/2	40/100	40/100	50/120	40/100	50/120	40/100
Nitric/Phosphoric Acid <2>	5/5	65/150	80/180	80/180	80/180	80/180	65/150
Nitrobenzene	100	NR	25/80	40/100	NR	25/80	NR
Nitrophenol <1>	10	NR	25/80	40/100	LS	25/80	NR
N-methyl-2-pyrrolidone	100	NR	NR	NR	NR	NR	NR
Noncondensable Blow-Down Gases (see Flue Gas or Blow Down)							
Octanoic Acid	100	80/180	100/210	100/210	80/180	100/210	
Oil, Sweet and Sour, Crude	100	100/210	120/250	120/250	100/210	120/250	65/150
Oleic Acid	100	100/210	100/210	100/210	100/210	100/210	
Oleum (Fuming Sulfuric)		NR	NR	LS	NR	NR	NR
Olive Oils <18>	100	100/210	120/250				
Ortho-dichlorobenzene (see Dichlorobenzene)							
Oxalic Acid <18>	Sat'd	50/120	50/120	50/120	50/120	50/120	40/100
Ozone in solution <6>	2mg/l	40/100	40/100	40/100	40/100	40/100	40/100
Palladium suspensions in Ammonium Hydroxide, see Ammonium Hydroxide							
Palladium suspensions in Hydrochloric Acid, see Hydrochloric Acid							
Papier Mill Effluent (see Sulfite/Sulfate Liquors (Pulp Mill))	100	100/210	120/250				
Para-dichlorobenzene (see Dichlorobenzene)							
Peanut Oil <18>	100	80/180	80/180				
Pentabromo diphenyl oxide	100	25/80	45/110	50/120	25/80	50/120	NR
Pentachlorophenol <4>	All	50/120	50/120	50/120	50/120	50/120	50/120
Pentanedioic Acid (See Glutaric Acid)							
Peracetic Acid <1,2,3,6>	20	40/100	40/100	40/100	40/100	40/100	NR
Peracetic Acid	35	NR	NR	LS	NR	NR	NR
Perchloric Acid	10	65/150	65/150	65/150	65/150	65/150	65/150
Perchloric Acid	30	40/100	40/100	40/100	40/100	40/100	40/100
Perchloroethylene	100	25/80	50/120	50/120	25/80	50/120	NR
Perchloroethylene / Methyl chloroform	75/25	40/100	50/120	50/120	40/100	50/120	NR
Phenol (Carbolic Acid) <2>	0-2	25/80	40/100	50/120	25/80	40/100	NR
Phenol (Carbolic Acid) <2>	5	NR	25/80	50/120	NR	25/80	NR

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40.

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	°C/F	°C/F	°C/F	°C/F	°C/F	°C/F
Phenol (Carbolic Acid) <2>	10	NR	LS	50/120	NR	LS	NR
Phenol (Carbolic Acid) <2>	15	NR	LS	30/90	NR	LS	NR
Phenol (Carbolic Acid) <2>	88	NR	NR	20/70	NR	NR	NR
Phenol Formaldehyde Resin	All	40/100	50/120	40/100	50/120	50/120	40/100
Phenol Sulfonic Acid <6>	All	25/80	25/80	25/80	25/80	25/80	NR
Phenol/Methanol/Anionic Detergent	15/10/20	NR	NR	LS	NR	NR	NR
Phenolic Resin/ Phenol <2>	80/20			25/80			
Phenolic Resin/ Phenol <2>	90/10			50/120			
Phosphoric Acid	0.5 - 85	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid (Polyphosphoric Acid)	115	100/210	100/210	105/220	100/210	100/210	80/180
Phosphoric Acid (Superphosphoric Acid 76% P2O5)	105	100/210	100/210	105/220	100/210	100/210	80/180
Phosphoric Acid/Tributyl Phosphate (Vapor, Condensation)	85/0.5	50/120	60/140	60/140	50/120	60/140	40/100
Phosphoric Acid with Phosphorous Pentoxide, Hydrochloric Acid and Sulfuric Dioxide	Fumes	100/210	110/230	110/230	100/210	110/230	80/180
Phosphoric Acid, Vapor <6>	All	100/210	120/250	120/250	100/210	120/250	80/180
Phosphoric Acid/ Gypsum	61/39	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid/ Sulfuric Acid	85/15	40/100	40/100	50/120	40/100	40/100	40/100
Phosphoric Acid/Tributyl Phosphate/ Hydrofluoric Acid (no condensation of TBP)	88/0.1/0.03	80/180	80/180	100/210	80/180	100/210	80/180
Phosphoric Acid/ Zinc Chloride	0-100/0.5-70	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid/ Hydrochloric Acid, sat'd with Cl2 <8,9,12>	15:9	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid/ Sulfuric Acid	0-25/0-25	80/180	80/180	80/180	80/180	80/180	80/180
Phosphoric/ Sulfuric/ Hydrofluoric Acid <1,2>	0-75/1/0-3	65/150	65/150	65/150	65/150	65/150	65/150
Phosphorous Acid	70	80/180	80/180	80/180	80/180	80/180	80/180
Phosphorous Acid / Hydrochloric Acid <9,15>	0-70/1-5	100/210	100/210	100/210	100/210	100/210	80/180
Phosphorous Acid / Hydrochloric Acid <8,9,15>	0-70/6-10	65/150	65/150	80/180	65/150	65/150	
Phosphorus Oxichloride	100	NR	NR	LS	NR	NR	NR
Phosphorus Trichloride	100	NR	NR	LS	NR	NR	NR
Phthalic Acid <4>	All	100/210	100/210	100/210	100/210	100/210	NR
Picric Acid (Alcoholic) <4>	10	NR	LS	40/100	NR	NR	NR
Pine Oil	100	90/190	90/190	90/190	90/190	90/190	
Plating Chemicals <6>							
Polyacrylamide	All	80/180	80/180	80/180	80/180	80/180	80/180
Polyacrylic Acid	All	80/180	80/180	80/180	80/180	80/180	80/180
Polyethylene Glycol	100	100/210	100/210	100/210	100/210	100/210	65/150
Polyethylene glycol methyl ether <6>	100	80/180	80/180	80/180	80/180	80/180	
Polyethyleneimine	All	80/180	80/180	80/180	80/180	80/180	
Polyphosphoric Acid 115% H3PO4 (See phosphoric acid)							
Polyvinyl Acetate Adhesives	All	50/120	50/120	50/120	50/120	50/120	
Polyvinyl Alcohol	100	80/180	80/180	80/180	80/180	80/180	
Polyvinyl Chloride Latex with 35 parts Dioctyl Phthalate	All	50/120	50/120	50/120	50/120	50/120	
Potassium Aluminum Sulfate	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Potassium Bicarbonate	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Potassium Bromide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Carbonate <1>	0 - 50	80/180	80/180	80/180	80/180	80/180	80/180
Potassium Carbonate/Boric acid/Potassium Metavanadate <1>	20/4/1	80/180	80/180	65/150	80/180	65/150	80/180
Potassium Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Dichromate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Ferricyanide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 % C/F	441 % C/F	470 % C/F	510A/C % C/F	510N % C/F	8084 % C/F
Potassium Ferrocyanide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Fluoride	All	80/180	80/180	80/180	80/180	80/180	80/180
Potassium Gold Cyanide	12	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Hydroxide <1,2>	0 - 45	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Hydroxide:Potassium Cyanide:Copper Cyanide <1>	2:3:8 oz/gal, 2:2.5:7%	65/150	40/100	25/80	65/150	25/80	
Potassium Hydroxide, Potassium Hydroxide, Potassium Hypochlorite, Potassium Metasilicate <2,3,9>	50/40/10	50/120					
Potassium Iodide	All	100/210	100/210	100/210	100/210	100/210	100/210
Potassium Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Oxalate	All	65/150	65/150	65/150	65/150	65/150	80/180
Potassium Permanganate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Persulfate	All	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Pyrophosphate	60	55/130	65/150	65/150	55/130	65/150	55/130
Potassium Silicofluoride <1>	All	40/100	40/100	40/100	40/100	40/100	40/100
Potassium Sulfate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Propane	100	60/140	60/140	60/140	60/140	60/140	60/140
Propanol (n-)	100	40/100	40/100	50/120	40/100	40/100	NR
Propanol (n-), Fumes, no condensation or coalescence	fumes	80/180	80/180	80/180	80/180	80/180	80/180
Propionic Acid	0-50	80/180	80/180	80/180	80/180	80/180	80/180
Propionic Acid	0-50	80/180	80/180	80/180	80/180	80/180	80/180
Propionyl Chloride	100	NR	NR	LS	NR	NR	NR
Propyl Acetate	100	NR	NR	LS	NR	NR	NR
Propyl Bromide	100	NR	NR	LS	NR	NR	NR
Propyl Chloride	100	NR	NR	LS	NR	NR	NR
Propylene Glycol	100	100/210	100/210	100/210	100/210	100/210	NR
Propylene Glycol Monooethanolamine	0-99/1	25/80	NR	NR	NR	NR	NR
Propylene Glycol/ Ether, no condensation or coalescence	100	NR	NR	NR	NR	NR	NR
Propylene Glycol/ Ethoxyated Fatty Alcohols/ Diethylene Glycol n-Butyl Ether	60/20/20	40/100	45/110	50/120	40/100	50/120	NR
Propylene Glycol Methyl Ether Acetate, CAS #108-65-6 <2>	100	NR	LS	20/70	NR	NR	NR
Propylene Glycol Methyl Ether Acetate, CAS #108-65-6 <2>	20	40/100	50/120	50/120	40/100	50/120	40/100
Pyridine	20	40/100	40/100	40/100	40/100	40/100	NR
Pyridine	100	NR	NR	LS	NR	NR	NR
Quaternary Amine Salts	> 0.5	80/180	80/180	80/180	80/180	80/180	NR
Quinoline	20	40/100	40/100	40/100	40/100	40/100	80/180
Quinoline	100		LS				
Radiation Resistance <6>							
Rayon Spin Bath							
Rayon Spinning							
Recovery Boiler Gases (see Flue Gas)							
Red Liquor	All	80/180	80/180	80/180	80/180	80/180	65/150
Salicylic Acid	All	70/160	70/160	70/160	70/160	70/160	
Salt Brine	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Scrubbing Low MW Amines with 10% Sulfuric Acid, see Amine Salts							
Sea Water							
Selenious Acid	All	100/210	100/210	100/210	100/210	100/210	80/180
Silicon Tetrafluoride/Hydrofluoric/ Sulfuric Acid <1,2>	< 10 total	50/120	50/120	50/120	50/120	50/120	50/120

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40.

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 °C/F	441 °C/F	470 °C/F	510A/C °C/F	510N °C/F	8084 °C/F
Silver Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Silver Flating Solution, 4% Silver; 7% Potassium and 5% Sodium Cyanides; 2% Potassium Carbonate <1>		80/180	80/180	65/150	80/180	65/150	
Sodium Acetate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Alkyl Aryl Sulfonates	All	80/180	80/180	80/180	80/180	80/180	65/150
Sodium Aluminate <1>	All	70/160	70/160	50/120	70/160	50/120	50/120
Sodium Benzoate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Bicarbonate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Bicarbonate: Sodium Bicarbonate <1>	20:15	80/180	80/180	65/150	80/180	65/150	80/180
Sodium Chlorate, stable	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Chlorate/ Phosphoric Acid <6>	1-20/1-20						
Sodium Chlorate/ Sulfuric Acid <6>	1-20/1-20						
Sodium Chlorate: Sodium Chloride	3:4-20	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Chloride saturated solution (See Salt Brine)	Sat'd						
Sodium Chloride with Chlorine (See Chlorinated Brine)							
Sodium Chloride/ Ethyl Vanillin	0.1-25/1	50/120	50/120				
Sodium Chloride/ Magnesium Oxide/ Lime	0.5-26/0.1-20/0.1-10	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Chloride/ Sodium Hydroxide <1,2>	0.5-10/0.1-2	80/180	65/150	40/100	80/180	65/150	50/120
Sodium Chloride: Sodium Chlorate	20:34	100/210	100/210	100/210	100/210	100/210	
Sodium Chlorite, pH < 6, see Chlorine Dioxide							
Sodium Chlorite, pH > 6, <5>	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Chlorite/ Sodium Hypochlorite, pH > 11, <2,3,9>	0.1-25/0.1-15	40/100	40/100	40/100	40/100	40/100	40/100
Sodium Chromate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Cyanide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Dichromate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Dimethylthiocarbamate/ Disodium Ethylene Bisdithiocarbamate	0.1-15/0.1-15	40/100	40/100	50/120	40/100	50/120	40/100
Sodium Diphsphate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Dodecylbenzene Sulfonate	All	70/160	70/160	70/160	70/160	70/160	80/180
Sodium Ferricyanide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Ferrocyanide	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Fluoride	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Fluoroborate <1>	> 0.5	95/200	95/200	50/120	95/200	50/120	50/120
Sodium Fluosulfate <1>	All	50/120	50/120	50/120	50/120	50/120	50/120
Sodium Gluconate	> 0.5	80/180	95/200	100/210	95/200	100/210	65/150
Sodium Glycolate	> 0.5	80/180	95/200	100/210	95/200	100/210	65/150
Sodium Hexametaphosphate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Hydrosulfide (Sodium Bisulfide)	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Hydrosulfite	All	40/100	40/100	40/100	40/100	40/100	40/100

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	% C/F	% C/F	% C/F	% C/F	% C/F	% C/F
Sodium Hydroxide < 1,2>	All	80/180	65/150	40/100	80/180	65/150	65/150
Sodium Hydroxide/Sodium Chloride/Sulfate (active Chlorine)	1-20/1-15/1-8/	80/180	65/150	40/100	80/180	65/150	65/150
Sodium Hydroxide/Organics (within solubility limits, i.e. no phase separation or coalescence)	8/ traces	80/180	65/150				
Sodium Hydroxide/Sodium Hypochlorite (active Chlorine) < 1,2>	0-20/0-0.1	80/180					
Sodium Hypochlorite (active Chlorine), pH < 11, < 2,3,5,9>	0.5-5.25	65/150	65/150	40/100	80/180	65/150	65/150
Sodium Hypochlorite (active Chlorine), pH < 11, < 2,3,5,9,19>	5.25-18	65/150	50/120		65/150	50/120	65/150
Sodium Hypochlorite (active Chlorine), pH < 11, < 2,3,5,9,19>	18-21		40/100		510A: 50/120; 510C:45/1 10		
Sodium Hypochlorite (active Chlorine), pH > 11, < 2,3,5,9,19>	21-25				510A only: 40/100		
Sodium Lauryl Sulfate	All	70/160	70/160	70/160	70/160	70/160	80/180
Sodium Metabisulfite	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Methylthiocarbamate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Monophosphate	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Myristyl Sulfate	All	70/160	70/160	70/160	70/160	70/160	80/180
Sodium Nitrate	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Nitrite	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Oxalate	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Perchlorate	60	40/100	40/100	40/100	40/100	40/100	40/100
Sodium Persulfate	All	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Phosphate, mono-, di-, tribasic	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Polyacrylate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium salt o-phenylphenate (Antimicrobial)	All	50/120	50/120	50/120	50/120	50/120	50/120
Sodium Sarcosinate	40	50/120	50/120	50/120	50/120	50/120	50/120
Sodium Silicate < 1>	< 0.5	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Sulfate	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Sulfate/Sodium Sulfite	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Sulfhydrate (See Sodium Hydrosulfide)							
Sodium Sulfide	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Sulfite	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Sulphite/Sodium Hydroxide/ Toluene	22/10/5	25/80	40/100	40/100	25/80	40/100	NR
Sodium Tartrate	< 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Tetraborate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Thiocyanate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Thiosulfate	All	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Tripolyphosphate	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Xylene Sulfonate	All	70/160	70/160	70/160	70/160	70/160	80/180
Solder Plate (see Plating Chemicals)							
Solvent Extraction Solutions: 3% Isodecanol, 6% Amines tri-C8-C10-alkyl, 91% Kerosene		80/180	80/180	80/180	80/180	80/180	65/150
Solvent Extraction Solutions: 4% Tricyclic phosphine Oxide (TPO), 4% Di-2-Ethylhexyl Phosphoric Acid (DEHPA), 92% Kerosene		80/180	80/180	80/180	80/180	80/180	80/180

For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40. In bold: preferred resin

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411	441	470	510A/C	510N	8084
	%	%C/F	%C/F	%C/F	%C/F	%C/F	%C/F
Sorbitol Solutions	All	70/160	70/160	80/180	70/160	70/160	
Sour Crude Oil (see crude oil)							
Soy (Soya) Sauce <18>		70/160	70/160				
Soya Oil <18>	100	100/210	100/210	100/210	100/210	100/210	65/150
Spearmint Oil <18>	100	40/100	40/100				
Stannic Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Stannous Chloride	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Steam, dry, no condensation		100/210	105/220	105/220	100/210	105/220	80/180
Steam, wet, condensation		80/180	80/180	80/180	80/180	80/180	80/180
Stearic Acid	All	100/210	100/210	100/210	100/210	100/210	65/150
Styrene	100	NR	40/100	50/120	NR	40/100	NR
Styrene Acrylic Emulsion	All	50/120	50/120	50/120	50/120	50/120	
Styrene-Butadiene Latex	All	60/140	60/140	60/140	60/140	60/140	60/140
Succinonitrile, Aqueous	All	25/80	40/100	40/100	25/80	40/100	NR
Sugar / Sucrose <18>	All	100/210	100/210				
Sugar Beet, Liquor <18>	All	80/180	80/180				
Sugar Cane, Liquor & Sweetwater <18>	All	80/180	80/180				
Sulfamic Acid	0.5 - 10	100/210	100/210	100/210	100/210	100/210	80/180
Sulfamic Acid	11 - 15	80/180	80/180	80/180	80/180	80/180	65/150
Sulfamic Acid	16 - 25	65/150	65/150	65/150	65/150	65/150	65/150
Sulfamic/Boric/ Glycolic Acid	0.5-25/0.5-30/0.5-10	65/150	65/150	65/150	65/150	65/150	
Sulfanilic Acid (meta)	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sulfanilic Acid (para) <4.6>	> 0.5	100/210	100/210	100/210	100/210	100/210	80/180
Sulfate Process Noncondensable Gases (see Flue Gas)							
Sulfated Detergents (see Sulfonated Detergents)							
Sulfated Tall Oil Fatty Acid, see Tall Oil	1-70						
Sulfides Scrubbing with Caustic, see Sodium Hydroxide							
Sulfite/Sulfate Liquors (Pulp Mill)	95/200	95/200	95/200	95/200	95/200	95/200	80/180
Sulfonated Detergents	100	70/160	80/180	80/180	70/160	80/180	70/160
Sulfur Chloride	Fumes	95/200	95/200	95/200	95/200	95/200	80/180
Sulfur Chloride	100	NR	NR	LS	NR	NR	NR
Sulfur Dioxide, see Flue Gas							
Sulfur Trioxide, dry <6>	Fumes						
Sulfur Trioxide, wet <6>, see Sulfuric Acid							
Sulfur, Molten (dry) <16>	100	120/250	120/250	150/300	120/250	120/250	
Sulfur, Wettable, Fungicide <4>	All	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric / Nitric/ Phosphoric Acids	0-13/0-11/0-30	65/150	65/150	65/150	65/150	65/150	
Sulfuric Acid	0.5 - 25	100/210	105/220	105/220	100/210	105/220	80/180
Sulfuric Acid	26 - 50	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid	51 - 70	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric Acid <15>	71 - 75	40/100	50/120	80/180	40/100	50/120	40/100
Sulfuric Acid <2,15>	76 - 80/180	40/100	40/100	50/120	40/100	40/100	40/100
Sulfuric Acid <15>	> 80	NR	NR	NR	LS	NR	NR
Sulfuric Acid/ Ammonium Bifluoride <1>	0-75/0-13	40/100	50/120	65/150	40/100	50/120	50/120
Sulfuric Acid/ Copper Sulfate	0-25/1-35	100/210	100/210	100/210	100/210	100/210	
Sulfuric Acid/ Copper Sulfate/ Sodium Persulfate/ EDTA	13/12/11	55/130	55/130	55/130	55/130	55/130	55/130
Sulfuric Acid/ Hydroiodic Acid	60/20	40/100	40/100	40/100	40/100	40/100	40/100
Sulfuric Acid/ Hydrofluoric Acid <1,2>	25/10	40/100	45/110	50/120	40/100	40/100	40/100
Sulfuric Acid/ Hydrofluoric Acid <1,2>	10/10	40/100	50/120	65/150	40/100	40/100	40/100
Sulfuric Acid/ Hydrogen Peroxide <3>	1-20/1-10	65/150	65/150	65/150	65/150	65/150	65/150
Sulfate/ Copper Sulfate <3>	10/5/5/5	40/100	40/100	40/100	40/100	40/100	
Sulfuric Acid/ Hydrogen Sulfide	1-50/0-10	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid/ Methanol	30/5		40/100	50/120			

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	8084	510N	510A/C	470	441	411	510A/C	470	441	411	510A/C	470	441	411	510A/C	470	441	411
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Sulfuric Acid/ Nitric Acid	20/5	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric Acid/ Phosphoric Acid	0-25/0-25	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric Acid/ Sodium Chromate <6>																		
Sulfuric Acid/ Sodium Dichromate, see Sulfuric Acid/Chromic Acid Mixture																		
Sulfuric Acid/Hydrochloric Acid <8,9,13>	50/15	40/100	40/100	50/120	45/110	40/100	40/100	50/120	45/110	40/100	40/100	50/120	45/110	40/100	40/100	50/120	45/110	40/100
Sulfuric Acid/Hydrochloric Acid <9,12>	1-25/1-10	80/180	100/210	100/210	100/210	80/180	100/210	100/210	100/210	80/180	100/210	100/210	100/210	80/180	100/210	100/210	100/210	100/210
Sulfuric Acid/Hydrofluoric Acid <1,2>	1-20/3-6	55/130	55/130	60/140	55/130	55/130	60/140	55/130	55/130	60/140	55/130	60/140	55/130	60/140	55/130	60/140	55/130	60/140
Sulfuric Acid/Hydrofluoric Acid	30-35/3-5	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Sulfuric Acid/Inorganic Salts	0.5-20/0.5-50	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
Sulfuric Acid/Sulfate Salts, max. total concentration 80%, see Sulfuric Acid	21-50/0.5-20	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric Acid: Chromic Acid Mixture (Maximum Total Concentration 10%)	50/120	65/150	50/120	65/150	65/150	50/120	65/150	65/150	50/120	65/150	65/150	50/120	65/150	65/150	50/120	65/150	65/150	50/120
Sulfuric/ Hydrochloric/ Hydrofluoric / Phosphoric Acids/ Chlorinated Solvents	40/20/5/35/1	NR	NR	LS	NR	NR	LS	NR	NR	NR	NR	LS	NR	NR	NR	NR	NR	NR
Sulfuric/ Hydrofluoric Acids/ MIBK <1,2>	25/10/2	LS	LS	50/120	40/100	LS	50/120	40/100	LS	50/120	40/100	LS	50/120	40/100	LS	50/120	40/100	LS
Sulfuric/ Lactic Acids/ Sodium Sulfate	50/20/0-10	40/100	50/120	65/150	40/100	50/120	65/150	40/100	50/120	65/150	40/100	50/120	65/150	40/100	50/120	65/150	40/100	50/120
Sulfurous Acid	10	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Superphosphoric Acid (76% P2O5) (See Phosphoric acid)	105% H3PO4																	
Surfactant, Anionic	All	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120
Surfactant <6>																		
Tail Oil (Storage)	100	95/200	105/220	105/220	95/200	100/210	105/220	105/220	95/200	100/210	105/220	105/220	105/220	95/200	100/210	105/220	105/220	105/220
Tail Oil Reactor <6>																		
Tallow/ Sulfuric Acid	99/1	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Tannic Acid	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
Tap Water, hard <2>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
Tap Water, soft <2>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Tartric Acid	< 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
t-Butyl Methyl Ether (MTBE)	20	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120	50/120	40/100	50/120
t-Butyl Methyl Ether (MTBE)	30/90	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetabutyltin	100	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Tetrachloroethane	100	40/100	50/120	55/130	40/100	50/120	55/130	40/100	50/120	55/130	40/100	50/120	55/130	40/100	50/120	55/130	40/100	50/120
Tetrachloroethylene (Perchloroethylene)	100	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100
Tetrachloropyridine	100	100	50/120	50/120	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100	50/120	25/80	40/100
Tetraethyl Orthosilicate	100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Tetrahydrofuran	0-5	40/100	40/100	50/120	40/100	40/100	50/120	40/100	40/100	40/100	50/120	40/100	40/100	50/120	40/100	40/100	50/120	40/100
Tetrahydrofuran	10-100	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrahydrofuran, Fumes, no condensation or coalescence	fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Tetramethyl Ammonium Hydroxide <1>	0-10	50/120	40/100	40/100	50/120	40/100	40/100	50/120	40/100	40/100	50/120	40/100	40/100	50/120	40/100	40/100	50/120	40/100
Tetra-n-Butylammonium Hydroxide <1,2>	40	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Tetra-n-Butylphosphonium Hydroxide, <1,2>	40	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Tetrapotassium Pyrophosphate	0-60	55/130	65/150	65/150	55/130	65/150	65/150	55/130	65/150	65/150	55/130	65/150	65/150	55/130	65/150	65/150	55/130	65/150
Tetrasodium Ethylenediaminetetraacetic Acid (Tetrasodium Salt of EDTA)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Thermal Oxidizer (HCl Absorption), see Flue Gas, Wet																		
Thioglycolic Acid, see Mercaptoacetic Acid																		
Thionyl Chloride	100	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Thiourea	0-50	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Tin Fluoroborate Plating Bath: 18% Stannous Fluoroborate, 7% Tin, 9% Fluoboric Acid, 2% Boric Acid <1>	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210
Titanium Dioxide	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Titanium Dioxide/Sulfuric Acid	0-30/30	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210

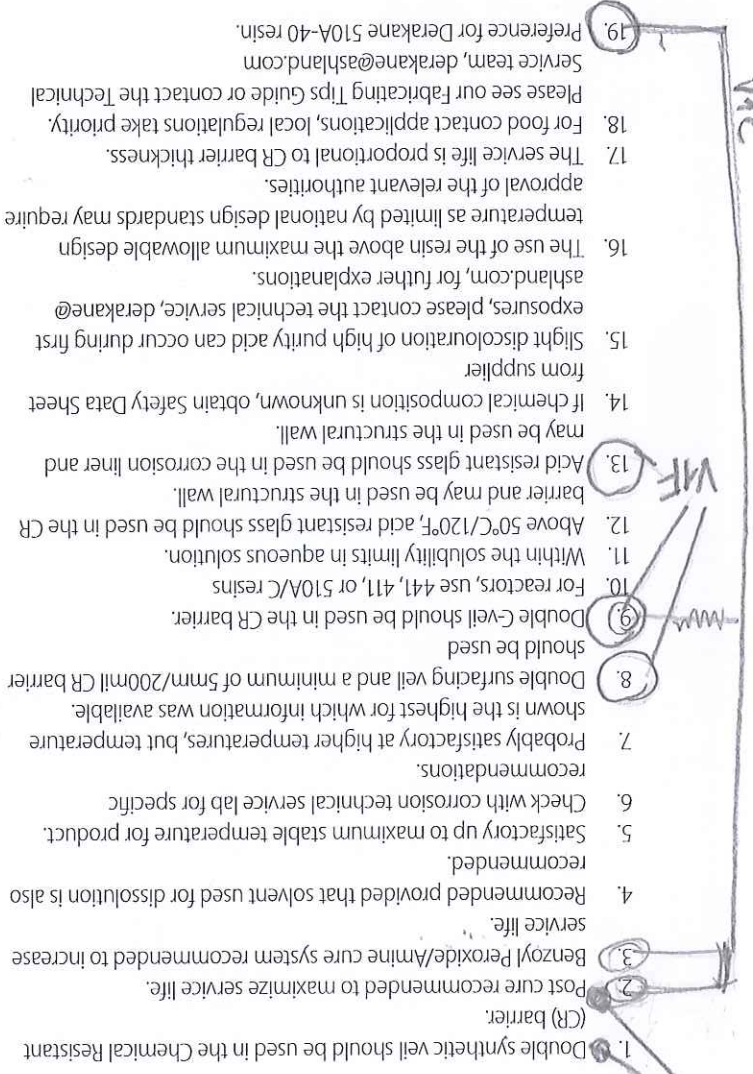
For notes in English, see page 8; French, see page 16; German, see page 24; Portuguese, see page 32; Spanish, see page 40.

Chemical Resistance Table: Maximum Service Temperatures for Derakane and Derakane Momentum™ Resins—continued

Chemical Environment	Concentration	411 % °C/F	441 % °C/F	470 % °C/F	510A/C % °C/F	510N % °C/F	8084 % °C/F
Titanium Tetrachloride	All	65/150	80/180	80/180	65/150	80/180	80/180
Tobias Acid (2-Naphthylamine-1-Sulfonic) <6>	100	100/210	100/210	100/210	100/210	100/210	80/180
Toluene	100	25/80	40/100	50/120	25/80	40/100	NR
Toluene Diisocyanate (TDI) <2>	100	NR	NR	30/85 <6>	NR	NR	NR
Toluene Sulfonic Acid <6>	> 0.5	80/180	95/200	100/210	95/200	100/210	
Toluene, Fumes, no condensation or coalescence	fumes		65/150	80/180	80/180	80/180	
Toluidine (o-, p-, m-)	100	NR	NR	20/70	NR	NR	NR
Tomato Sauce	All	90/190	90/190	65/150			
Transformer Oils (Ester types)	100	50/120	65/150	65/150		65/150	
Transformer Oils (Silicone and Mineral Oils) <16>	100	100/210	120/250	150/300	110/230	120/250	
Tributyl Phosphate	100	50/120	60/140	60/140	50/120	60/140	40/100
Trichloroacetic Acid	85	25/80	40/100	50/120	25/80	40/100	25/80
Trichloroethane	100	40/100	50/120	50/120	40/100	50/120	NR
Trichloroethylene	100	NR	NR	LS	NR	NR	NR
Tricresyl Phosphate	100	70/160	70/160	70/160	70/160	70/160	
Triethanolamine	100	50/120	50/120	50/120	50/120	50/120	NR
Triethylamine/Triethylamine Hydrochloride/ Hydrochloric Acid	50/20/5	50/120	50/120	50/120	50/120	50/120	NR
Triethylene Glycol, see Ethylene Glycol							
Trifluoroacetic Acid (see Chloroacetic Acid)							
Trimethyl Ammonium Chloride (Trimethylamine HCl, TMA-HCl)	70	40/100	40/100	50/120	40/100	40/100	40/100
Trimethyl Benzene	100	25/80	40/100	50/120	25/80	50/120	NR
Trimethylamine	20	40/100	50/120	50/120	40/100	50/120	NR
Trimethylamine	100	25/80	25/80	40/100	25/80	25/80	
Trimethylamine, Fumes, no condensation or coalescence	fumes			80/180	80/180	80/180	
Trimethylene Chlorobromide	NR	25/80	40/100	40/100	NR	25/80	NR
Triethyl Phosphine Oxide; Di-2-Ethylhexyl Phosphoric Acid (DEHPA); Kerosene	4:4:92	80/180	80/180	80/180	80/180	80/180	
Triethylphosphate	100	70/160	70/160	80/180	70/160	70/160	40/100
Tripropylene Glycol, see Ethylene Glycol							
Trisodium Phosphate	Sat'd	100/210	120/250	120/250	100/210	120/250	80/180
Turpentine	100	65/150	100/210	100/210	65/150	100/210	40/100
Uranium Extraction, see Kerosene							
Urea	All	70/160	70/160	70/160	70/160	70/160	65/150
Urea Formaldehyde Resin	All	40/100	50/120	50/120	40/100	50/120	40/100
Urea: Ammonium Nitrate; Water	35:44:20	65/150	65/150	65/150	65/150	65/150	65/150
Urine, see Urea	All						
Vanillin Black Liquor <18>	50/120	50/120					
Vinegar <18>	100	100/210	100/210	100/210	100/210	100/210	65/150
Vinyl Acetate	20	40/100	40/100	40/100	40/100	40/100	NR
Vinyl Acetate	100	NR	NR	LS	NR	NR	NR
Vinyl Chloride	100	NR	NR	LS	NR	NR	NR
Vinyl Chloride Fumes, no condensation	All						
Vinyltoluene	100	25/80	50/120	50/120	25/80	50/120	NR
Water Deionized <2>	100	80/180	80/180	80/180	80/180	80/180	80/180
Water Vapor, wet <2>	Sat'd	80/180	80/180	80/180	80/180	80/180	80/180
Water Vapor, no condensation, see Flue Gas, dry							
Water, Phenol, see Phenol							
Water, Sea, Desalination	All	80/180	80/180	80/180	80/180	80/180	80/180
Water, Steam Condensate <2>	100	80/180	80/180	80/180	80/180	80/180	80/180

Footnotes

Information indicated in footnotes is essential in order to ensure a good service life of FRP equipment. It is strongly recommended that they are followed.



NR: Not Recommended

LS: Limited service, in general 3 days to 1 year lifetime at room temperature (max. 40°C/100°F), usually sufficient for secondary containment.

Veils

- For 411, 441, 510A/C and 8084 resins: 80°C/180°F.
- For 470 and 510N resins: 100°C/210°F.
- This norm recommends 1 hour per mm thickness of the laminate (between 5 and 15 hours).

The postcure conditions as detailed in DIN 18820 may be used:

For a service temperature below 100°C/210°F:

A postcure may extend the service life if the operating temperature is within 20°C/40°F of the present CR guide maximum temperature for the service. This means that a postcure can be beneficial for solvent applications with a temperature limit of 25-40°C/80-100°F. For a service temperature above 100°C/210°F: Postcure in service may be sufficient, provided the resin specific minimum Barcol hardness values are reached before start up.

For service in pure and neutral salt solutions: Postcure may, in general, not be required, provided the resin specific minimum Barcol hardness values are reached and no acetone sensibility is shown before start up. When using a BPO/Amine cure system, postcure is strongly recommended and should be done within two weeks of construction.

Postcure

All common veils (non-apertured synthetic and glass veils) are suitable for most environments. Hydrofluoric acid (HF) containing solutions require the use of synthetic or carbon veils. Typically one veil layer results in a final thickness of approximately 0.3 mm. The thickness of the veil layer is at least as important as the nature of the veil itself. Apertured synthetic veil (such as Nexus™ 100-10) offers an extra thickness of the veil layer and is preferred for cases where this extra thickness can increase service life (e.g. hot caustic solutions). Carbon veils have demonstrated excellent resistance to a number of aggressive chemicals such as HF, HCl, NaOH but not NaOCl (Sodium Hypochlorite). Carbon veil is also useful to achieve conductive surfaces.

