resin selection guide for corrosion resistance

derakane™ epoxy vinyl ester resins

chemical resistance for FRP applications

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contents

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derakane™ chemical resistance guide

foreword

Derakane™, Derakane™ Momentum™, and Derakane™ Signia™ epoxy vinyl ester resins (from this point forward referred to as Derakane™ resins) are designed and manufactured by Ashland. These resins possess outstanding corrosion-resistant properties and satisfy critical requirements in Fiber-Reinforced Plastic (FRP). Because they possess outstanding corrosion-resistant properties, Derakane™ resins are particularly well suited for demanding industrial applications.

This guide briefly describes the various Derakane™ resins, and it presents detailed chemical resistance data needed to assist engineers in specifying and designing corrosion-resistant FRP applications.

Recommendations given in this guide apply to "state-of-the-art" corrosion-resistant structures. Typically, these structures have a corrosion barrier that is 2.5 to 6.3 mm (100 to 250 mil) thick and are designed for contact with a specific chemical environment. The first layer of the corrosion barrier usually is 0.3 to 0.8 mm (10 to 20 mil) thick and is 95% resin, reinforced by one or two surfacing veils. This layer is then backed with 2 to 6 mm (90 to 230 mil) of 75% resin, reinforced with chopped strand mat (powder binder only). Finally, the corrosion barrier is backed with a structural laminate that provides the strength and stiffness for the overall corrosion-resistant composite structure.

Because many of the variables that affect the performance of a laminate are beyond Ashland's control, no warranty concerning the use of Derakane™ epoxy vinyl ester resins can be made. However, the service conditions shown in this bulletin are believed to be well within the capabilities of Derakane™ epoxy vinyl ester resins when laminates are properly designed, fabricated, and installed.

For the design of FRP equipment, prospective users of Derakane™ resins should refer to the appropriate industry standards and design guidelines.

For more information, contact Ashland Technical Service at derakane@ashland.com or by visiting www.derakane.com.

brief product description

Derakane™ 411 series resins are the globally recognized standard for epoxy vinyl ester resins. They are based on bisphenol-A epoxy resin, and they provide resistance to a wide range of acids, alkalis, bleaches and solvents for use in many chemical processing applications. They offer excellent toughness and fatigue resistance.

Derakane™ 441-400 resins are low styrene monomer bisphenol-A epoxy vinyl ester resins with mechanical, thermal and chemical resistance properties between Derakane™ 411 and Derakane™ 470 resins. Their unique combination of high HDT and elongation makes them the resins of choice for applications with thermal cycling, e.g., for chemical reaction vessels.

Derakane™ 451-400 resin is a low viscosity, unpromoted novolac epoxy vinyl ester. This product allows the use of standard MEKP, exhibits excellent exotherm control and industry-leading storage stability. It offers exceptional hot water, solvent and acid resistance, excellent impact strength and high heat resistance and tensile elongation.

Derakane™ 455-400 resin is an unpromoted, highly crosslinked novolac epoxy vinyl ester. This product allows the use of standard MEKP, exhibits excellent exotherm control, and industry-leading storage stability. Derakane™ 455-400 resin contains less than 35% styrene and offers a higher heat distortion temperature compared to Derakane™ 451-400 resin. It also exhibits excellent solvent and acid resistance as well as high flexural strength and heat resistance.

Derakane™ 470 series resins are epoxy novolac based vinyl ester resins designed to provide exceptional thermal and chemical resistance properties. They offer high resistance to solvents, acids, and oxidizing substances such as chlorine. They also offer high retention of strength and toughness at elevated temperatures, making them the resins of choice for flue gas applications.

Derakane™ 510A/B/C series resins are brominated epoxy vinyl ester resins that offer a high degree of fire retardance[1]. They are very resistant to chemical attack by chlorine and bleach environments. Their bromine content makes them tougher and more fatigue resistant than standard epoxy vinyl ester resins.

Derakane™ 510N resin is a brominated epoxy novolac vinyl ester resin that offers a high degree of fire retardance*. It exhibits a corrosion resistance similar to Derakane™ 470 resins in most environments. It is also useful in hot, wet flue gas environments where thermal upsets can occur and where fire retardance is desired. This product is only available from North America.

Derakane™ 515-400 resin is a brominated, low viscosity, unpromoted, flame retardant epoxy vinyl ester resin. This product allows the use of standard MEKP, exhibits excellent exotherm control, and industry leading storage stability. It addition to excellent flame retardancy, it offers excellent thermal shock resistance and corrosion resistance to acids and oxidizers. It is well-suited for caustic/chlorine and power industry applications.

Derakane™ 8084 resin is an elastomer-modified bisphenol-A epoxy vinyl ester resin that offers very high toughness, impact and fatigue resistance and excellent adhesion. It is the resin of choice for demanding structural applications and as a primer for chemically resistant FRP linings.

* The degree of retardance achieved in properly formulated cured products made of these resins is most frequently quantified by the ASTM E84 tunnel test. This is a controlled test that compares flammability characteristics of one material with another, but may not be predictive of behavior in a real fire situation. Derakane and Derakane™ Momentum™ epoxy vinyl ester resins are organic materials and will burn under the right conditions of heat and oxygen supply.

how to use the chemical resistance table

content

This listing of chemical reagents and environments shows the highest known temperature at which equipment made with Derakane™ resins has, in general, either:

- given good service in industry or
- been tested in the field or in the laboratory (in accordance with ASTM C 581) with results that indicate a good life expectancy in service

It should be noted that this is not necessarily the maximum service temperature.

The temperature limits in each column are representative of the whole family of resins (e.g., the Derakane™ 411 resins column applies to Derakane™ 411, Derakane™ Momentum™ 411, and Derakane™ Signia™ 411 resins).

Each series of Derakane™ resins is based on the same epoxy (or novolac) vinyl ester resin backbone. Improvements have been made over the years for processing and stability as seen in our recent introduction of the Derakane™ Signia™ resins. For example, Derakane™ 411-350, Derakane™ Momentum™ 411-350, and Derakane™ Signia™ 411-350 resins each are based on the same polymer backbone and comparison studies confirm that their performance in corrosive environments is essentially equivalent. Corrosion data and case history information for each series of Derakane™ 411 resins can be applied to the entire family of Derakane™ 411 resins.

In the chemical resistance tables, a blank space indicates that no data was available at the time that temperature ratings were assigned.

NR stands for "not recommended" at any temperature.

LS stands for "limited service" (at least 3 days to 1 year at maximum 40 °C/100 °F). Generally, in these cases, the respective resins can be used for FRP that is exposed accidentally, and where cleaning and inspection is possible after no more than 3 days.

This guide is updated periodically as needed to take into consideration new experiences and data (e.g., new products, other temperatures or concentrations, etc.).

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Hydrochloric Acid / Dissolved Organics <8,9,13>	0 - 33% HCl	NR				65/150 <15>				NR

[8] Double surfacing veil and a 5mm/200mil CR barrier should be used

[9] Double C-veil should be used in the CR barrier

[13] Acid resistant glass should be used in the corrosion liner and may be used in the structural wall

[15] Solution may discolor

weight - % unless otherwise stated

not recommended

no data available

highest recommended temperature (°C/ °F)

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.

1 Double synthetic veil should be used in the CR barrier. Carbon veil can be used in alkaline environments above 50 °C/120 °F and in hydrofluoric acid environments for maximum corrosion resistance.

2 Post cure recommended to maximize service life.

3 Benzoyl Peroxide/Amine cure system recommended to increase service life.

4 Recommended provided the recommended resin is also suitable for the solvent used for dissolution.

5 Satisfactory up to maximum stable temperature for product.

6 Check with the Ashland Technical Service team for specific resin recommendation.

7 Probably satisfactory at higher temperatures, but temperature shown is the highest for which information was available.

8 Double surfacing veil and a minimum 5mm / 200mil CR barrier should be used.

9 Double C-veil should be used in the CR barrier. Nexus veil is recommended in sodium hypochlorite when sodium hydroxide is present. ECR veil may also be used.

10 For reactors, resins with higher elongation may be preferred.

11 Within the solubility limits in aqueous solution.

12 Above 50 °C/120 °F, acid resistant glass should be used in the CR barrier and may be used in the structural wall.

13 Acid resistant glass should be used in the corrosion liner and may be used in the structural wall.

14 If chemical composition is unknown, obtain Safety Data Sheet from supplier

15 Solution may discolor.

16 The use of the resin above the maximum allowable design temperature, as limited by national design standards, may require approval of the relevant authorities.

17 The thickness of the CR barrier is proportional to the service life.

18 For food contact applications, local regulations apply. Please see our Fabricating Tips Guide or contact the Ashland Technical Service team.

19 Preference for Derakane™ 510A or B at higher concentrations and temperatures, together with notes 2 and 3.

20 Carbon veil recommended at higher temperatures listed.

21 Maximum recommended temperature is 80 °C/180 °F for aqueous solutions below 0.5%.

22 For potable water applications, please contact the Ashland Technical Service team.

23 Chemical suppliers should approve materials of construction.

24 If the salt solution is saturated, the maximum use temperature from a corrosion resistance point of view could be increased up to the boiling point of the solution or the heat distortion temperature (HDT) of the resin, whichever is lower.

25 A longer life can be obtained if Derakane™ 510B resin is used for environments containing 8-15% sodium hypochlorite.

NR : Not Recommended

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

post cure

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

A post cure 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 post cure 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:

Post cure in service may be sufficient, provided the resin specific minimum Barcol hardness values are reached before startup.

For service in pure and neutral salt solutions:

Post cure may, in general, not be required, provided the resin specific minimum Barcol hardness values are reached and no acetone sensitivity is detected before startup.

When using a BPO/Amine cure system:

Post cure is strongly recommended and should be performed within two weeks of construction.

The post cure conditions as detailed in European Standard EN 13121 may be used:

- For Derakane™ 411, 441, 510A/B/C, and 8084 resins: Four hours at 80 °C/180 °F
- For Derakane™ 470 and 510N resins: Four hours at 90 °C/200 °F
- This norm recommends 1 hour per mm thickness of the laminate (between 5 and 15 hours).

veils

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. An 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, and NaOH **but not sodium hypochlorite (NaOCl)**. Carbon veil is also useful in achieving conductive surfaces.

special cases

insufficient information

In cases where the environment or exposure conditions are outside the scope of this guide, and thus no specific recommendations can be made, a test laminate should be exposed to the actual, or simulated, conditions proposed so that a final decision on resin suitability can be reached.

coatings and linings (reinforced and non-reinforced)

Coatings and linings have their own specific properties and may be limited in operating temperatures because of thermal expansion. In special cases, it is recommended to consult with the Ashland Technical Service team or with a company in your region that specializes in linings and coatings technology.

Laminate linings can be more durable in liquid environments than other lining systems. For quality reasons, they should be applied by hand lay-up and not by spray-up techniques. As a general rule, and as a result of the low or missing exotherm during polymerization, linings and coatings should be post cured whenever possible (see also the "Post Cure" section of this guide).

Special precautions are required for strongly diffusing media (HCl, HF, etc.). As a general rule: the thicker and the better cured the lining, the higher the diffusion resistance and the longer the life expectancy.

high (flue) gas temperatures

If a synthetic veil is recommended for hot gas environments, the temperature resistance of the veil must be sufficient.

If it is not, a carbon veil can often be used.

If the environment contains water vapor and/or acids, special measures must be taken to prevent sub-dewpoint conditions in the laminate.

short term exposure / spillage

If exposure is intermittent or limited to fumes or spills only, it is possible to have good service life at temperatures considerably higher than those shown and even have good service life in chemical environments shown as NR (Not Recommended). Contact the Ashland Technical Service team for a resin recommendation at derakane@ashland.com or by visiting derakane.com.

mixtures or alternating environments

The information provided in this guide represents the performance of full FRP structures under continuous use in contact with the stated chemical environment (unless otherwise indicated).

It is sometimes difficult to predict just how aggressive certain combinations of chemicals will be toward FRP. Some mixtures are more aggressive toward FRP than the individual components, so special attention should be paid to aggressively synergistic chemicals which cannot readily be predicted based solely on the corrosion properties of the individual components.

The chemical resistance may also be negatively influenced by using the same equipment for alternating storage or transport of different products, particularly where these products have widely differing properties, such as acids and bases that chemically react with each other.

When in doubt, please consult with your local distributor or your Ashland sales representative, who can put you in touch with the appropriate technical resources at Ashland.

chemical resistance inquiry

When requesting resin recommendations for corrosion applications, the following data are necessary for your request to be processed:

- Chemical nature of all products in a process or a batch, with their corresponding concentrations (even traces).
- Service temperatures, including maximum and upset temperatures (with corresponding duration).
- State: liquid/gas/solid (risk of phasing or condensation if any).
- Type of equipment (tank, pipe, lining, etc.)

Please feel free to use the enclosed "Chemical Resistance Inquiry" form and email your inquiries to your local distributor or the Ashland Technical Service team at derakane@ashland.com.

safety precautions

Derakane™ epoxy vinyl ester resins and the materials (solvents, accelerators, catalysts, etc.) used with them can be hazardous unless simple but precise precautions are taken. The precautions necessary for handling Derakane™ resins are similar to those for unsaturated polyesters and will therefore be familiar to trained personnel. Safety Data Sheets (SDS) on all Derakane™ resins are available to help customers satisfy their own handling and disposal needs.

notice

Recommendations as to methods and use of materials made in this publication are based on the experience of Ashland LLC and knowledge of the characteristics of Derakane™ resins, and are given in good faith. However, because as a material supplier, Ashland does not exercise any control over the use of Derakane™ resins, no legal responsibility is accepted for such recommendations. In particular, no responsibility is accepted by Ashland for any system or application in which Derakane™ resins are utilized. The legal obligations of Ashland in respect of any sale of Derakane™ resins shall be determined solely by the terms of its respective sales contract.

derakane™ epoxy vinyl ester resins

chemical resistance inquiry form

Please e-mail this form to derakane@ashland.com or fax to +49(0)7851 99 478-30 (Europe) or your distributor.

Date:		**Number of pages:**		**Project name:**
To: **Technical Service Derakane™ Resins** **Ashland Performance Materials** E-Mail: **derakane@ashland.com**		*From:* **Name:** **Company:** **E-Mail:** **Fax:** **Tel:**		**Engineering:** **End-user:** **Fabricator:**
Industry Sector/Process: *(Chemical, Paper, Mining, Flue Gas…)*				**Comments / notes:** *(eg.: unusual process conditions, Temperature cycling, high / low concentrations, addition & dilution, novel design or construction, abrasion)*
Equipment Type: *(Tank, Scrubber, Pipe / Duct, Lining...)*	*Tank or Pipe?*	*Other:*		
	Full FRP Applications or lining on steel, concrete?			
Dimensions/Capacity: *(Height, Diameter, Flow Rate…)*				
OPERATING CONDITIONS		**Concentration / Units** (g/L, oz/gal, %)		
Chemical Environment or CAS Numbers *(indicated on the Safety Data Sheet)*		*Minimum*	*Normal*	*Maximum*
1)				
2)				
3)				
4)				
NOTE: Please show all major / minor components, concentrations – including traces. (If insufficient space – please add extra sheet or include the respective Safety Data Sheet.)				
Temperatures (°C) or (°F)?	Minimum:	Normal operating temperature:	Maximum: Design:	
Upsets:	*Maximum Temperature, Duration (h), Frequency per year:*			
Pressure (Bar, psi) / Vacuum:		**pH – typical:** *Min., Normal, Max.:*		

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chemical name/CAS numbers

CAS Number	Chemical Name
7-31-3	Methyl Formate
10-54-3	Hexane
50-0-0	Formaldehyde
50-21-5	Lactic Acid
50-70-4	Sorbitol
50-78-2	Acetylsalicylic Acid
56-23-5	Carbon Tetrachloride
56-81-5	Glycerin or Glycerol
56-93-9	Benzyltrimethylammonium Chloride
57-10-3	Palmitic Acid
57-11-4	Stearic Acid
57-13-6	Urea
57-50-1	Cane Sugar, Sugar
57-55-6	Propylene Glycol
60-24-2	Mercaptoethanol
60-29-7	Diethyl Ether
60-29-7	Ethyl Ether
60-34-4	Monomethylhydrazine
62-53-3	Aniline
62-56-6	Thiourea
62-76-0	Sodium Oxalate
64-2-8	Ethylenediaminetetraacetic acid, tetrasodium salt (EDTA)
64-17-5	Alcohol, Ethyl: e.g: ethanol
64-17-5	Ethanol (Ethyl Alcohol)
64-18-6	Formic Acid
64-19-7	Acetic Acid
64-67-5	Diethyl Sulfate
65-85-0	Benzoic Acid
67-43-6	Diethylenetriaminepentaacetic acid
67-48-1	Choline Chloride
67-56-1	Methanol (Methyl Alcohol)
67-63-0	Isopropyl Alcohol
67-64-1	Acetone
67-68-5	Dimethyl Sulfoxide (DMSO)
67-72-1	Hexachloroethane
68-11-1	Thioglycolic Acid (Mercaptoacetic Acid)
68-12-2	Dimethyl Formamide
69-72-7	Salicylic Acid
71-23-8	Propanol (n-)
71-36-3	Alcohol, Butyl: e.g. n-butanol
71-36-3	Butanol (-n)
71-36-3	Butyl Alcohol
71-41-0	Alcohol, Amyl: e.g: 1-pentanol
71-43-2	Benzene
71-55-6	Trichloroethane (1,1,1-)
74-82-8	Methane
74-83-9	Methyl Bromide
74-87-3	Methyl Chloride
74-89-5	Methylamine
74-90-8	Hydrocyanic Acid
74-93-1	Methyl Mercaptan (Gas)
74-96-4	Ethyl Bromide
74-98-6	Propane
75-0-3	Ethyl Chloride
75-1-4	Vinyl Chloride
75-4-7	Ethyl Amine
75-5-8	Acetonitrile
75-7-0	Acetaldehyde
75-9-2	Dichloromethane
75-9-2	Methylene Chloride
75-12-7	Formamide
75-15-0	Carbon Disulfide
75-18-3	Dimethyl Sulfide
75-21-8	Ethylene Oxide
75-31-0	Isopropyl Amine
75-36-5	Acetyl Chloride
75-45-6	Chlorodifluoromethane
75-52-5	Nitromethane
75-56-9	Propylene Oxide
75-59-2	Tetramethyl Ammonium Hydroxide
75-69-4	Chlorofluorocarbon (CFC): R-11 (Trichlorofluoromethane)
75-71-8	Chlorofluorocarbon (CFC): R-12 (Dichlorodifluoromethane)
75-75-2	Methanesulfonic Acid
75-87-6	Chloral
75-99-0	Dichloropropionic Acid (2,2-)
76-1-7	Pentachloroethane
76-3-9	Trichloroacetic Acid
76-5-1	Trifluoroacetic Acid (see Chloroacetic Acid)
76-6-2	Chloropicrin (Nitrochloroform)
76-13-1	Chlorofluorocarbon (CFC): CFC-113 (Trichlorotrifluoroethane)
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
77-78-1	Dimethyl Sulfate
77-92-9	Citric Acid
78-10-4	Ethyl Silicate
78-10-4	Tetraethyl Orthosilicate
78-42-2	Trioctylphosphate
78-50-2	Trioctyl Phosphine Oxide
78-83-1	Isobutyl Alcohol
78-87-5	Dichloropropane (Propylene Dichloride)
78-93-3	Methyl Ethyl Ketone
78-96-6	Isopropanol Amine
79-0-5	Trichloroethane (1,1,2-)
79-1-6	Trichloroethylene
79-3-8	Propionyl Chloride
79-6-1	Acrylamide
79-9-4	Propionic Acid
79-10-7	Acrylic Acid
79-11-8	Chloroacetic Acid
79-14-1	Glycolic acid
79-14-1	Hydroxyacetic Acid
79-20-9	Methyl Acetate
79-21-0	Peracetic Acid
79-41-4	Methacrylic Acid
79-43-6	see Chloroacetic Acid
80-62-6	Methyl Methacrylate
81-16-3	Tobias Acid
84-69-5	Diisobutyl Phthalate
84-74-2	Dibutyl Phthalate
85-44-9	Phthalic Anhydride
85-52-9	o-Benzoyl Benzoic Acid
85-68-7	Butyl Benzyl Phthalate
87-86-5	Pentachlorophenol
88-89-1	Picric Acid (Alcoholic)
88-99-3	Phthalic Acid
89-8-7	Sulfophthalic Acid (4-)
91-20-3	Naphthalene
91-22-5	Quinoline
93-97-0	Benzoic Anhydride
94-75-7	2,4-Dichlorophenoxyacetic Acid
95-49-8	Chlorotoluene (o-)
95-50-1	Dichlorobenzene (o-)
95-53-4	Toluidine (o-)
95-63-6	Trimethyl Benzene
96-13-9	Dibromopropanol (2, 3-)
96-22-0	Diethyl Ketone
96-23-1	Glycerol Dichlorohydrin
96-24-2	Glycerol Monochlorohydrin
97-65-4	Itaconic Acid
97-99-4	Tetrahydrofuryl Alcohol
98-0-0	Furfuryl Alcohol
98-1-1	Furfural
98-7-7	Benzotrichloride
98-9-9	Benzenesulfonyl Chloride
98-11-3	Benzenesulfonic Acid
98-82-8	Cumene
98-83-9	Alpha-Methylstyrene
98-83-9	Methylstyrene (Alpha-)
98-86-2	Acetophenone
98-87-3	Dichlorotoluene (Benzal Chloride)
98-88-4	Benzoyl Chloride
98-95-3	Nitrobenzene
100-37-8	Diethylaminoethanol
100-41-4	Ethylbenzene
100-42-5	Styrene
100-44-7	Benzyl Chloride
100-51-6	Benzyl Alcohol
100-52-7	Benzaldehyde
100-97-0	Hexamethylenetetramine
101-2-0	Triphenyl Phosphite
101-68-8	Diphenylmethane-4,4-Diisocyanate (MDI)
101-84-8	Diphenyl Oxide
102-71-6	Triethanolamine
104-15-4	Toluenesulfonic Acid
104-74-5	Lauryl Pyridinium Chloride
104-76-7	Isooctyl Alcohol
105-58-8	Diethyl Carbonate
105-60-2	Caprolactam
106-43-4	Chlorotoluene (p-)
106-46-7	Dichlorobenzene (p-)
106-49-0	Toluidine (p-)
106-88-7	Butylene Oxide (1,2-)
106-89-8	Epichlorohydrin
106-93-4	Ethylene Dibromide
106-94-5	Propyl Bromide
106-97-8	Butane
106-99-0	Butadiene
107-2-8	Acrolein (Acrylaldehyde)
107-5-1	Allyl Chloride
107-6-2	Dichloroethane (Ethylene Chloride)
107-7-3	Ethylene Chlorohydrin
107-13-1	Acrylonitrile
107-15-3	Ethylenediamine
107-18-6	Allyl Alcohol
107-21-1	Ethylene Glycol
107-22-2	Glyoxal
107-39-1	Diisobutylene
107-92-6	Butyric Acid
107-96-0	Mercaptopropionic (3-) Acid
107-98-2	1-Methoxy-2-Propanol
108-1-0	Dimethylethanolamine
108-5-4	Vinyl Acetate
108-10-1	Methyl Isobutyl Ketone
108-24-7	Acetic Anhydride
108-31-6	Maleic Anhydride
108-44-1	Toluidine (m-)
108-46-3	Resorcinol
108-65-6	Propylene Glycol Methyl Ether Acetate
108-77-0	Cyanuric Chloride
108-80-5	Cyanuric Acid
108-83-8	Diisobutyl Ketone
108-88-3	Toluene
108-90-7	Chlorobenzene
108-90-7	Monochlorobenzene
108-91-8	Cyclohexylamine
108-94-1	Cyclohexanone
108-95-2	Phenol
109-43-3	Dibutyl Sebacate
109-60-4	Propyl Acetate
109-64-8	Dibromopropane
109-69-3	Butyl Chloride
109-70-6	Trimethylene Chlorobromide
109-73-9	Butyl Amine
109-89-7	Diethylamine
109-99-9	Tetrahydrofuran THF
110-16-7	Maleic Acid
110-27-0	Isopropyl Myristate
110-61-2	Succinonitrile
110-82-7	Cyclohexane
110-86-1	Pyridine
110-91-8	Morpholine
110-94-1	Glutaric Acid
111-30-8	Glutaraldehyde
111-40-0	Diethylenetriamine
111-42-2	Diethanolamine
111-46-6	Diethylene Glycol
111-76-2	Ethylene Glycol n-Butylether: Ethanol, 2-butoxy
111-77-3	Diethylene Glycol Methyl Ether
111-90-0	Diethylene Glycol Monoethyl Ether
111-96-6	Diethylene Glycol Dimethyl Ether
112-16-3	Lauroyl Chloride
112-18-5	Dodecyldimethylamine
112-27-6	Triethylene Glycol
112-30-1	Decanol
112-34-5	Diethylene Glycol n-Butyl Ether also called Ethanol,2-(2-butoxy-ethoxy)-
112-40-3	Dodecane
112-41-4	Dodecene
112-52-7	Lauryl Chloride
112-53-8	Dodecanol (Lauryl Alcohol)
112-53-8	Lauryl Alcohol
112-55-0	Dodecylmercaptan
112-55-0	Lauryl Mercaptan
112-73-2	Dibutyl Carbitol (diethylene glycol dibutyl ether)
112-80-1	Oleic Acid
117-81-7	Dioctyl Phthalate
120-51-4	Benzyl Benzoate
121-3-9	Nitrotoluene (4-) Sulfonic Acid (2-)
121-43-7	Trimethyl Borate in Methyl Alcohol
121-44-8	Triethylamine
121-47-1	Sulfanilic Acid (meta)
121-57-3	Sulfanilic Acid (para)
121-69-7	Dimethylaniline (N,N)
123-42-2	Diacetone Alcohol
123-51-3	Isoamyl Alcohol
123-72-8	Butyraldehyde
123-76-2	Levulinic Acid (also 4-Oxopentanoic Acid)
123-86-4	Butyl Acetate
123-91-1	Dioxane
123-95-5	Butyl Stearate
123-99-9	Azelaic Acid
124-4-9	Adipic Acid
124-7-2	Caprylic Acid (Octanoic Acid)
124-7-2	Octanoic Acid
124-38-9	Carbon Dioxide
124-40-3	Dimethyl Amine
124-64-1	Tetrakis (Hydroxymethyl) Phosphonium Chloride
126-11-4	Nitromethane (tris, hydroxymethyl)
126-30-7	Neopentyl Glycol
126-72-7	Dibromopropyl Phosphate
126-73-8	Tributyl Phosphate
127-9-3	Sodium Acetate
127-18-4	Perchloroethylene
127-18-4	Tetrachloroethylene (Perchloroethylene)
127-19-5	Dimethylacetamide
127-20-8	Dalapon, Sodium Salt (2,2-Dichloropropionic Acid and Sodium Salt)
128-4-1	Sodium Dimethyldithiocarbamate
131-11-3	Dimethyl Phthalate
131-17-9	Diallyl Phthalate
132-27-4	Sodium salt o-phenylphenate (Antimicrobial)
136-60-7	Butyl Benzoate
137-42-8	Sodium Methyldithiocarbamate
140-1-2	Diethylenetriaminepentaacetic acid, sodium salt (-penta sodium)
140-31-8	Aminoethyl Piperazine
140-88-5	Ethyl Acrylate
141-32-2	Butyl Acrylate
141-43-5	Ethanolamine
141-78-6	Ethyl Acetate
141-91-3	Dimethyl Morpholine (2,6-)
141-97-9	Ethyl Acetoacetate
142-4-1	Aniline Hydrochloride
142-62-1	Caproic Acid (Hexanoic Acid)
142-62-1	Hexanoic Acid
142-82-5	Heptane, n-
142-91-6	Isopropyl Palmitate
142-96-1	Dibutyl Ether (-n)
143-7-7	Lauric Acid
143-33-9	Sodium Cyanide
144-55-8	Sodium Bicarbonate
144-62-7	Oxalic Acid
149-91-7	Gallic Acid
151-21-3	Sodium Lauryl Sulfate
151-50-8	Potassium Cyanide
287-92-3	Cyclopentane
298-7-7	Di (2-Ethylhexyl) Phosphoric Acid (DEHPA)
298-12-4	Glyoxylic Acid
298-14-6	Potassium Bicarbonate
301-4-2	Lead (II) Acetate
302-1-2	Hydrazine
334-48-5	Capric Acid (Decanoic Acid)
334-48-5	Decanoic Acid
497-19-8	Sodium Carbonate
502-44-3	Caprolactone
506-59-2	Dimethylammonium Hydrochloride (Dimethylamine HCl, DMA-HCl)
506-64-9	Silver Cyanide
507-40-4	Butyl Hypochlorite (tert-)
513-77-9	Barium Carbonate
526-83-0	Tartaric Acid
526-95-4	Gluconic Acid
527-7-1	Sodium Gluconate
532-32-1	Sodium Benzoate
540-54-5	Propyl Chloride
540-59-0	Dichloroethylene
540-72-7	Sodium Thiocyanate
540-82-9	Ethyl Sulfate
541-41-3	Ethyl Chloroformate
542-16-5	Aniline Sulfate
542-62-1	Barium Cyanide
542-75-6	Dichloropropene
543-59-9	Amyl Chloride
543-59-9	Chloropentane
543-80-6	Barium Acetate
544-63-8	Myristic Acid
544-92-3	Copper Cyanide
545-6-2	Trichloroacetonitrile
546-93-0	Magnesium Carbonate
554-7-4	Potassium Gold Cyanide
554-13-2	Lithium Carbonate
557-21-1	Zinc Cyanide
583-52-8	Potassium Oxalate
584-8-7	Potassium Carbonate
593-81-7	Trimethylamine Hydrochloride (Trimethylammonium Chloride)
598-54-9	Copper Acetate
608-33-3	Dibromophenol (-2,6)
611-6-3	Dichloronitrobenzene (2,4-)
615-58-7	Dibromophenol (-2,4)
616-38-6	Dimethylcarbonate
617-84-5	Diethyl Formamide
622-97-9	Methylstyrene (p-)
626-61-9	Chloropyridine
627-3-2	Ethoxy Acetic Acid
628-63-7	Amyl Acetate
630-8-0	Carbon Monoxide Gas
630-20-6	Tetrachloroethane
631-61-8	Ammonium Acetate
704-76-7	2-Ethylhexyl Alcohol
753-73-1	Dimethyltin Dichloride
759-94-4	Ethyl-N,N-di-n-Propylthiolcarbamate (herbicide)
763-69-9	Ethyl-3-Ethoxy Propionate
853-68-9	Anthraquinone Disulfonic Acid
866-81-9	Cobalt Citrate
868-18-8	Sodium Tartrate
872-50-4	N-methyl-2-pyrrolidone
929-6-6	Diglycolamine
993-16-8	Methyl Tin Trichloride
1066-33-7	Ammonium Bicarbonate
1071-83-6	Glyphosate
1113-38-8	Ammonium Oxalate

chemical name/CAS numbers *(continued)*

CAS Number	Chemical Name
1191-50-0	Sodium Myristyl Sulfate
1300-21-6	Dichloroethane
1300-72-7	Sodium Xylene Sulfonate
1302-42-7	Sodium Aluminate
1303-96-4	Borax
1305-62-0	Calcium Hydroxide
1309-42-8	Magnesium Hydroxide
1310-58-3	Potassium Hydroxide
1310-65-2	Lithium Hydroxide
1310-73-2	Sodium Hydroxide
1312-76-1	Potassium Metasilicate
1313-82-2	Sodium Sulfide
1314-56-3	Phosphorous Pentoxide
1314-85-8	Phosphorus Sesquisulfide
1317-65-3	Calcium Carbonate
1319-77-3	Cresylic Acid
1327-41-9	Aluminum Chlorohydrate
1327-52-2	Arsenic Acid
1327-53-3	Arsenious Acid
1330-20-7	Xylene
1330-43-4	Sodium Tetraborate
1330-78-5	Tricresyl Phosphate
1330-86-5	Isooctyl Adipate
1330-96-4	Sodium Borate
1333-39-7	Phenol Sulfonic Acid
1333-83-1	Sodium Bifluoride
1335-54-2	Diisopropanolamine
1336-21-6	Ammonium Hydroxide
1341-49-7	Ammonium Bifluoride
1344-9-8	Sodium Silicate
1344-67-8	Copper Chloride
1461-25-2	Tetrabutyltin
1565-80-6	Amyl Alcohol
1634-4-4	Methyl t-Butyl Ether
1634-4-4	t-Butyl Methyl Ether (MTBE)
1762-95-4	Ammonium Thiocyanate
1863-63-4	Ammonium Benzoate
2008-39-1	2,4-D, Dimethylamine Salt
2052-49-5	Tetra-n-Butylammonium Hydroxide
2082-81-7	Trimethylamine
2090-64-4	Carbonic Acid
2235-54-3	Ammonium Lauryl Sulfate
2402-79-1	Tetrachloropyridine
2836-32-0	Sodium Glycolate
2971-90-6	Clopidol
3012-65-5	Ammonium Citrate
3039-83-6	Ethylenesulfonic Acid, Sodium Salt
3251-23-8	Copper Nitrate
3710-84-7	Diethyl Hydroxylamine
4316-73-8	Sodium Sarcosinate
5329-14-6	Sulfamic Acid
5421-46-5	Ammonium Thioglycolate
5536-61-8	Sodium Methacrylate
5996-10-1	Glucose
6164-98-3	Chlordimeform Insecticide
6303-21-5	Hypophosphorous Acid
6484-52-2	Ammonium Nitrate
6871-90-2	Potassium Silicofluoride
6899-5-4	Glutamic Acid
6915-15-7	Malic Acid
7320-34-5	Potassium Pyrophosphate
7378-99-6	Alkyl (C8-C10) Dimethyl Amine: e.g.: octyldimethyl amine
7439-97-6	Mercury
7446-9-5	Sulfur Dioxide
7446-11-9	Sulfur Trioxide
7446-70-0	Aluminum Chloride
7447-39-4	Curpric Chloride, see Copper Chloride
7447-40-7	Potassium Chloride
7447-41-8	Lithium Chloride
7487-88-9	Magnesium Sulfate
7487-94-7	Mercuric Chloride
7488-52-0	Zinc Sulfite
7550-35-8	Lithium Bromide
7550-45-0	Titanium Tetrachloride (Titanium Chloride)
7553-56-2	Iodine
7558-79-4	Sodium Phosphate (di)
7558-80-7	Sodium Phosphate (mono)
7601-54-9	Sodium Phosphate (tri)
7601-89-0	Sodium Perchlorate
7601-90-3	Perchloric Acid
7631-90-5	Sodium Bisulfite
7631-99-4	Sodium Nitrate
7632-0-0	Sodium Nitrite
7646-78-8	Stannic Chloride
7646-79-9	Cobalt Chloride
7646-85-7	Zinc Chloride
7647-1-0	Hydrochloric Acid
7647-1-0	Hydrogen Chloride
7647-14-5	Sodium Chloride
7647-15-6	Sodium Bromide
7647-18-9	Antimony Pentachloride
7664-38-2	Phosphoric Acid
7664-39-3	Hydrofluoric Acid or Hydrogen Fluoride
7664-41-7	Ammonia
7664-93-9	Sulfuric Acid
7681-11-0	Potassium Iodide
7681-38-1	Sodium Bisulfate
7681-49-4	Sodium Fluoride
7681-52-9	Sodium Hypochlorite
7681-53-0	Sodium Monophosphate
7681-57-4	Sodium Metabisulfite
7697-37-2	Nitric Acid
7704-34-9	Sulfur
7705-8-0	Ferric Chloride
7718-54-9	Nickel Chloride
7719-9-7	Thionyl Chloride
7719-12-2	Phosphorus Trichloride
7720-78-7	Ferrous Sulfate
7722-64-7	Potassium Permanganate
7722-76-1	Ammonium Phosphate, monobasic
7722-84-1	Hydrogen Peroxide
7722-88-5	Tetrasodium Pyrophospate
7726-95-6	Bromine
7727-15-3	Aluminum Bromide
7727-21-1	Potassium Persulfate
7727-43-7	Barium Sulfate
7727-54-0	Ammonium Persulfate
7732-18-5	Water or Steam
7733-2-0	Zinc Sulfate
7738-94-5	Chromic Acid
7757-79-1	Potassium Nitrate
7757-82-6	Sodium Sulfate
7757-83-7	Sodium Sulfite
7757-87-1	Magnesium Phosphate
7758-1-2	Potassium Bromate
7758-2-3	Potassium Bromide
7758-11-4	Dipotassium Phosphate
7758-19-2	Sodium Chlorite
7758-29-4	Sodium Tripolyphosphate
7758-98-7	Copper Sulfate
7761-88-8	Silver Nitrate
7772-98-7	Sodium Thiosulfate
7772-99-8	Stannous Chloride
7773-1-5	Manganese Chloride (Manganous Chloride)
7775-9-9	Sodium Chlorate
7775-11-3	Sodium Chromate
7775-14-6	Sodium Hydrosulfite
7775-27-1	Sodium Persulfate
7778-50-9	Potassium Dichromate
7778-54-3	Calcium Hypochlorite
7778-66-7	Potassium Hypochlorite
7778-80-5	Potassium Sulfate
7779-86-4	Zinc Hydrosulfite
7779-88-6	Zinc Nitrate
7779-90-0	Zinc Phosphate
7782-41-4	Fluorine Gas
7782-50-5	Chlorine Gas
7782-77-6	Nitrous Acid
7782-99-2	Sulfurous Acid
7783-0-8	Selenious Acid
7783-6-4	Hydrogen Sulfide
7783-13-3	Sodium Ammonium Phosphate
7783-18-8	Ammonium Thiosulfate
7783-20-2	Ammonium Sulfate
7783-28-0	Ammonium Phosphate, dibasic
7783-28-0	Diammonium Phosphate
7784-18-1	Aluminum Fluoride
7784-24-9	Potassium Aluminum Sulfate
7784-46-5	Sodium Arsenite
7785-87-7	Manganese Sulfate (Manganous Sulfate)
7786-30-3	Magnesium Chloride
7786-81-4	Nickel Sulfate
7789-23-3	Potassium Fluoride
7789-32-4	Ammonium Bromide
7789-38-0	Sodium Bromate
7789-41-5	Calcium Bromide
7790-92-3	Hypochlorous Acid
7790-93-4	Chloric Acid
7790-94-5	Chlorosulfonic Acid
7790-98-9	Ammonium Perchlorate
7791-8-4	Antimony Oxychloride
8000-26-8	Pine Oil
8000-48-4	Eucalyptus Oil
8001-22-7	Soybean Oil
8001-25-0	Olive Oil
8001-26-1	Linseed Oil
8001-29-4	Cottonseed Oil
8001-30-7	Corn Oil
8001-54-5	Benzalkonium Chloride
8001-69-2	Cod Liver Oil
8001-79-4	Castor Oil
8002-3-7	Peanut Oil
8002-26-4	Tall Oil
8002-74-2	Paraffin Wax
8002-92-4	Ammonium Carbonate
8006-64-2	Turpentine
8007-56-5	Aqua Regia
8007-69-0	Almond Oil
8008-20-6	Kerosene
8008-79-5	Spearmint Oil <18>
8012-14-4	Sodium Hexametaphosphate
8013-7-8	Soybean Oil, epoxidized
8013-54-5	Chloroform
8014-95-7	Oleum (Fuming Sulfuric)
8016-79-3	Beet Sugar Liquor
8017-16-1	Polyphosphoric Acid
8017-16-1	Superphosphoric Acid
8027-16-5	Cresols, Mixture
8028-89-5	Caramel
8029-43-4	Corn Syrup
8032-32-4	Naphtha
8052-42-4	Asphalt
8061-53-8	Ammonium Ligno Sulfonate
8062-15-5	Lignin Sulfonate
8064-96-2	Cashew Nut Oil
8140-1-2	Cocamidopropyl Dimethylamine
9002-85-1	Polyvinylidiene Chloride (PVDC)
9002-86-2	Polyvinyl Chloride (PVC)
9002-89-5	Polyvinyl Alcohol
9002-98-6	Polyethyleneimine
9003-1-4	Polyacrylic Acid
9003-4-7	Sodium Polyacrylate
9003-5-8	Polyacrylamide
9003-20-7	Polyvinyl Acetate Emulsion
9003-35-4	Phenol Formaldehyde Resin
9003-35-4	Phenolic Resin
9004-32-4	Carboxymethylcellulose
9004-74-4	Polyethylene glycol methyl ether
9005-25-8	Starch
9016-45-9	Ethoxylated Nonyl Phenol
10025-67-9	Sulfur Chloride
10025-73-7	Chromic Chloride
10025-87-3	Phosphorus Oxychloride
10025-91-9	Antimony Trichloride
10026-4-7	Silicone Tetrachloride
10028-15-6	Ozone in solution
10034-85-2	Hydriodic Acid
10034-93-2	Hydrazine Sulfate
10035-10-6	Hydrobromic Acid or Hydrogen Bromide
10039-54-0	Hydroxylamine Acid Sulfate
10043-1-3	Aluminum Sulfate
10043-35-3	Boric Acid
10043-52-4	Calcium Chloride
10043-67-1	Aluminum Potassium Sulfate
10049-4-4	Chlorine Dioxide
10099-74-8	Lead (II) Nitrate
10101-53-8	Chromic Sulfate
10108-64-2	Cadmium Chloride
10108-73-3	Cerous Nitrate
10112-91-1	Mercurous Chloride
10124-37-5	Calcium Nitrate
10137-74-3	Calcium Chlorate
10141-0-1	Chromium Potassium Sulfate
10141-5-6	Cobalt Nitrate (II)
10196-4-0	Ammonium Sulfite
10222-1-2	Dibromonitrilo-Propionamide
10257-55-3	Calcium Sulfite
10294-34-5	Boron Trichloride
10361-37-2	Barium Chloride
10377-48-7	Lithium Sulfate
10377-60-3	Magnesium Nitrate
10377-66-9	Manganese Nitrate (Manganous)
10421-48-4	Ferric Nitrate
10450-55-2	Ferric Acetate
10545-99-0	Sulfur Dichloride
10553-31-8	Barium Bromide
10588-1-9	Sodium Dichromate
11120-25-5	Ammonium Tungstate
12007-89-5	Ammonium Pentaborate
12021-95-3	Fluozirconic Acid
12028-48-7	Ammonium Metatungstate
12042-91-0	Aluminum Chlorohydroxide
12124-99-1	Ammonium Sulfide
12125-1-8	Ammonium Fluoride
12125-2-9	Ammonium Chloride
12259-92-6	Ammonium Polysulfide
12379-40-7	Imidazoline Acetate
12501-45-0	Ammonium Molybdate
13235-36-4	Tetrasodium Ethylenediaminetetraacetic Acid (Tetrasodium Salt of EDTA)
13463-67-7	Titanium Dioxide
13473-90-0	Aluminum Nitrate
13478-10-10	Ferrous Chloride
13520-68-9	Ferrous Nitrate
13598-36-2	Phosphorous Acid, ortho-
13601-19-9	Sodium Ferrocyanide
13674-87-8	Dichloro-(2)-Propyl Phosphate
13746-66-2	Potassium Ferricyanide
13755-29-8	Sodium Fluoroborate
13770-89-3	Nickel Sulfamate
13774-25-9	Magnesium Bisulfite
13814-97-6	Tin Fluoborate
13826-88-5	Zinc Fluoborate
13840-33-0	Lithium Hypochlorite
13843-59-9	Ammonium Bromate
13846-18-9	Calcium Bisulfite
13943-58-3	Potassium Ferrocyanide
13967-50-5	Potassium Gold Cyanide
14216-75-2	Nickel Nitrate
14217-21-1	Sodium Ferricyanide
14518-69-5	Tetra-n-Butylphosphonium Hydroxide
15972-60-8	Alachlore, Herbicide
16529-56-9	2-Methyl-3-Butenenitrile
16672-87-0	Ethephon
16721-80-5	Sodium Bisulfide (Hydrosulfide)
16721-80-5	Sodium Hydrosulfide
16872-11-0	Fluoboric Acid
16893-85-9	Sodium Fluorosilicate
16940-66-2	Sodium Borohydride SWS (Stabilized Water Solution)
16949-65-8	Magnesium Fluosilicate
16961-83-4	Fluosilicic Acid (Hydrofluosilicic Acid)
17194-0-2	Barium Hydroxide
17439-11-1	Fluotitanic Acid
17496-8-1	Ammonium Propionate
18130-44-4	Titanium Sulfate
18483-17-5	Tannic Acid
19351-18-9	2,2-Dimethyl Thiazolidine
21645-51-2	Aluminum Hydroxide
23210-56-2	N-Chloro-o-Tolyl (insecticide emulsion)
24347-58-8	Butylene Glycol
24800-44-0	Tripropylene Glycol, see Ethylene Glycol
25013-15-4	Vinyl Toluene
25154-55-6	Nitrophenol
25155-30-0	Sodium Dodecylbenzenesulfonate
25265-71-8	Dipropylene Glycol
25322-68-3	Polyethylene Glycol
25339-17-7	Isodecanol
25340-17-4	Diethylbenzene
25567-55-9	Sodium Tetrachlorophenate
25639-42-3	Methylcyclohexanol
26248-24-8	Sodium Tridecylbenzene Sulfonate
26968-58-1	Ethyl Benzyl Chloride
27138-31-4	Dipropylene Glycol Dibenzoate
27176-87-0	Dodecylbenzenesulphonic Acid
27458-94-2	Isononyl Alcohol
28348-53-0	Sodium Cumenesulfonate
28553-12-0	Diisonoyl Phthalate
29965-97-7	Cyclooctadiene
31142-56-0	Aluminum Citrate
34590-94-8	Dipropylene Glycol Monomethyl Ether, Propanol, (2-Methoxy-ethylethoxy)-
35139-28-8	Ferric Sulfate
36653-82-4	Cetyl alcohol
36653-82-4	Hexadecanol (n-)
50864-67-0	Barium Sulfide
51218-45-2	Metolachlor
61789-32-0	Fatty Acids
61789-40-0	Cocamidopropyl Betaine
61789-77-3	Dicoco Dimethyl Ammonium Chloride
61804-50-0	Divinyl Benzene
63449-41-2	Benzyltrimethylammonium Chloride
65996-63-6	Corn Starch
68002-20-0	Melamine Formaldehyde Resin
68131-30-6	Green Liquor (Pulp Mill)
68412-54-4	Nonyl(phenoxypoly(ethyleneoxy)ethanol, branched
68439-50-9	Ethoxylated Alcohol, C12-C14
68439-57-6	Sodium alpha-Olefin Sulfonate
68476-34-6	Diesel Fuel
68476-78-8	Molasses
68514-06-7	Ammonium Bisulfite Liquor (black liquor)
68526-83-0	Isooctyl Alcohol
68526-85-2	Alcohol, Isodecyl: e.g. isodecanol
68603-42-9	Coconut Fatty Acid
72674-5-6	Alpha Olefin Sulfonate
74552-83-3	Trichloroethane (1,1,1-)
84961-48-8	Coconut Oil
91722-14-4	Epoxidized Soybean Oil
95077-5-7	Kaolin Slurry
97328-76-2	Carbonic Acid
99400-1-8	Calcium Sulfate
99551-14-1	Oils, Mineral (aliphatic)
105839-17-6	Epoxidized Castor Oil

Ashland™
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chemical resistance table

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°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
Acetaldehyde	100	NR	NR	NR	NR	LS	NR			NR
Acetic Acid <21>	0.5 - 10	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Acetic Acid	11 - 25	100/210	100/210	80/180	100/210	100/210	100/210	100/210	100/210	65/150
Acetic Acid	26 - 50	80/180	80/180	65/150	100/210	80/180	80/180	80/180	100/210	
Acetic Acid	51 - 75	65/150	65/150	45/110	65/150	65/150	65/150	65/150	65/150	
Acetic Acid	76 - 85	45/110	45/110	45/110	45/110	45/110	45/110	45/110	45/110	
Acetic Acid, glacial <2>	86 - 100	NR	NR			40/100	NR	NR		NR
Acetic Acid / Nitric Acid / Chromic Oxide	3 : 5 : 3	65/150	80/180			80/180	65/150	80/180		65/150
Acetic Acid / Sulfuric Acid	20:10	100/210	100/210			100/210	100/210	100/210		65/150
Acetic Anhydride	100	NR	NR			40/100	NR	NR	NR	NR
Acetone	10		80/180			80/180	80/180	80/180		
Acetone	20		30/85			40/100				
Acetone <15>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Acetone (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Acetone / Toluene <15>	50:50	NR	NR	NR	NR	NR	NR	NR	NR	NR
Acetonitrile	20	40/100	40/100			40/100	40/100	40/100		
Acetonitrile	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Acetonitrile (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Acetophenone	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Acetyl Acetone	20	40/100	40/100			50/120	40/100	50/120		40/100
Acetyl Acetone	100	NR	NR			LS	NR	NR		NR
Acid Cleaner (31% Hydrochloric Acid) <2,8,9,13>	31	65/150	70/160			80/180 <15>	65/150	80/180 <15>		65/150
Acrolein (Acrylaldehyde)	20	40/100	40/100			40/100	40/100	40/100		
Acrolein (Acrylaldehyde)	100	NR	NR			LS	NR	NR		NR
Acrylamide	50	40/100	40/100	25/80	40/100	40/100	40/100	40/100	40/100	40/100
Acrylic Acid <7>	10	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Acrylic Acid <7>	25	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Acrylic Acid	100	NR	NR			LS	NR	NR		NR
Acrylic Latex	All	80/180	80/180			80/180	80/180	80/180		
Acrylonitrile	7 (max. solubility at 20 °C (68 °F))	40/100	40/100			40/100	40/100	40/100		
Acrylonitrile	100	NR	NR			LS	NR	NR		NR
Acrylonitrile, latex dispersion <7>	2	25/80	25/80	NR		25/80	25/80	25/80		25/80
Activated Carbon Beds, water treatment		80/180	100/210			100/210	80/180	100/210	100/210	65/150
Adipic Acid (1.5 g sol. in water at 25 °C (77 °F), sol. hot water)	23	80/180	80/180			80/180	80/180	80/180		
Air (max. surface temperature of the FRP) <16>		180/360	180/360	95/200		200/392	160/320	160/320		
Alachlore, Herbicide <4>	All					40/100				
Alcohol , see Ethanol										
Alcohol, Amyl	100	50/120	60/140			65/150	50/120	60/140		50/120
Alcohol, Butyl	100	50/120	50/120			65/150	50/120	50/120		NR
Alcohol, Ethyl	95	25/80	25/80			40/100	25/80	25/80		NR
Alcohol, Isodecyl	100	50/120	65/150			80/180	50/120	65/150		50/120
Alcohol, Propyl	100	40/100	40/100			50/120	40/100	40/100		NR
Alkaline Cleaner, see Sodium Hydroxide and Potassium Hydroxide										
Alkaline Solutions, see Sodium, Potassium, and Ammonium Hydroxides and Carbonates										
Alkane Sulfonate, see Sodium Dodecylbenzene Sulfonate										
Alkyl (C8-C10) Dimethyl Amine	100	80/180	95/200			100/210	80/180	95/200		
Alkyl (C8-C18) Chloride <21>	All	80/180	95/200			100/210	95/200	100/210		
Alkyl Aryl Sulfonic Acid, see Alkyl Benzene Sulfonic Acid										
Alkyl Benzene Sulfonic Acid <6,21>	All	80/180	80/180	80/180		100/210 <24>	95/200	100/210	80/180	

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Alkyldiphenyloxide Disulfonate (anionic surfactant type)	All	50/120	50/120			50/120	50/120	50/120		
Alkyltolyl Trimethyl Ammonium Chloride		40/100	50/120			50/120	40/100	50/120		
Allyl Alcohol	100	NR	NR			25/80	NR	NR		NR
Allyl Chloride	100	25/80	25/80	25/80		25/80	25/80	25/80	25/80	NR
Alpha-Oleum Sulfates	100	50/120	50/120			50/120	50/120	50/120		
Alpha-Methylstyrene	100	25/80	40/100			50/120	25/80	40/100		NR
Alum <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Alumina Hydrate	All	80/180	80/180			80/180	80/180	80/180		80/180
Aluminum Bromide <21>	All			70/160			70/160			
Aluminum Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Chlorohydrate <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Chlorohydrate / Hydrochloric Acid <2,8,9,12,13>	> 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	100/210	100/210	100/210	80/180
Aluminum Citrate <21>	All			95/200	95/200		95/200		95/200	
Aluminum Fluoride <1>	All	25/80	25/80	30/90	30/90	25/80	25/80	25/80	30/90	25/80
Aluminum Hydroxide	100	80/180	80/180			95/200	80/180	80/180		80/180
Aluminum Nitrate	All	100/210	100/210	80/180	80/180	100/210 <24>	100/210	100/210	80/180	80/180
Aluminum Potassium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Sulfate Reactor <10>	> 0.5	100/210	100/210				100/210			
Amine Salts	All	50/120	65/150	50/120	65/150	65/150	50/120	65/150	65/150	
Amino Acids	All	40/100	40/100			40/100	40/100	40/100		
Aminoethyl Piperazine	100						NR			

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Ammonia	liquified gas	NR	NR			NR	NR	NR		NR
Ammonia gas	100	40/100	40/100	80/180	40/100	40/100	40/100	40/100	40/100	40/100
Ammonia, fumes, wet	40 vol-%	80/180	80/180	65/150	NR	80/180	80/180	80/180	NR	
Ammonia, aqueous, see Ammonium Hydroxide										
Ammonium Acetate	All	25/80	25/80	45/110		40/100	25/80	25/80		NR
Ammonium Benzoate	All	80/180		80/180			80/180			
Ammonium Bicarbonate	All	70/160	70/160	65/150	65/150	70/160	70/160	70/160	65/150	70/160
Ammonium Bifluoride <1>	All	65/150	65/150			65/150				65/150
Ammonium Bisulfite black liquor		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Ammonium Bisulfite cooking liquor		65/150	65/150			65/150	65/150	65/150		
Ammonium Bromate	All	70/160	70/160			70/160	70/160	70/160		70/160
Ammonium Bromide	All	70/160	70/160			70/160	70/160	70/160		70/160
Ammonium Carbonate	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Citrate	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Fluoride <1>	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Hydroxide <21>	0.5 - 1 (as NH_3)	80/180	80/180	95/200		65/150	95/200	65/150		80/180
Ammonium Hydroxide	2 - 5 (as NH_3)	80/180	80/180	80/180		65/150	80/180	65/150		80/180
Ammonium Hydroxide	6 - 10 (as NH_3)	65/150	65/150	70/160		40/100	70/160	40/100		65/150
Ammonium Hydroxide	11 - 20 (as NH_3)	65/150	65/150	50/120		40/100	65/150	40/100		65/150
Ammonium Hydroxide	21 - 28 (as NH_3)	50/120	40/100	50/120		40/100	50/120	40/100		40/100
Ammonium Hydroxide	29 - 30 (as NH_3)	40/100	40/100			40/100	40/100	40/100		40/100
Ammonium Hydroxide / Ammonium Chloride / Ammonium Carbonate <1>	30 (as NH_3) : 35 : 5	40/100	40/100				40/100	40/100		40/100
Ammonium Lauryl Sulfate	All	50/120	50/120	55/130		50/120	50/120	50/120		50/120
Ammonium Ligno Sulfonate	All	80/180	80/180			80/180	80/180	80/180		65/150
Ammonium Metatungstate (AMT) (pH 3.3)	50						LS80/180			

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Ammonium Molybdate	All	65/150								65/150
Ammonium Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Nitrate / Urea / Water (fertilizer)	up to 40 / up to 50 / balance						50/120			
Ammonium Oxalate	All	65/150	65/150							
Ammonium Pentaborate	All	50/120	50/120							50/120
Ammonium Perchlorate	All	75/170								
Ammonium Persulfate <21>	All	100/210	100/210	80/180	80/180	100/210 <24>	100/210	100/210	80/180	80/180
Ammonium Phosphate, dibasic <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Phosphate, monobasic <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Polysulfide	All	50/120	50/120			65/150				50/120
Ammonium Propionate	All	25/80	25/80			40/100	25/80	25/80		NR
Ammonium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Sulfate / Ethyl Alcohol / Ethoxylate	60:15:3	40/100	50/120			65/150	40/100	50/120		40/100
Ammonium Sulfate / Manganous Sulfate / Sulfuric Acid (concentrations in g/l)	up to 150 : up to 15 : up to 40			50/120	50/120		50/120			
Ammonium Sulfide (Bisulfide)	All	50/120	50/120	50/120	50/120	50/120	50/120		50/120	50/120
Ammonium Sulfite	All	65/150	65/150	40/100	40/100	65/150	65/150		40/100	65/150
Ammonium Thiocyanate	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Ammonium Thioglycolate	All	40/100	40/100			40/100	40/100	40/100		
Ammonium Thiosulfate	All	40/100	40/100			40/100	60/140	60/140	40/100	
Amyl Acetate	> 0.5	20/70	40/100	40/100	50/120	50/120	NR		50/120	
Amyl Acetate / Xylene	30:70			50/120						
Amyl Alcohol	100	50/120	60/140	95/200	95/200	65/150	50/120	60/140	95/200	50/120
Amyl Alcohol, Vapor	100	50/120	100/210			100/210	50/120	100/210		
Amyl Chloride	100	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Anaerobic Sewage	All	30/85		30/85	30/85	30/85	30/85		30/85	
Aniline	20	40/100	40/100			40/100	40/100	40/100		
Aniline	100	NR	NR	NR	NR	20/70	NR	NR	NR	NR
Aniline Hydrochloride	> 0.5	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Aniline Sulfate <21>	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Animal Fat <21>	100	80/180	100/210							
Anionic Surfactant	All	40/100	50/120			50/120	40/100	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		
Anthraquinone Disulfonic Acid	1	65/150		65/150			65/150			
Antimony Pentachloride, for aqueous solutions, see Hydrochloric Acid	> 99	40/100	40/100	30/90		40/100	40/100	40/100		40/100
Antimony Trichloride	100	95/200		105/220	105/220		95/200		105/220	
Aqua Regia (concentrated Hydrochloric Acid / Nitric Acid, 3 : 1) <2,6,9>				NR	NR		NR		NR	
Aromatic Naphtha / Naphthalene / Isopropanol	60 : 5 : 10		50/120			50/120		50/120		
Arsenic Acid	> 0.5	80/180	80/180			80/180	80/180	80/180		
Arsenic Acid / Copper Sulfate / Sodium Dichromate	17 : 37 : 20	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
Arsenious Acid	19°Be	80/180	80/180			80/180	80/180	80/180		65/150
Barium Acetate	All	80/180	80/180	90/195	80/180	80/180	90/195	80/180	80/180	
Barium Bromide <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Barium Carbonate (slurry)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Barium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Barium Cyanide	All	65/150	65/150			65/150	65/150	65/150		65/150
Barium Hydroxide <21>	> 0.5	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Barium Sulfate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Barium Sulfide <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Barley Solution <18>	> 0.5	75/170	75/170							
Beer <18>	> 0.5	50/120	50/120							
Beet Sugar Liquor <18>	> 0.5	80/180	80/180	80/180	80/180				80/180	
Benzal Chloride (Benzyl Dichloride)	100	NR								
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	NR
Benzalkonium Chloride	Dilute	40/100	40/100							40/100
Benzene	100	NR	NR	40/100	40/100	40/100; LS 50/120	NR	LS 50/100	40/100; LS 50/100	NR
Benzene, vapor		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
Benzenesulfonic Acid <6>	All	65/150	65/150	80/180	80/180	65/150	65/150	65/150	80/180	65/150
Benzenesulfonic Acid / Sulfuric Acid / balance Water	88:7	60/140		60/140			60/140			
Benzenesulfonyl Chloride	100	NR	NR			LS	NR	NR		NR
Benzoic Acid	Sat'd	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Benzotrichloride	100	NR					NR			
Benzoyl Chloride	100	NR					NR			
Benzoylbenzoic Acid (o-)	100	100/210	100/210	100/210	100/210	100/210	100/210		100/210	
Benzyl Alcohol	20	40/100	50/120			50/120	40/100	50/120		40/100
Benzyl Alcohol	100	NR	25/80	40/100	40/100	40/100	NR	25/80	25/80	NR
Benzyl Chloride <2>	All	NR	NR	25/80	25/80	40/100	NR	NR	25/80	NR
Benzyltrimethylammonium Chloride	60	40/100	40/100			40/100	40/100	40/100		
Biocide Chlorphenate (organic sulfur type, blend)	100	50/120		50/120			50/120			
Biodiesel / FAME (max. 0.2% Methanol)		80/180	80/180		80/180	80/180	80/180	80/180	80/180	

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Black Liquor (pulp & kraft mill) <1,2>	Thin	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Black Liquor, thick, heavy (pulp & kraft mill) <1,2>	Thick	95/200	105/220			105/220	105/220	105/220		
Black Liquor recovery, furnace gases <6,16>		165/325	175/350	115/240	115/240	205/400	165/325	175/350	115/240	
Bleach (please check the composition of the product and refer to the type of bleaching agent used like Hydrogen Peroxide, Sodium Hypochlorite, etc.) <14>										
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		
Borax (Sodium Borate, Sodium Tetraborate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Boric Acid	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Boron Trichloride, scrubbing	> 0.5	65/150	65/150			65/150	65/150	65/150		
Brake Fluid	100	50/120	50/120	50/120	50/120	50/120 <7>	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	80/180	80/180	80/180
Brine, chlorinated, pH < 2.5 <8,21>	All	80/180	80/180	80/180	80/180	95/200	80/180	95/200	80/180	
Brine, chlorinated, pH 2.5 - 9 <6>	All	40/100	40/100			40/100	40/100	40/100		40/100
Brine, chlorinated, pH > 9 <2,3,9>	All	80/180	80/180	65/150		65/150	80/180	65/150		
Brine Mixture (0.4% $MgSO_4$, 9.5% NaCl, 5.0% Na_2SO_4, 2.0% K_2SO_4, 7% $CaSO_4$:$2H_2O$, 3% Na_2SO_3:$9H_2O$, pH 7)		100/210	100/210			100/210	100/210	100/210		80/180
Brine, salt <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Brominated Phosphate Ester	> 0.5					50/120				
Bromine Water, laboratory reagent	3.2 g in 100 g water			95/200			80/180			
Bromine, dry gas	100	40/100	40/100	40/100	40/100	40/100 <7>	40/100	40/100	40/100	40/100
Bromine in Water (no pure Bromine phase)	< Sat'd	75				80/180				
Bromine, liquid	100	NR	NR			NR	NR	NR		NR
Bromine, wet gas	100	40/100	40/100	30/90	30/90	40/100	40/100	40/100	30/90	40/100
Bronze Plating Solution (4% Copper, 5% Sodium Cyanides, 3% Sodium Carbonate, 4.5% Rochelle Salts)		80/180		80/180	80/180				80/180	
Brown Stock		95/200	95/200	80/180		80/180	95/200	80/180		

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
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	65/140	60/140		60/140
Butanol	100	50/120	50/120			65/150	50/120	50/120		NR
Butyl Acetate	100	NR	25/80	30/90	30/90	30/90	NR	25/80	30/90	NR
Butyl Acrylate	100	NR	NR			25/80	NR	NR		NR
Butyl Alcohol	100	50/120	50/120	50/120	50/120	65/150	50/120	50/120	50/120	NR
Butyl Ether, see Dibutyl Ether (-n)										
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	80/180	80/180	70/160	80/180	80/180	
Butylene Oxide	100	NR	NR			LS	NR	NR		NR
Butyraldehyde	100	NR	NR			40/100	NR	NR		NR
Butyric Acid <21>	0.5 - 50	100/210	100/210	80/180	100/210	100/210	100/210	100/210	100/210	
Butyric Acid	51 - 70	50/120		50/120	50/120		50/120		50/120	
Butyric Acid	71 - 100	25/80	50/120	40/100	50/120	50/120	25/80	50/120	50/120	
Cadmium Chloride <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Cadmium Cyanide Plating Solution (3% Cadmium Oxide, 10% Sodium Cyanide, 1.2% Sodium Hydroxide) <1>		80/180	80/180	105/220		80/180	80/180	80/180		80/180
Calcium Bisulfite <21>	All	100/210	100/210	80/180	80/180	100/210 <24>	100/210	100/210	80/180	80/180
Calcium Bromide <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Calcium Carbonate (slurry) <21>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Calcium Chlorate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Calcium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Calcium Hydroxide <1>	100	100/210	100/210	40/100	40/100	100/210	100/210	100/210	40/100	80/180
Calcium Hydroxide (slurry) <1>	0.5 - 25	80/180	65/150			40/100	80/180	65/150		65/150
Calcium Hypochlorite <2,3,5,9,17>	All	80/180	80/180	70/160	70/160	40/100	80/180	80/180	70/160	80/180
Calcium Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Sulfate (slurry) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Calcium Sulfite <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Cane Sugar Liquor & Sweetwater <18>	All	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			95/200	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
Caprolactam	100	NR	NR			LS	NR	NR		NR
Caprolactone	100	NR	NR			LS	NR	NR		NR
Caprylic Acid (Octanoic Acid)	100	80/180	100/210			100/210	80/180	100/210		
Caramel <18>	All	50/120	50/120							
Carbon Dioxide Gas <16>	All	165/325	175/350	120/250	120/250	205/400	165/325	175/350	120/250	80/180
Carbon Disulfide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Carbon Disulfide (no condensation or coalescence)	fumes	40/100	65/150	40/100	65/150	65/150	40/100	65/150	65/150	NR
Carbon Monoxide Gas <16>	All	165/325	175/350	120/250		205/400	165/325	175/350	175/350	80/180
Carbon Tetrachloride	100	65/150	80/180	65/150	80/180	80/180	65/150	80/180	80/180	
Carbon Tetrachloride (no condensation or coalescence)	fumes	80/180	95/200	65/150	95/200	95/200	80/180	95/200	95/200	
Carbonic Acid	All			70/160			70/160			

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Carbonic Acid / Magnesium Salt	All	80/180	80/180	80/180	80/180		80/180		80/180	
Carboxyethyl Cellulose	10	65/150	65/150			65/150	65/150	65/150		65/150
Carboxymethyl Cellulose	10	65/150		80/180	65/150		65/150		65/150	
Cashew Nut Oil	100	65/150	65/150							
Castor Oil (Ricinus Oil)	100	70/160	70/160	50/120	50/120	70/160	70/160	70/160	50/120	70/160
Cationic / Anionic Polymer Emulsions in Kerosene or Petroleum Distillates / Water	0 - 50	40/100	50/120			50/120				
Caustic, see Sodium Hydroxide										
Cerous Nitrate	All	30/90		30/90	30/90		30/90		30/90	
Cetyl Alcohol (Hexadecanol)	100	65/150	80/180			80/180	65/150	80/180		50/120
Chlordimeform Insecticide	100	25/80	50/120			50/120	25/80	50/120		
Chloric Acid	All	25/80	25/80			25/80	25/80	25/80		25/80
Chlorinated Paraffin Wax	100	80/180		95/200	80/180		80/180		80/180	
Chlorinated Pulp <6>	All	80/180	90/195		95/200	95/200	90/195	95/200	95/200	
Chlorinated Solvent Recovery, see specific solvents										
Chlorinated Wax	All	80/180	80/180			80/180	80/180	80/180		
Chlorination Washer (hoods & vent systems)	fumes	80/180	95/200			95/200	80/180	95/200		65/150
Chlorine Dioxide Generator Effluent, R2 system <6>		65/150	80/180	80/180		80/180	65/150	80/180		65/150
Chlorine Dioxide (<1 g/l) <6>				80/180	80/180		60/140		80/180	
Chlorine Dioxide (chilled liquid) <6>				7/45			7/45			
Chlorine Dioxide Scrubber <1,2,3>		75/170	75/170				75/170			
Chlorine Dioxide, Chlorine (bleaching solution, with or without pulp) <6>	All	80/180	90/195			95/200	90/195	95/200		
Chlorine Dioxide, no Chlorine (bleaching solution, with or without pulp) <6>	All	80/180	90/195			95/200	90/195	95/200		
Chlorine Dioxide, solution storage <9>	Sat'd	20/70	20/70			20/70	20/70	20/70		
Chlorine Water, see Chlorinated Brine										
Chlorine, dry gas <2,8,17>	100	80/180	90/195	100/210	100/210	100/210	80/180	100/210	100/210	65/150
Chlorine, wet gas, acidic pH <2,8,17>	100	80/180	90/195	80/180	80/180	100/210	80/180	100/210	80/180	65/150

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
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; LS 175/350	80/180	100/210		80/180
Chloroacetic Acid (Monochloroacetic Acid)	1	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Chloroacetic Acid	2 - 25	50/120	50/120	40/100	40/100	50/120	50/120	50/120	40/100	
Chloroacetic Acid	26 - 50	40/100	40/100	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		
Chloroacetic Acid	80 - 85	25/80	25/80			25/80	25/80	25/80		
Chloroacetic Acid	86 - 100	NR	NR			LS	NR	NR		NR
Chlorobenzene	1			25/80	25/80				25/80	
Chlorobenzene	100	NR	25/80	25/80	25/80	40/100	NR	25/80	25/80	NR
Chlorodifluoromethane <1>	100	25/75		25/75			25/80			
Chlorofluorocarbon (CFC): R-11 (Trichlorofluoromethane), R-12 (Dichlorodifluoromethane) <1>	100	25/80	40/100			40/100	25/80	40/100		NR
Chlorofluorocarbon (CFC): CFC-113 (Trichlorotrifluoroethane) <1>		40/100	40/100			40/100	40/100	40/100		
Chloroform	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Chloroform (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Chloroform / Dichloroethane / Methylene Chloride	All	NR	NR			LS	NR	NR		NR
Chloropentane (1 to 5 Cl)	100	40/100	50/120			55/130	40/100	50/120		NR
Chloropicrin (Nitrochloroform)	100	NR	NR			LS	NR	NR		NR
Chloropyridine (tetra)	100	25/80	50/120			50/120	25/80	50/120		NR
Chlorosulfonic Acid	10	NR	NR			NR	NR	NR		NR
Chlorosulfonic Acid	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chlorotoluene	100	25/80	40/100			40/100	25/80	40/100		NR
N-Chloro-o-Tolyl (insecticide emulsion)	10	50/120	50/120			50/120	50/120	50/120		
Choline Chloride	All	50/120	65/150			65/150	50/120	65/150		50/120
Chrome Plating Solution (19% Chromic Acid with Sodium Fluorosilicate and Sulfate) <1>		50/120	50/120	40/100		65/150	50/120	50/120	50/120	50/120

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Chrome Reduction Process <6>	25	90/195					90/195			
Chromic Acid <2>	0.5 - 10	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Chromic Acid <2>	11 - 20	50/120	65/150	50/120	50/120	65/150	65/150	65/150	50/120	50/120
Chromic Acid <2>	25					55/100				
Chromic Acid <2>	30	LS	LS	NR	NR	LS	LS	LS	NR	
Chromic Acid <2>	40	NR	NR	NR	NR	LS	NR	NR	NR	
Chromic Acid / Nitric Acid mixture <2>	5:10	40/100	50/120			65/150	40/100	40/100		40/100
Chromic Acid: Sodium Metabisulfite <2>	15:45	50/120	65/150			65/150	65/150	65/150		50/120
Chromic Acid / Sulfuric Acid mixture (maximum total concentration 10%) <2>	10	50/120	65/150			65/150	50/120	65/150		50/120
Chromic Acid / Sulfuric Acid <2>	3:16	NR					NR			
Chromic Acid / Sulfuric Acid <2>	20:20	NR					NR			
Chromium Plate, electroplating with a salt solution (with Sulfuric Acid: not recommended)		55/130	55/130			55/130	55/130	55/130		55/130
Chromium Sulfate, water soluble forms (Chromous Sulfate) <21>	All	100/210	100/210	65/150	65/150	100/210 <24>	100/210	100/210	65/150	80/180
Citric Acid	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Cleaner (heavy-duty phenolic based desinfectant cleaner) <14>	100			40/100			40/100			
Cleaner, liquid (biodegradable, all purpose) <14>		40/100		40/100			40/100			
Clopidol <4>	All					40/100		40/100		
Cobalt Chloride <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Cobalt Chloride reactor (Hydrochloric Acid / Sulfuric Acid) <10>	40		95/200							
Cobalt Citrate	12	80/180	80/180			80/180				50/120
Cobalt Nitrate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Cocamidopropyl Betaine	100	50/120		50/120			50/120			
Cocamidopropyl Dimethylamine	100	50/120		50/120			50/120			
Coconut Oil <18>	100	80/180	95/200	80/180	80/180	95/200	80/180	95/200	80/180	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Cod Liver Oil <18>	100	40/100	40/100						40/100	
Copper Acetate	All	70/160		80/180			70/160			
Copper Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Copper Chloride / Ammonium Chloride / Ammonium Hydroxide, see Ammonium Hydroxide	26 : 5 : 2									
Copper Cyanide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Copper Cyanide Plating Solution (10.5% Copper, 14% Sodium Cyanides, 6% Rochelle Salts)		70/160	70/160	80/180	80/180	70/160	70/160	70/160	80/180	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% Iron Chloride, 19% Hydrochloric Acid) <8,9,13>		80/180	95/200	95/200	95/200	95/200	95/200	95/200		80/180
Copper Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Copper Plating Solution (45% Cu(BF4)2, 19% Copper Sulfate, 8% Sulfuric Acid) <1>		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Copper Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Copper Sulfate, ammoniated <21>	All			90/195	90/195		90/195		90/195	
Corn Oil <18>	100	80/180	100/210	95/200	100/210	100/210	80/180	100/210	100/210	65/150
Corn Starch <18>	slurry	100/210	100/210	105/220	100/210		100/210		100/210	
Corn Sugar / Syrup (Glucose) <18>	All	80/180	80/180							
Cottonseed Oil <18>	100	100/210	100/210	95/200	100/210	100/210	100/210	100/210	100/210	65/150
Crude Oil, sweet and sour	100	100/210	120/250			120/250	100/210	120/250	-	65/150
Cumene	100	25/80	50/120			50/120	25/80	50/120		25/80
Cumene / Toluene / Xylene	All	25/80	40/100			50/120	25/80	50/120		NR
Cupric Chloride, see Copper Chloride										
Cyanide Disposal (reacts with Hypo to form Sodium Thiosulfite)			40/100			40/100				
Cyanuric Acid	All	25/80	40/100			50/120	25/80	40/100		
Cyanuric Chloride <4>	All	50/120	50/120			50/120	50/120	50/120		50/120

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Cyclohexane	100	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	
Cyclohexane (no condensation, no coalescence)	fumes	80/180		80/180			80/180			
Cyclohexylamine	100		LS			40/100		LS		
Cyclopentane	100	40/100	45/110			50/120	40/100	45/110		
Dalapon / Sodium Salt (2,2-Dichloropropionic Acid and Sodium Salt)	100	NR	25/80			40/100	NR	25/80		NR
Decanoic Acid <4>	> 0.5	80/180	80/180			80/180	80/180	80/180		80/180
Decanol	100	50/120	65/150			80/180	50/120	65/150		
Deionized Water <2>	100	80/180	80/180			80/180	80/180	80/180		80/180
Demineralized Water <2>	100	80/180	80/180			80/180	80/180	80/180		80/180
Detergent, dishwashing liquid (biodegradable) <14>	100	40/100		40/100			40/100			
Detergents, sulfated <21>	1 - 50	100/210		105/220	80/180		100/210		80/180	
Detergents, sulfonated	100	100/210		105/220			100/210			
De-waxed Paraffin Distillate	100	80/180	80/180			80/180	80/180	80/180		65/150
Di (2-Ethylhexyl) Phosphoric Acid (DEHPA) in Kerosene	20	50/120		65/150			50/120		80/180	
Diacetone Alcohol	10		40/100			50/120	40/100	50/120		
Diacetone Alcohol	100	NR	NR			LS	NR	NR		NR
Diallyl Phthalate	All	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	65/150
Diammonium Phosphate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Dibasic Acid (51-61% Glutaric Acid / 18-28% Succinic Acid / 15-25% Adipic Acid / 2% Nitric Acid)	> 0.5 - 50	80/180	95/200			95/200	80/180	95/200		80/180
Dibromonitrilo-Propionamide	100	NR	25/80			40/100	NR	25/80		NR
Dibromophenol	100	NR	40/100			40/100	NR	40/100		NR
Dibromopropane	100	NR	25/80			40/100	NR	25/80		NR
Dibromopropanol	100			NR		40/100	NR			
Dibutyl Carbitol (Diethylene Glycol Dibutyl Ether)	100	25/80	40/100			40/100	25/80	40/100		
Dibutyl Ether	100	25/80	50/120	50/120	50/120	80/180	25/80	65/150	50/120	
Dibutyl Phthalate	100	80/180	80/180	95/200	95/200	100/210	65/150	80/180	95/200	

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Dibutyl Sebacate	100	50/120	65/150	100/210		65/150	100/210	65/150	65/150	
Dichloroacetic Acid, see Chloroacetic Acid										
Dichlorobenzene (ortho and para)	100	NR	40/100	40/100		50/120	NR	40/100		NR
Dichloroethane	100	NR	NR	NR	NR	25/80	NR	NR	NR	NR
Dichloroethylene	100	NR	NR			LS	NR	NR		NR
Dichloromethane (Methylene Chloride)	100	NR	NR			LS	NR	NR		NR
Dichlorophenol (DCP)	100	NR					NR			
2,4-Dichlorophenoxyacetic Acid (acid, salt, ester formulations) <4>		50/120	50/120			50/120	50/120	50/120		
Dichloropropane	100	NR	25/80			40/100	NR	25/80		NR
Dichloropropane / Dichloropropene mixture		NR		NR	NR		NR			
Dichloropropene	100	NR	NR	NR	NR	25/80	NR	NR	NR	NR
Dichloropropene / Dichloropropane mixture		NR		NR	NR		NR			
Dichloropropionic Acid	100	NR	25/80	NR	NR	40/100	NR	25/80	NR	NR
Dichlorotoluene	100	25/80	50/120			50/120	25/80	50/120		NR
Dicoco Dimethyl Ammonium Chloride <21>	All	50/120		50/120			50/120			
Diesel Fuel	100	80/180	100/210	95/200	95/200	100/210	80/180	100/210	95/200	65/150
Diethanolamine	100	50/120	50/120	50/120	50/120	65/150	50/120	50/120	50/120	
Diethanolamine / Ethanolamine	80:20	50/120	50/120			50/120	50/120	50/120		
Diethyl Carbonate	100	NR	25/80	NR		40/100	NR	25/80	25/80	NR
Diethyl Ether	100	NR	NR			NR	NR	NR		NR
Diethyl Formamide	20	40/100	40/100			40/100	40/100	40/100		NR
Diethyl Formamide	100	NR	LS			40/100	NR	LS		NR
Diethyl Hydroxylamine	100	NR	NR			LS	NR	NR		
Diethyl Ketone	20	40/100	45/110			50/120	40/100	40/100		40/100
Diethyl Ketone	100	NR	NR	NR	25/80	25/80	NR	NR	25/80	NR
Diethyl Sulfate	100	40/100	50/120	40/100	40/100	50/120	40/100	50/120	40/100	
Diethylamine	20	40/100	40/100			40/100	40/100	40/100		NR

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Diethylamine	100	NR	NR	NR		LS	NR	NR		NR
Diethylaminoethanol	100	50/120	50/120			50/120	50/120	50/120		40/100
Diethylbenzene	100	40/100	65/150	50/120	65/150	65/150	40/100	65/150	65/150	NR
Diethylene Glycol	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	80/180
Diethylene Glycol Dimethyl Ether	20	40/100	40/100			40/100	40/100	40/100		NR
Diethylene Glycol Dimethyl Ether	100	NR	NR			25/80	NR	NR		NR
Diethylene Glycol Butyl Ether (2-(2-Butoxyethoxy) ethanol)	100	40/100	40/100	30/90	40/100	40/100	40/100	40/100	40/100	NR
Diethylene Glycol Monomethyl Ether	100	NR	NR			LS	NR	NR		NR
Diethylene Triamine Pentaacetic Acid	All	40/100	50/120			50/120	50/120	50/120		
Diethylene Triamine Pentaacetic Acid / Sodium Salt	40	40/100	50/120			50/120	50/120	50/120		
Di-2-Ethylhexyl Phosphoric Acid (DEHPA) in Kerosene	20	80/180	80/180			80/180	80/180	80/180		
Diglycolamine (Aminoethoxyethanol)	20	40/100	50/120			50/120	40/100	50/120		40/100
Diglycolamine (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	50/120			50/120	NR	50/120		NR
Diisobutyl Phthalate	100	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	
Diisobutylene	100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	25/80
Diisonoyl Phthalate	100	65/150	100/210			100/210	65/150	100/210		65/150
Diisopropanolamine	100	50/120	50/120	50/120	50/120	65/150	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 (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Dimethylamine	20	40/100	40/100			40/100	40/100	40/100		40/100
Dimethylamine	40	LS	LS			LS	LS	LS		NR
2,4-D Dimethylamine Salt	67	50/120	50/120			50/120	50/120	50/120		
Dimethylammonium Hydrochloride (Dimethylamine HCl)	70	40/100	40/100			50/120 <7>	40/100	40/100		40/100

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Dimethylaniline	100	NR	LS			40/100	NR	25/80		LS
Dimethylcarbonate	100	NR	NR			NR	NR	NR		NR
Dimethylethanolamine	20	50/120	50/120			60/140				
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		
Dimethylformamide	30	NR					NR			
Dimethylformamide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dimethylformamide (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Dimethylformamide / Acetonitrile / Methanol	26:9:7	NR	NR			LS	NR	NR		NR
Dimethylmorpholine	100	NR	25/80	40/100		50/120	NR	25/80	25/80	NR
Dimethyl Phthalate	100	65/150	80/180	65/150		80/180	65/150	80/180	80/180	
Dimethyl Sulfate	20	40/100	50/120			50/120	40/100	50/120		40/100
Dimethyl Sulfate	100	NR	LS			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		
Dimethyltin Dichloride / Methyltin Trichloride (90/10) in aqueous solution <7>	50					45/110				
Dioctyl Phthalate	100	65/150	100/210	65/150	65/150	100/210	65/150	100/210	65/150	65/150
Dioxane	100	NR		NR			NR			
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	50/120	50/120	25/80	50/120	50/120	NR
Dipotassium Phosphate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Dipropylene Glycol	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	65/150
Dipropylene Glycol Dibenzoate	100	50/120		50/120			50/120			
Dipropylene Glycol Methyl Ether (2-(2-Methoxypropoxy)-1-Propanol)	20	40/100	50/120			65/150	50/120	65/150		40/100

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Dipropylene Glycol Methyl Ether (2-(2-Methoxypropoxy)-1-Propanol)	100	NR	LS			20/70	NR	NR		NR
Dishwashing Detergent in solution <14>	All	80/180	80/180			65/150	80/180	65/150		80/180
Distilled Water <2>	100	80/180	80/180			80/180	80/180	80/180		80/180
Divinylbenzene	100	40/100	50/120	50/120		50/120	40/100	50/120	50/120	NR
Dodecane	100	25/80		50/120	50/120		25/80		50/120	
Dodecanol (Lauryl Alcohol)	100	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	50/120
Dodecene	100	65/150	80/180		80/180	80/180	65/150	80/180	80/180	50/120
Dodecylbenzene Sulfonic Acid <6>	100	80/180	95/200	105/220		100/210	100/210	100/210	95/200	
Dodecylbenzene Sulfonic Acid / Sulfuric Acid / Water / Oil	85 : 10 : 4 : 1	65/150	65/150			65/150	65/150	65/150		65/150
Dodecyldimethylamine	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	NR	NR	25/80	NR	NR		NR
Epoxidized Castor Oil	100	40/100	40/100							40/100
Epoxidized Soybean Oil	100	65/150	65/150			65/150	65/150	65/150		65/150
Esters / Fatty Acid	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Ethanol (Ethyl Alcohol)	10	50/120	50/120	65/150	65/150	65/150	50/120	50/120	65/150	50/120
Ethanol (Ethyl Alcohol)	50	40/100	40/100	65/150	65/150	65/150	40/100	40/100	65/150	NR
Ethanol (Ethyl Alcohol)	90 - 95	25/80	25/80	40/100	40/100	40/100	25/80	25/80	40/100	NR
Ethanol (Ethyl Alcohol)	100	NR	LS	40/100	40/100	40/100	NR	25/80	40/100	NR
Ethanol (Ethyl Alcohol, no condensation, no coalescence)	fumes	65/150	65/150			80/180	80/180	80/180		65/150
Ethanol / Ethylacetate / Methanol / DMF	35 : 29 : 10 : 10	NR	NR			LS	NR	NR		NR
Ethanolamine	20	40/100	45/110			50/120	40/100	50/120		
Ethanolamine	100	25/80	30/90	30/90	25/80	40/100	25/80	30/90	25/80	NR
Ethanolamine / Ethylene Glycol Monobutyl Ether (alkaline film stripper)	30:57	NR					NR			

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Ethephon	100		40/100			40/100				
Ethoxy Acetic Acid	10		40/100			40/100		40/100		
Ethoxy Acetic Acid	100	NR	NR			LS	NR	NR		NR
Ethoxylated Alcohol, C12-C14	100	25/80	40/100			50/120	25/80	40/100		
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	LS		NR
Ethyl Acetate	1			NR	NR		NR		NR	
Ethyl Acetate	100	NR	LS	NR	NR	25/80	NR	LS	NR	NR
Ethyl Acetate (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Ethyl Acetate / Sodium Hydroxide <1,2>	4 : 0-50	50/120	50/120			40/100	50/120	40/100		
Ethyl Acrylate	100	NR	LS	NR	NR	25/80	NR	20/70	NR	NR
Ethyl Alcohol, see Ethanol										
Ethyl Amine	20	40/100	40/100			40/100	40/100	40/100		40/100
Ethyl Amine	70	NR	NR			LS	NR	NR		NR
Ethyl Benzene / Benzene	2:3 / 1:3 vol								25/80	
Ethyl Benzyl Chloride <2>	100	NR	NR			40	NR	NR		NR
Ethyl Bromide	100	NR	LS	NR	NR	LS	NR	LS	NR	NR
Ethyl Chloride	100	NR	LS	NR	25/80	25/80	NR	25/80	25/80	NR
Ethyl Ether	100	NR	NR			NR	NR	NR	NR	NR
Ethyl Silicate	100					40/100				
Ethyl Sulfate	100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
2-Ethylhexyl Alcohol	100	65/150	70/160			80/180	70/160	80/180		50/120
Ethyl-3-Ethoxy Propionate	100	NR	LS			25/80	NR	LS		NR
Ethylbenzene	100	25/80	40/100	40/100	50/120	50/120	25/80	40/100	40/100	
Ethylbenzene / Benzene	67:33	NR	25/80			40/100	NR	25/80		NR
Ethylene Chloride, see Dichloroethane										
Ethylene Chlorohydrin	20	40/100	50/120			65/150	50/120	65/150		40/100

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Ethylene Chlorohydrin	100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	NR
Ethylene Diamine	20	40/100	40/100			40/100	40/100	40/100		40/100
Ethylene Diamine	100	NR	NR			LS	NR	NR		NR
Ethylene Dibromide	100	NR	NR			NR	NR	NR	NR	NR
Ethylene Dichloride, see Dichloroethane										
Ethylene Dichloride / Ethylene Dibromide / Tetra Ethyl Lead (above water solublity)	5 : 5 : 5	NR	NR			LS	NR	NR		NR
Ethylene Glycol	100	100/210	100/210	100/210	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		
Ethylene Glycol / Sulfuric Acid	0-40 : 0-10	65/150	80/180			80/180	80/180	80/180		
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol)	20	40/100	50/120			65/150	50/120	65/150		40/100
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol)	100	40/100	40/100	40/100	40/100	65/150	40/100	40/100	40/100	NR
Ethylene Glycol Monobutyl Ether / Ethanolamine (alkaline film stripper)	57:30						NR			
Ethylene Oxide	100	NR	NR			NR	NR	NR	NR	NR
Ethylenediaminetetraacetic Acid (EDTA)	All	80/180	80/180	30/90	40/100	80/180	80/180	80/180	40/100	80/180
Ethylenesulfonic Acid / Sodium Salt <6>	All	70/160	70/160			70/160	70/160	70/160		
Eucalyptus Oil <18>	100	60/140	60/140			60/140	60/140	60/140		
Fatty Acid / Sterol / Triglyceride	All	100/210	120/250			120/250	100/210	120/250		65/150
Fatty Acid / Sulfuric Acid <10>	5:2	100/210	100/210			100/210	100/210	100/210		
Fatty Acids	All	100/210	120/250	105/220	120/250	120/250	100/210	120/250	120/250	65/150
Ferric Acetate	All	80/180	80/180	80/180		80/180	80/180	80/180	80/180	
Ferric Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	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	100/210	105/220		80/180
Ferric Chloride/ Hydrochloric Acid <2,8,9,12,13>	0-29 : 1-20	80/180	105/220			105/220	80/180	105/220		80/180
Ferric Nitrate <21>	All			100/210	100/210		100/210		100/210	
Ferric or Ferrous Sulfate / Sulfuric Acid	0-40 : 0-25	100/210	100/210			100/210	100/210	100/210		80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Ferric Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ferrous Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ferrous Chloride / Hydrochloric Acid <2,8,9,12,13>	0-29 : 1-20	80/180	100/210			100/210	80/180	100/210		80/180
Ferrous Chloride, Manganese Chloride, Ferric Chloride / Hydrochloric Acid <2,8,9,12,13>	1-60 : 0-20	80/180	100/210			100/210	100/210	100/210		80/180
Ferrous Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ferrous Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	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	65/150	65/150
Fertilizer Solution, Grades N-P-K:10-34-0	100			65/150			65/150			
Flue Gas, dry <16>	All	165/325	175/350	175/350	175/350	205/400	160/320	160/320		
Flue Gas, wet	All	80/180	100/210	100/210	100/210	100/210	80/180	100/210		80/180
Fluoboric Acid <1,2>	1 - 10	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Fluoboric Acid <1,2>	11 - 100	100/210	100/210	95/200	95/200	100/210	100/210	100/210	95/200	65/150
Fluoride Salts / Hydrochloric Acid <1,2>	30:10	50/120	50/120			50/120	50/120	50/120		50/120
Fluorine in flue gas, wet <1,2>	2	80/180	100/210			100/210	80/180	100/210		80/180
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	1	80/180		70/160	80/180	80/180	80/180		80/180	
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	2 - 10	80/180	80/180	70/160	80/180	80/180	80/180	80/180	80/180	65/150
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	11 - 20	60/140	60/140			60/140	60/140	60/140		60/140
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	21 - 35	40/100	40/100	40/100	50/120	40/100	40/100	40/100	50/120	40/100
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	Sat'd	40/100		40/100	40/100		40/100		40/100	
Fluosilicic Acid fumes <1,2>	All	80/180	80/180			80/180	80/180			65/150

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Fluosilicic Acid / Hydrofluoric Acid / Phosphoric Acid <1,2>	22:5:5	40/100	40/100			40/100	40/100	40/100		40/100
Fluozirconic 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		80/180	80/180		65/150	80/180	80/180	80/180	65/150	80/180
Formaldehyde	38	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	
Formaldehyde / Methanol	0-37 : 0-15	50/120	65/150			65/150	50/120	65/150		
Formamide	20	40/100	50/120			65/150	50/120	65/150		40/100
Formamide	100	20/70	20/70	LS40/ LS100	40/100	20/70	20/70	20/70	40/100	
Formic Acid	10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Formic Acid	25	50/120	65/150	50/120	50/120	65/150	50/120	65/150	50/120	50/120
Formic Acid	50	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Formic Acid <2>	85	25/80	25/80	50/120	50/120	40/100	25/80	25/80	50/120	
Formic Acid <2>	100				40/100	40/100			40/100	
Fuel C (50:50 Isooctane / Toluene)	100					50/120				
Fuel C / Methyl t-Butyl Ether (MTBE) (Fuel C is 50:50 Toluene / Isooctane)	85:15					50/120				
Fuel Oil	100	80/180	100/210	80/180	80/180	100/210	80/180	100/210		65/150
Furfural <11>	0 - 10	40/100	50/120	65/150	65/150	50/120	40/100	50/120	65/150	
Furfural <11>	11 - 100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Furfural in organic solvent <4,6>	0 - 20	NR	25/80			40/100	NR	40/100		
Furfural / Acetic Acid / Methanol	30 : 10 : 5	NR	NR			LS	NR	NR		NR
Furfuryl Alcohol <2>	20	40/100	50/120			65/150	40/100	50/120		40/100
Furfuryl Alcohol <2>	100	NR	NR			25/80	NR	NR	NR	NR
Gallic Acid	All	80/180	80/180			80/180	80/180	80/180		
Gasohol, 1-100% alcohol	100					40/100				
Gasoline, no alcohol	100					50/120				
Gluconic Acid	50			50/120			40/100			
Glucose <18>	All	80/180	80/180							

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
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		50/120
Glutaric Acid	50	50/120	50/120			50/120	50/120	50/120		
Glycerine	100	100/210	100/210	105/220	100/210	100/210	100/210	100/210	100/210	65/150
Glycine and derivatives	All	40/100	40/100			40/100	40/100	40/100		
Glycol	100	100/210	100/210			100/210	100/210	100/210		65/150
Glycolic Acid (Hydroxyacetic Acid)	0 - 70	50/120	50/120	50/120	50/120	65/150	50/120	65/150	50/120	50/120
Glyconic Acid	50	80/180	80/180			80/180	80/180	80/180		65/150
Glyoxal	40	40/100	40/100	25/80		40/100	40/100	40/100	40/100	
Glyoxylic Acid (Oxoacetic Acid)	25	NR		NR	NR		NR		NR	
Glyphosate	All		40/100			40/100		40/100		
Gold Plating Solution (23% Potassium Ferrocyanide, Potassium Gold Cyanide, Sodium Cyanide)		100/210	100/210	95/200	95/200	100/210	100/210	100/210	95/200	80/180
Green Liquor <1,2>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Gypsum Slurry, see also Calcium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	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	95/200	95/200	100/210	100/210	100/210	95/200	80/180
Heptane (no condensation, nocoalescence)	fumes	100/210	100/210			100/210	100/210	100/210		80/180
Hexachlorocyclopentadiene	100			80/180			80/180			
Hexachloroethane	100	LS	40/100			50/120	LS	40/100		NR
Hexadecanol	100	65/150	80/180			80/180	65/150	80/180		50/120
Hexafluorosilicic Acid, see Fluosilicic Acid										
Hexamethylenetetramine	40	40/100	50/120			50/120	40/100	50/120		
Hexane	100	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Hexanoic Acid	100	25/80	50/120			50/120	25/80	50/120		25/80
Hot Stack Gas, see Flue Gas										
Humid Air, trace sulfur fumes				95/200	95/200		95/200			

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Hydraulic Fluid (glycols) <14>	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Hydrazine	20		LS			LS	LS	LS		
Hydrazine	70	NR		NR	NR		NR		NR	
Hydrazine	100	NR	NR			LS	NR	NR		NR
Hydrazine / Sodium Phosphate	5:10		LS			LS	LS	LS		
Hydriodic Acid (57% Hydrogen Iodide)	40	65/150	65/150			65/150	65/150	65/150		65/150
Hydriodic Acid (57% Hydrogen Iodide)	100		40/100			40/100	40/100	40/100		
Hydrobromic Acid	1 - 25	80/180	80/180	105/220	105/220	80/180	80/180	80/180	105/220	80/180
Hydrobromic Acid	48	65/150	65/150	70/160	70/160	65/150	65/150	65/150	70/160	65/150
Hydrobromic Acid	62	40/100	40/100			40/100	40/100	40/100		40/100
Hydrobromic Acid / Bromine	40:2		40/100			40/100	40/100	40/100		
Hydrochloric Acid <2,8,9,12,13,21>	1 - 15	80/180	105/220	105/220	105/220	110/230	100/210	105/220	105/220	80/180
Hydrochloric Acid <2,8,9,12,13>	16 - 20	80/180	105/220	95/200	95/200	110/230	100/210	105/220	95/200	80/180
Hydrochloric Acid <2,8,9,12,13>	21 - 25	65/150	80/180	80/180	80/180	100/210	80/180	80/180	80/180	80/180
Hydrochloric Acid <2,8,9,12,13>	26 - 30	65/150	80/180			95/200	80/180	80/180		80/180
Hydrochloric Acid <2,8,9,12,13>	31 - 32	65/150	70/160	65/150	65/150	80/180 <15>	65/150	80/180 <15>	65/150	65/150
Hydrochloric Acid <2,8,9,12,13>	33 - 34	50/120	50/120			70/160 <15>	50/120	70/160 <15>		50/120
Hydrochloric Acid <2,8,9,12,13>	35 - 36	50/120	50/120	50/120	50/120	60/140 <15>	50/120	60/140 <15>	50/120	50/120
Hydrochloric Acid <2,8,9,12,13>	37	40/100	45/110	40/100	40/100	50/120 <15>	40/100	50/120 <15>	40/100	
Hydrochloric Acid, fumes <2,8,9,12,13,16>		100/210	175/350			175/350	100/210	175/350		80/180
Hydrochloric Acid, fumes / free Chlorine, dry above 210 °F/100 °C <2,8,9,12,13,16>			175/350			175/350		175/350		
Hydrochloric Acid / Aluminum (reactor) / Aluminum Chloride <2,8,9,12,13>	<15% HCl	80/180	100/210				80/180			
Hydrochloric Acid / Aluminum Chloride <2,8,9,12>	30 : 0-40	65/150	70/160			80/180 <15>	65/150	80/180 <15>		65/150

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Hydrochloric Acid / Aluminum Chlorohydrate <2,8,9,12,13>	<15 : >0.5	80/180	100/210			100/210	80/180	100/210		65/150
Hydrochloric Acid / Bromine / Chlorine <2,8,9,12,13>	22 : 0.1 : 0.1	65/150	80/180			100/210	80/180	80/180		80/180
Hydrochloric Acid / Calcium Chloride <2,8,9,12,13>	27:15	65/150	80/180			95/200	80/180	80/180		80/180
Hydrochloric Acid / Chlorine <2,8,9,12,13>	0.5 - 20% HCl	80/180	90/195			100/210	80/180	100/210		80/180
Hydrochloric Acid / Diethylene Triamine (as Hydrochloride) / Ammonium Chloride <2,8,9,12,13>	33 : 10 : 10					65/150				
Hydrochloric Acid / Dissolved Organics <2,8,9,12,13>	0 - 33% HCl	NR				65/150 <15>				NR
Hydrochloric Acid / Ferric Chloride <2,8,9,12,13>	1-20 : 0-29	80/180	105/220			105/220	80/180	105/220		80/180
Hydrochloric Acid / Ferric Chloride / Organics <2,8,9,12,13>	28 : 35 : 1	NR	NR			65/150	NR	NR		NR
Hydrochloric Acid / Ferrous Chloride <2,8,9,12>	1-20 : 0-29	80/180	100/210			100/210	80/180	100/210		80/180
Hydrochloric Acid / Formaldehyde <2,8,9,12,13>	25:3	NR	NR			65/150	NR	NR		NR
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,12,13>	36:1		40/100			40/100 <15>		40/100 <15>		
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,12,13>	max total % = 20	40/100	40/100			40/100	40/100	40/100		40/100
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,12,13>	15 : 0.1-1	80/180	100/210			100/210	100/210	100/210		80/180
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,12,13>	25:6	40/100	45/110			50/120	40/100	50/120		
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,12,13>	0.5-20 : 0-1	65/150	80/180			80/180	65/150	80/180		
Hydrochloric Acid / Hydrofluoric Acid <1,2,8,12,13>	30:15					40/100				
Hydrochloric Acid / Hydrofluoric Acid / Phosphoric Acid / Nitrobenzene <1,2,8,12,13>	15 : 1 : 1 : 0.5	NR	LS			40/100	NR	LS		NR
Hydrochloric Acid / Hydrofluoric Acid / Xylene <1,2,8,12,13>	15 : 15 : 70					NR				
Hydrochloric Acid / Phosphorus Acid <2,8,9,12,13>	2:70			80/180	80/180		80/180		80/180	
Hydrochloric Acid / Sodium Chloride <2,8,9,12,13>	5 : sat'd NaCl			100/210	100/210		100/210		100/210	
Hydrochloric Acid / Sulfuric Acid (iron and steel cleaning bath) <2,8,9,12,13>	9:23			95/200	100/210		95/200		100/210	
Hydrocyanic Acid	All	100/210	100/210	65/150	65/150	100/210	100/210	100/210	65/150	80/180
Hydrofluoric Acid <1,2,13>	1	65/150		65/150	65/150		65/150		65/150	

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Hydrofluoric Acid <1,2,13>	5	65/150		50/120	50/120		50/120		50/120	
Hydrofluoric Acid <1,2,13>	10	65/150		40/100	40/100	65/150	65/150	65/150	40/100	65/150
Hydrofluoric Acid <1,2,13>	15			30/90	30/90	40/100	40/100	40/100	30/90	
Hydrofluoric Acid <1,2,13>	20	40/100	40/100	LS30/ LS90	LS30/ LS90	40/100	40/100	40/100	LS30/ LS90	40/100
Hydrofluoric Acid / Nitric Acid <1,2,13>	15:15					40/100		40/100		
Hydrofluoric Acid / Nitric Acid <1,2,13>	6:20	50/120	50/120			60/140	55/130	60/140		40/100
Hydrofluoric Acid / Nitric Acid <1,2,13>	3-5 : 30-35	NR	NR			LS	NR	LS		NR
Hydrofluoric Acid / Nitric Acid / Sulfuric Acid <1,2,13>	8 : 20 : 2					60/140		60/140		
Hydrofluosilicic Acid, see Fluosilicic Acid										
Hydrofluosilicic Acid / Polyaluminum Chloride (Poly(aluminum hydroxy)chloride) <1,2>	1-22 : 1-35	40/100	40/100			40/100	40/100	40/100		40/100
Hydrofluosilicic Acid / Zinc Chloride <1,2>	20:All	40/100	40/100			40/100	40/100	40/100		40/100
Hydrogen Bromide, dry gas	100	80/180	80/180	80/180	80/180	100/210	80/180	100/210	80/180	80/180
Hydrogen Bromide, wet gas	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Hydrogen Chloride, dry gas <6,16>	100	100/210	175/350	105/220	120/250	175/350	100/210	175/350	120/250	80/180
Hydrogen Chloride, wet gas	100	100/210	110/230	105/220	105/220	110/230	100/210	110/230	105/220	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	65/150	65/150	65/150
Hydrogen Peroxide <2,3,6>	30	40/100	40/100	40/100	65/150	65/165	40/100	65/150	65/150	40/100
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	100	100/210	110/230	100/210	100/210	110/230	100/210	110/230	100/210	80/180
Hydrogen Sulfide (sewer gas)		30/90		30/90			30/90			
Hydrogenated Tallow Alkyl Amine (C8-C18)	100	40/100	40/100							
Hydrosulfite Bleach, aqueous solution containing 5% Zinc Hydrosulfite and 2.5% Tripolyphosphate <5>		80/180	80/180			80/180	80/180	80/180		80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Hydroxyacetic Acid (Glycolic Acid)	0 - 70	50/120	50/120	50/120	50/120	65/150	50/120	65/150	50/120	50/120
Hydroxylamine Acid Sulfate (Hydroxylammonium Acid Sulfate(HAS)), reaction of Hydroxylamine Acid Disulfate with steam to form HAS, Sulfuric Acid, Ammonium Sulfate <21>	All		100/210			100/210				
Hypophosphorous Acid	0 - 50	50/120	50/120	30/90	30/90	50/120	50/120	50/120	30/90	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
Incinerator Gases, see Flue Gas										
Iodine, crystals	100	65/150	65/150			65/150	65/150	65/150		65/150
Iodine, vapor	100	65/150	65/150			80/180	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 Acid / 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% $(NH_4)2SO_4$)		80/180	100/210	80/180	80/180	100/210	80/180	100/210	80/180	80/180
Iron Perchloride, see Ferric Chloride										
Isoamyl Alcohol	20	65/150	65/150			80/180	65/150	65/150		65/150
Isoamyl Alcohol	100	50/120	60/140	50/120	50/120	65/150	50/120	60/140	50/120	50/120
Isobutyl Alcohol	20	65/150	65/150			80/180	65/150	65/150		40/100
Isobutyl Alcohol	100	50/120	50/120			65/150	50/120	50/120		NR
Isodecanol	100	50/120	65/150	80/180	80/180	80/180	50/120	65/150	50/120	50/120
Isononyl Alcohol	100	65/150	65/150			65/150	65/150	65/150		40/100
Isooctyl Adipate	100	50/120	50/120			65/150	50/120			40/100
Isooctyl Alcohol	100	65/150	65/150			65/150	65/150	65/150		50/120
Isopropanol Amine	100	50/120	50/120			50/120	50/120	50/120		NR
Isopropyl Alcohol (Isopropanol)	100	50/120	50/120	40/100	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		
Isopropyl Amine	100	NR	NR			LS	NR	NR		NR
Isopropyl Myristate	100	100/210	110/230			110/230		110/230		65/150

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Isopropyl Palmitate	100	100/210	110/230	105/220		110/230	100/210	110/230	110/230	65/150
Itaconic Acid	0.5 - 40	60/140	60/140	100/210	100/210	60/140	60/140	60/140	100/210	60/140
Jet Fuel, general <6>	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	80/180	80/180	80/180	65/150
Kraft Recovery Boiler Breeching, see Flue Gas										
Lactic Acid	All	100/210	100/210	100/210	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
Latex Paint, acrylic binders	100			40/100	50/120		40/100		50/120	
Latex Paint, dispersion in water	100			40/100	50/120		40/100		50/120	
Latex Paint, vinyl binders	100			40/100	50/120		40/100		50/120	
Lauric Acid	All			100/210			100/210			
Lauroyl Chloride	100	40/100	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	100/210	65/150
Lauryl Mercaptan	100	80/180	95/200			100/210	80/180	95/200	65/150	
Lead Acetate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	
Lead (II) Nitrate <21>	All	100/210		100/210	100/210	100/210 <24>	100/210		100/210	
Lead Plating Solution (acidic process, 8% Lead with Fluoboric Acid and Boric Acid) <1>				95/200			95/200			
Lead Plating Solution (alkaline process, 8% Lead Acetate, 20% Sodium Hydroxide)				80/180			80/180			
Levulinic Acid <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	
Lignin Sulfonate	All	80/180	80/180			80/180	80/180	80/180		65/150
Lime Slurry, see Calcium Hydroxide										
Limestone Slurry, see Calcium Carbonate										
Linseed Oil	100	100/210	110/230	105/220	105/220	110/230	100/210	110/230	105/220	65/150
Liquid Petroleum Gas (LPG)	100	60/140	60/140			60/140	60/140	60/140		60/140

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Lithium Bromide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210		100/210	80/180
Lithium Carbonate <1>	All	80/180	80/180			80/180	80/180	80/180		80/180
Lithium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Lithium Hydroxide <1>	All	80/180	80/180	65/150		40/100	80/180	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
Lithium Sulfate <21>	All			100/210	100/210	100/210 <24>	100/210		100/210	
Magnesium Bisulfite <21>	All	100/210	100/210	80/180	80/180	100/210 <24>	100/210	100/210	80/180	80/180
Magnesium Carbonate	All	80/180	80/180			80/180	80/180	80/180		80/180
Magnesium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Magnesium Fluosilicate <1>	All	80/180	80/180			80/180		80/180		80/180
Magnesium Hydroxide <21>	All	100/210	100/210			80/180	100/210	100/210		80/180
Magnesium Nitrate	All	100/210	100/210	70/160	100/210	100/210	100/210	100/210	100/210	80/180
Magnesium Phosphate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Magnesium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Magnesium Sulfate / Phosphoric Acid	1-40 : 0-36	100/210	100/210			100/210	100/210	100/210		100/210
MAGNIFLOC Flocculant MW>40.000, Cationic Polyamine <6>	All	60/140	60/140			60/140	60/140	60/140		60/140
Maleic Acid <21>	All	80/180	100/210	80/180	100/210	100/210 <24>	80/180	100/210	100/210	80/180
Maleic Anhydride	100			65/150			65/150			
Malic Acid	All				100/210 <24>				100/210 <24>	
Manganese Chloride (Manganous Chloride) <21>	All	100/210	100/210			100/210 <24>	100/210	100/210	100/210	80/180
Manganese Nitrate (Manganous Nitrate) <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Manganese Sulfate (Manganous Sulfate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Manganous Sulfate / Ammonium Sulfate / Sulfuric Acid (concentrations in g/l)	up to 15 : up to 150 : up to 40			50/120	50/120		50/120			
MDI, see Diphenylmethane-4,4-Diisocyanate										
Melamine Formaldehyde Resin	All	40/100	50/120			50/120	40/100	50/120		40/100
Mercaptoacetic Acid	All	NR	25/80	40/100		40/100	NR	25/80		NR
Mercaptoethanol	10		80/180			80/180		80/180		
Mercaptopropionic (3-) Acid	100						NR			
Mercury	100	100/210	120/250	105/220		120/250	100/210	120/250	120/250	65/150
Mercury(I) Chloride (Mercurous Chloride) <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Mercury(II) Chloride (Mercuric Chloride) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Metal Pickling Solutions (Sulfuric Acid / Hydrochloric Acid / and/or Phosphoric Acid) <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
Methanamide, see Formamide										
Methane / Nitrogen	70:30	60/140	80/180			95/200	80/180	95/200		60/140
Methane Sulfonic Acid <6>	20 - 70	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	30/90			40/100	NR	40/100		NR
Methanol (Methyl Alcohol)	40 - 100	NR	LS	40/100	40/100	40/100	NR	NR	40/100	NR
Methanol (no condensation, nocoalescence)	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 Acid	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		
Methanol / Formaldehyde	35:4	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

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Methyl Acetate	100	NR	NR			LS	NR	LS		NR
Methyl Alcohol, see Methanol										
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
Methyl Bromide	100	NR	NR			LS	NR	NR		NR
2-Methyl-3-Butenenitrile	All	25/80	40/100			40/100	25/80	40/100		
Methyl Butyl Ketone (MBK), includes Methyl t-Butyl Ketone (MTBK) and other isomers	100	25/80	40/100			50/120	25/80	40/100		NR
Methyl Chloride (no condensation, no coalescence)	fumes	40/100	65/150	80/180	80/180	80/180	80/180	80/180		
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		
Methyl Distearyl Ammonium Chloride / Isopropanol	75:25	50/120	50/120			50/120	50/120	50/120		
Methyl Ethyl Ketone	20	40/100	40/100			40/100	40/100	40/100		40/100
Methyl Ethyl Ketone	100	LS	LS	NR	NR	20/70	LS	LS	NR	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		
Methyl Isobutyl Ketone (MIBK)	100	25/80	40/100	NR	NR	50/120	25/80	40/100	NR	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
Methyl Sulfate, see Dimethyl Sulfate										
Methyldiethanolamine	20	50/120	65/150			80/180	50/120	65/150		40/100
Methyldiethanolamine	100	50/120	50/120			65/150	50/120	50/120		
Methylene Chloride (Dichloromethane)	100	NR	NR		NR	LS	NR	NR	NR	NR

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Methylene Chloride (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Methylene Chloride / Methanol / Water	1:4:95	40/100	40/100			50/120	40/100	40/100		40/100
Methylstyrene (alpha)	100	25/80	40/100	NR	NR	50/120	25/80	40/100	NR	NR
Methyl t-Butyl Ether (MTBE)	100	NR	25/80	25/80		25/80	NR	25/80		NR
Methyl t-Butyl Ether (MTBE) / Fuel C (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 (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Methyl Tin Trichloride / Dimethyl Tin Dichloride (10/90) in aqueous solution <7>	50					45/110				
Metolachlor	100			40/100						
Mineral Oils, aliphatic	100	100/210	120/250	100/210	120/250	120/250	100/210	120/250	120/250	65/150
Mineral Spirits	100	105/220		105/220	120/250		105/220		120/250	
Molasses	100	80/180	80/180							
Monochloroacetic Acid, see Chloroacetic Acid										
Monochlorobenzene, see Chlorobenzene										
Monoethanolamine, see Ethanolamine										
Monohydroxysuccinic Acid, see Malic Acid										
Monomethylhydrazine	100	NR	NR			LS	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	105/220	105/220	120/250	100/210	120/250	105/220	65/150
Muriatic Acid, see Hydrochloric Acid										
Myristic Acid	100	100/210	120/250	105/220	120/250	120/250	100/210	120/250	120/250	65/150
Naphtha	100	80/180	100/210	95/200	100/210	100/210	80/180	100/210	100/210	80/180
Naphtha, heavy aromatic	100		50/120			50/120		50/120		
Naphthalene	100	100/210	100/210	95/200	100/210	100/210	100/210	100/210	100/210	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Neutralizer & Desmut	All	65/150	65/150			65/150	65/150	65/150		65/150
Nickel Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Nickel Nitrate	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Nickel Plating Solution #1 (11% Nickel Sulfate, 2% Nickel Chloride, 1% Boric Acid)		80/180	80/180			80/180	80/180	80/180		80/180
Nickel Plating Solution #2 (44% Nickel Sulfate, 4% Ammonium Chloride, 4% Boric Acid)		80/180	80/180	95/200	95/200	80/180	80/180	80/180	95/200	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	80/180			80/180	80/180	80/180		80/180
Nickel Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Nitric Acid	1	100/210		100/210	80/180		100/210		80/180	
Nitric Acid	2 - 5	65/150	80/180	70/160	80/180	80/180	65/150	80/180	80/180	65/150
Nitric Acid	6 - 10	65/150	65/150	60/140	65/150	65/150	65/150	65/150	65/150	50/120
Nitric Acid	11 - 20	50/120	50/120	65/150	65/150	65/150	50/120	65/150	65/150	50/120
Nitric Acid <2,13>	21 - 29	40/100	40/100	55/130	65/150	50/120	40/100	50/120		40/100
Nitric Acid <2,13>	30 - 35	25/80	30/90	50/120		40/100	30/90	40/100		NR
Nitric Acid <2,13>	36 - 40	NR	NR	NR	NR	40/100	NR	25/80	NR	NR
Nitric Acid <2,13>	50			NR	NR		NR		NR	
Nitric Acid <2,13>	70	NR	NR			LS	NR	NR		NR
Nitric Acid, fumes (no condensation, no coalescence) <2>	< 60 (soln.)	80/180	80/180			80/180	80/180	80/180		80/180
Nitric Acid, fumes (no condensation, no coalescence) <2>	> 60 (soln.)	80/180	80/180			80/180	80/180	80/180		80/180
Nitric Acid / Hexavalent Chrome (Chromic Acid) <2,13>	10:5	40/100	50/120			65/150	40/100	40/100		40/100
Nitric Acid / Hydrogen Peroxide / Hydrofluoric Acid <1,2,3,13>	30 : 5 : 0.5	25/80	30/90			40/100	30/90	40/100		NR
Nitric Acid / Hydrofluoric Acid <1,2,13>	25:3	40/100	40/100			50/120	40/100	50/120		40/100
Nitric Acid / Hydrofluoric Acid <1,2,13>	15:15					40/100		40/100		

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Nitric Acid / Hydrofluoric Acid <1,2,13>	20:6	50/120	50/120			60/140	55/130	60/140		40/100
Nitric Acid / Hydrofluoric Acid <1,2,13>	30-35 : 3-5	NR	NR			LS	NR	LS		NR
Nitric Acid / Hydrofluoric Acid / Sulfuric Acid <1,2,13>	20 : 8 : 2					60/140		60/140		
Nitric Acid / Phosphoric Acid <2,13>	5:5	65/150	80/180			80/180	80/180	80/180		65/150
Nitric Acid/ Phosphoric Acid <2,13>	24:23	40/100	40/100			50/120	40/100	50/120		40/100
Nitric Acid / Sulfuric Acid <2,13>	20:20	40/100	40/100			50/120	40/100	50/120		40/100
Nitric Acid / Sulfuric Acid / Phosphoric Acid <2,13>	20 : 5 : 2	40/100	40/100			50/120	40/100	50/120		40/100
Nitrobenzene	100	NR	25/80	NR	NR	40/100	NR	25/80	NR	NR
Nitromethane (tris, Hydroxymethyl), traces of Formaldehyde, pH 3	51	50/120		50/120			50/120			
Nitrophenol <11>	100	NR	25/80			40/100	NR	25/80		NR
N-Methyl-2-Pyrrolidone	10					LS				
N-Methyl-2-Pyrrolidone	100	NR	NR			LS	NR	NR		NR
Noncondensable Blow-Down Gases, see Flue Gas or Blow Down										
Nonyl Phenol (Monononyl Phenol)	100	45/110		45/110	45/110		45/110			
Octanoic Acid		80/180	100/210	95/200	95/200	100/210	80/180	100/210	100/210	
Oil, sweet and sour, crude		100/210	120/250	100/210	100/210	120/250	100/210	120/250	100/210	65/150
Oil, lubricating, see Motor Oil										
Oleic Acid		100/210	100/210	100/210	100/210	95/200	95/200		100/210	
Oleum (fuming Sulfuric Acid)		NR	NR			LS	NR	NR		NR
Olive Oil <18>	100	100/210	120/250			120/250				
Organic Oil (animal, plants) see also the specific oil name, for example Peanut Oil	100			95/200	95/200		95/200		95/200	
Ortho-Dichlorobenzene, see Dichlorobenzene										
Oxalic Acid <18>	All	50/120	50/120	80/180	80/180	50/120	50/120	50/120	80/180	
Ozone in solution <6>	2 mg/l	40/100	40/100			40/100	40/100	40/100		40/100
Palladium suspensions in Ammonium Hydroxide, see Ammonium Hydroxide										

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Palladium suspensions in Hydrochloric Acid, see Hydrochloric Acid										
Palmitic Acid (n-Hexadecanoic Acid) <18>	100	100/210	120/250	105/220	120/250	120/250	100/210		120/250	
Paper Mill Effluent, see Sulfite/Sulfate liquors (pulp mill)										
Para-dichlorobenzene, see Dichlorobenzene										
Peanut Oil <18>	100	80/180	80/180	80/180	80/180		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 <1,2,3,6,13>	20	40/100	40/100			40/100	40/100	40/100		
Peracetic Acid <1,2,3,6,13>	35	NR	NR			LS	NR	NR		NR
Perchloric Acid	5	80/180		80/180	80/180		80/180		80/180	
Perchloric Acid	10	65/150	65/150	65/150		65/150	65/150	65/150	65/150	65/150
Perchloric Acid	30	40/100	40/100	25/80		40/100	40/100	40/100	40/100	40/100
Perchloroethylene	100	25/80	50/120	40/100	40/100	50/120	25/80	50/120	40/100	NR
Perchloroethylene / Methyl Chloroform	75:25	40/100	50/120			50/120	40/100	50/120		
Petroleum, see Oil, crude										
Petroleum Ether, see specific alkane hydrocarbon, for example: Hexane										
Phenol (Carbolic Acid) <2,13>	0 - 2	25/80	40/100	40/100	40/100	50/120	25/80	40/100	40/100	NR
Phenol (Carbolic Acid) <2,3,13>	5	NR	25/80	25/80	25/80	50/120	NR	25/80	25/80	NR
Phenol (Carbolic Acid) <2,3,13>	10	NR	LS			50/120	NR	LS		NR
Phenol (Carbolic Acid) <2,3,13>	15	NR	LS	NR	NR	30/90	NR	LS	NR	NR
Phenol (Carbolic Acid) <2,3,13>	85	NR					NR			
Phenol (Carbolic Acid) <2,3,13>	88	NR	NR			20/70	NR	NR		NR
Phenol (Carbolic Acid) <2,3,13>	100			NR	NR		NR		NR	
Phenol Formaldehyde Resin	All	40/100	50/120			50/120	40/100	50/120		40/100
Phenol Sulfonic Acid <6>	All	25/80	25/80	NR	NR	25/80	25/80	25/80		

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
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				
Phenyl Carbinol, see Benzyl Alcohol										
Phosphoric Acid	0.5 - 85	100/210	100/210	105/220	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid	85 - 100	100/210	100/210	105/220	100/210	105/220	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% P_2O_5)	105	100/210	100/210	105/220	100/210	105/220	100/210	100/210	100/210	80/180
Phosphoric Acid / Gypsum	61:39	100/210	100/210			100/210	100/210	100/210		80/180
Phosphoric Acid / Hydrochloric Acid, sat'd with Chlorine <8,9,12>	15:9	100/210	100/210		100/210	100/210	100/210	100/210	100/210	
Phosphoric Acid / Phosphorous Pentoxide / Hydrochloric Acid / Sulfuric Dioxide (no condensation, nocoalescence)	fumes	100/210	110/230			110/230	100/210	110/230		80/180
Phosphoric Acid / Sulfuric Acid <2,12>	0-25 : 0-25	80/180	80/180			80/180	80/180	80/180		80/180
Phosphoric Acid / Sulfuric Acid <2,12>	85:15	40/100	40/100			50/120	40/100	40/100		40/100
Phosphoric Acid / Sulfuric Acid / Hydrofluoric Acid <1,2,12>	0-75 : 1 : 0-3	65/150	65/150			65/150	65/150	65/150		65/150
Phosphoric Acid / Tributyl Phosphate (vapor phase, condensation)	85 : 0.5	50/120	60/140			60/140	50/120	60/140		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	80/180		
Phosphoric Acid, vapor <6>	All	100/210	120/250			120/250	100/210	120/250		80/180
Phosphoric Acid / Zinc Chloride	0-100 : 0.5-70	100/210	100/210			100/210	100/210	100/210		80/180
Phosphorous Acid	70	100/210	100/210	105/220	100/210	100/210	100/210	100/210	100/210	80/180
Phosphorous Acid / Hydrochloric Acid <2,8,9,12,15>	0-70 : 1-5	100/210	100/210	80/180	80/180	100/210	100/210	100/210	80/180	80/180
Phosphorus Oxychloride <15>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Phosphorus Trichloride <15>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Phthalic Acid <4>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Phthalic Anhydride	Sat'd	100/210		105/220			100/210			

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Picric Acid, alcoholic <4>	10	NR	LS			40/100	NR	NR		NR
Pine Oil	100	90/195	90/195			90/195	90/195	90/195		
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
Polyelectrolytes, anionic	100	55/130		55/130	55/130		55/130		55/130	
Polyethylene Glycol	100	100/210	100/210			100/210	100/210	100/210		65/150
Polyethylene Glycols and Methoxypolyethylene Glycols	100	40/100		50/120			40/100			
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 Acetate emulsion		100/210		100/210			100/210			
Polyvinyl Alcohol	10	80/180		80/180	80/180		80/180		80/180	
Polyvinyl Alcohol	100	80/180	80/180	50/120	50/120	80/180	80/180	80/180	50/120	
Polyvinyl Chloride latex with 35 parts Dioctyl Phthalate <6>	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Potassium Aluminum Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Bicarbonate	All	80/180	80/180	70/160	65/150	80/180	70/160	80/180	65/150	80/180
Potassium Bromide <21>	All	100/210	100/210	70/160	70/160	100/210 <24>	100/210	100/210	70/160	80/180
Potassium Carbonate <1>	0-50	80/180	65/150	65/150	40/100	40/100	80/180	40/100		
Potassium Carbonate / Boric Acid / Potassium Metavanadate <1>	20 : 4 : 1	80/180	80/180			65/150	80/180	65/150		80/180
Potassium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Dichromate <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210	100/210	80/180
Potassium Ferricyanide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Ferrocyanide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Potassium Fluoride <1>	All	80/180	80/180	65/150		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	65/150	40/100	65/150	NR	25/80	65/150	25/80	NR	
Potassium Hydroxide <1,2>	50	65/150		65/150	NR		65/150		NR	
Potassium Hydroxide / Potassium Cyanide / Copper Cyanide <1,2>	2 : 3 : 8 oz/gal; 2 : 2.5 : 7%	65/150	40/100			25/80	65/150	25/80		
Potassium Hypochlorite / Potassium Hydroxide / 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 <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Oxalate	All	65/150	65/150			65/150	65/150	65/150		65/150
Potassium Permanganate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Persulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Pyrophosphate (Tetrapotassium Diphosphate)	0-60	55/130	65/150	40/100	65/150	65/150	55/130	65/150	65/150	55/130
Potassium Silicofluoride <1>	All	40/100	40/100			40/100	40/100	40/100		40/100
Potassium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	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-) (no condensation, no coalescence)	fumes	80/180	80/180			80/180	80/180	80/180		80/180
Propenoic Acid, see Acrylic Acid										
Propionic Acid	0 - 20	100/210	100/210	80/180	100/210	100/210	100/210	100/210	100/210	65/150
Propionic Acid	21 - 50	80/180	80/180	65/150	100/210	80/180	80/180	80/180	100/210	
Propionic Acid	100	NR	25/80			40/100	NR	25/80	25/80	NR
Propionyl Chloride	100	NR	NR			LS	NR	NR		NR
Propyl Acetate	100	NR	LS			25/80	NR	NR		NR
Propyl Bromide	100	NR	LS			25/80	NR	LS		NR

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Propyl Chloride	100	NR	LS			25/80	NR	LS		NR
Propylene Dichloride	100	NR		NR	NR		NR		NR	
Propylene Glycol	100	100/210	100/210	105/220	100/210	100/210	100/210	100/210	100/210	
Propylene Glycol Monomethyl Ether (1-Methoxy-2-Propanol)	100	NR	LS			20/70	NR	NR		NR
Propylene Glycol Methyl Ether Acetate <2>	20	40/100	50/120			50/120	40/100	50/120		40/100
Propylene Glycol Monomethyl Ether Acetate <2>	100	NR	LS			20/70	NR	NR		NR
Propylene Glycol / Ethoxylated Fatty Alcohol / Diethylene Glycol n-Butyl Ether	60 : 20 : 20	40/100	45/110			50/120	40/100	50/120		NR
Propylene Glycol / Monoethanolamine	0-99 : 1	25/80	30/90			40/100	25/80	30/90		NR
Propylene Oxide	100	NR	NR			NR	NR	NR		NR
Propylene Oxide (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Pulp Paper Mill Blow Down (noncondensable gases), see Blow Down										
Pyridine	20	40/100	40/100			40/100	40/100	40/100		NR
Pyridine	100	NR	NR			LS	NR	NR		NR
Quaternary Amine Salts	All	80/180	80/180			80/180	80/180	80/180		
Quaternary Ammonium Salts	All	80/180		80/180	80/180		80/180		80/180	
Quinoline	20	40/100	40/100			40/100	40/100	40/100		
Quinoline	100					LS				
Rayon Spin Bath						60/140				
Rayon Spinning (no condensation, nocoalescence)	fumes	60/140	60/140			60/140	60/140	60/140		
Recovery Boiler Gases, see Flue Gas										
Red Liquor	All	80/180	80/180	75/165	80/180	80/180	80/180	80/180	80/180	65/150
Salicylic Acid	All	70/160	70/160	70/160			70/160		60/140	
Salt Brine, see Brine, salt										
Scrubbing Low MW Amines with 10% Sulfuric Acid, see Amine Salts										
Sea Water		100/210	100/210	100/210	95/200	100/210	100/210	100/210	95/200	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Selenious Acid <21>	All	100/210	100/210	100/210	50/120	100/210	100/210	100/210	50/120	80/180
Sewage Gas, Hydrogen Sulfide, see Hydrogen Sulfide										
Silicon Tetrafluoride / Hydrofluoric Acid / Sulfuric Acid <1,2>	< 10 total	50/120	50/120			50/120	50/120	50/120		50/120
Silver Cyanide	100	100/210		100/210			100/210			
Silver Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Silver Plating Solution (4% Silver, 7% Potassium Cyanide, 5% Sodium Cyanide, 2% Potassium Carbonate) <1>		80/180	80/180	95/200	80/180	65/150	80/180	65/150	80/180	
Sodium Acetate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	
Sodium Acid Sulfite, see Sodium Bisulfite										
Sodium Alkyd Aryl Sulfonates	All	80/180	80/180			80/180	80/180	80/180		65/150
Sodium Alkyl Xanthate	All	65/150		65/150			65/150			
Sodium Aluminate <1>	All	70/160	70/160	70/160		50/120	70/160	50/120		50/120
Sodium Benzoate <21>	All	80/180	80/180	100/210		80/180	80/180	80/180		80/180
Sodium Bicarbonate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Bicarbonate / Sodium Carbonate <1>	15:20	80/180	80/180			65/150	80/180	65/150		80/180
Sodium Bichromate, see Sodium Dichromate										
Sodium Bifluoride <1>	All	50/120	50/120			50/120	50/120	50/120		50/120
Sodium Bisulfate (Sodium Hydrogen Sulfate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Bisulfide (Sodium Hydrosulfide)	All	80/180	80/180			80/180	80/180	80/180		80/180
Sodium Bisulfite (Sodium Hydrogen Sulfite) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Borate (Borax, Sodium Tetraborate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Bromate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Bromide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Carbonate <1>	All	80/180	80/180	80/180	80/180	65/150	80/180	65/150	80/180	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Sodium Carbonate / Sodium Bicarbonate <1>	20:15	80/180	80/180			65/150	80/180	65/150		80/180
Sodium Chlorate, stable <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Chlorate / Sodium Chloride <21>	34:20	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Chloride (Brine, salt) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Chloride saturated solution, see Brine, salt										
Sodium Chloride with Chlorine, see Brine, chlorinated										
Sodium Chloride / Ethyl Vanillin	0.1 - 25 : 1	50/120	50/120							
Sodium Chloride / Hydrochloric Acid <2,8,9,12>	sat'd. NaCl : 5	100/210		100/210	100/210		100/210		100/210	
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, stable, pH > 6, <5,21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210		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	100/210	100/210	100/210	80/180
Sodium Cyanide <21>	All	100/210	100/210			100/210 <24>	100/210	100/210	100/210	
Sodium Dichromate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Dichromate / Sulfuric Acid	up to 3 : up to 30	NR					NR			
Sodium Dimethyldithiocarbamate / Disodium Ethylene Bisdithiocarbamate	0.1-15 : 0.1-15	40/100	40/100			50/120	40/100	50/120		40/100
Sodium Diphosphate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Dodecylbenzenesulfonate	All	70/160	70/160			70/160	70/160	70/160		
Sodium Ferricyanide <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210		

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Sodium Ferrocyanide <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210		80/180
Sodium Fluoride <1>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Fluoroborate <1,21>	All	95/200	95/200			95/200				
Sodium Fluorosilicate <1>	All	50/120	50/120	65/150		50/120	50/120	50/120		50/120
Sodium Gluconate <21>	All	80/180	95/200			100/210 <24>	95/200	100/210		65/150
Sodium Glycolate <21>	All	80/180	95/200			100/210 <24>	80/180	95/200		65/150
Sodium Hexametaphosphate	All	80/180	80/180	65/150	65/150	80/180	80/180	80/180	65/150	80/180
Sodium Hydrosulfide (Sodium Bisulfide)	All	80/180	80/180	60/140	60/140	80/180	80/180	80/180	60/140	80/180
Sodium Hydrosulfide / Sodium Hydroxide	15:15	60/140		60/140			60/140			
Sodium Hydrosulfite	All	40/100	40/100			40/100	40/100	40/100		40/100
Sodium Hydroxide <1,2,7>	0.5	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Sodium Hydroxide <1,2,7>	1	80/180	80/180	80/180	70/160	80/180	80/180	80/180	70/160	65/150
Sodium Hydroxide <1,2>	5	80/180	60/140	70/160		40/100	70/160	40/100		
Sodium Hydroxide <1,2>	10	65/150	50/120	60/140			65/150			
Sodium Hydroxide <1,2>	25	65/150	50/120	50/120			65/150			
Sodium Hydroxide <1,2>	50	80/180	65/150	65/150			80/180			
Sodium Hydroxide / Sodium Bisulfite <1,2>	All	80/180	65/150			40/100	80/180	65/150		65/150
Sodium Hydroxide / Sodium Chloride / Sodium Sulfate / Sodium Hypochlorite (active Chlorine) <2,3,5,9>	"1-20 : 1-15 : 1-8 : 0-15"	50/120			NR		510A/B: 65/150 510C: 50/120		NR	
Sodium Hydroxide / Organics (within solubility limits, i.e. no phase separation or coalescence) <1,2>	8 : traces	80/180	65/150							
Sodium Hydroxide / Sodium Hydrosulfide <1,2>	15:15	60/140		60/140			60/140			
Sodium Hydroxide / Sodium Hypochlorite (active Chlorine) <1,2>	0-20 : 0-0.1	80/180								
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9>	2	65/150 <19>	50/120	65/150	50/120	40/100	65/150	40/100	50/120	65/150
Sodium Hypochlorite (stable, alkaline pH > 11), <2,3,5,9>	5.25	65/150 <19>	50/120	65/150	50/120	40/100	65/150	40/100	50/120	65/150

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9,19>	10	50/120	<6>				510A/B: 65/150 510C: 50/120			
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9,19>	11 - 17	50/120	<6>		NR		510A/B: 65/150 510C: 50/120		NR	
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9>	18 - 25						510A: 40/100			
Sodium Lauryl Sulfate	All	70/160	70/160	80/180	70/160	70/160	70/160	70/160	70/160	
Sodium Metabisulfite <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Methyldithiocarbamate	All	80/180	80/180			80/180	80/180	80/180		
Sodium Monophosphate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Myristyl Sulfate	All	70/160	70/160			70/160	70/160	70/160		
Sodium Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Nitrite <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210		80/180
Sodium Oxalate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Perchlorate	60	40/100	40/100			40/100	40/100	40/100		40/100
Sodium Persulfate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Phosphate, mono-, di-, tribasic <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Polyacrylate	All	80/180	80/180	65/150	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		
Sodium Sarcosinate	40	50/120	50/120			50/120	50/120	50/120		
Sodium Silicate <1>	All	80/180	80/180	80/180	80/180	65/150	80/180	65/150	80/180	80/180
Sodium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Sodium Sulfate / Sodium Sulfite <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Sulfhydrate, see Sodium Hydrosulfide										
Sodium Sulfide <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210		80/180
Sodium Sulfite <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Sulfite / Sodium Hydroxide / Toluene	22 : 10 : 5	25/80	40/100			40/100	25/80	40/100		NR
Sodium Tartrate <21>	All	100/210	100/210			100/210 <24>	100/210	100/210		80/180
Sodium Tetraborate (Borax, Sodium Borate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Thiocyanate <21>	All	80/180	80/180	95/200	95/200	80/180	80/180	80/180	95/200	80/180
Sodium Thiosulfate	All	80/180	80/180	50/120	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Tridecylbenzene Sulfonate	All	50/120		50/120			50/120			
Sodium Tripolyphosphate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Xylene Sulfonate	All	70/160	70/160	100/210		70/160	70/160	70/160		
Soil		30/90		30/90			30/90			
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% Trioctylphosphine Oxide (TOPO), 4% Di 2-Ethylhexyl Phosphoric Acid (DEHPA), 92% Kerosene)		80/180	80/180			80/180	80/180	80/180		
Sorbitol Solutions	All	70/160	70/160	65/150	65/150	80/180	70/160	70/160	65/150	
Sour Crude Oil, see Crude Oil										
Soy (Soya) Sauce <18>		70/160	70/160				100/210			
Soya Oil <18>	100	100/210	100/210			100/210	100/210	100/210		65/150
Soybean Oil	100	80/180		80/180	100/210		80/180		100/210	
Soybean Oil, epoxidized (ESO)	100	50/120		65/150	100/210		50/120		65/150	
Spearmint Oil <18>	100	40/100	40/100							
Stannic Chloride	All	100/210	100/210	80/180	80/180	100/210	100/210	100/210	80/180	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Stannous Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Steam, dry (no condensation)		100/210	105/220	105/220	105/220	105/220	100/210	105/220	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	100/210	100/210	100/210	65/150
Styrene	100	NR	40/100	25/80	25/80	50/120	NR	40/100	25/80	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	40/100	40/100	25/80	40/100	40/100	NR
Sugar / Sucrose <18>	All	100/210	100/210							
Sugar Beet, liquor <18>	All	80/180	80/180	80/180	80/180	80/180	80/180		80/180	
Sugar Cane, liquor & sweetwater <18>	All	80/180	80/180	80/180	80/180	80/180	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	100/210	100/210	80/180	80/180	80/180	100/210	65/150
Sulfamic Acid	16 - 25	65/150	65/150			65/150	65/150	65/150		65/150
Sulfamic Acid / Boric Acid / Glycolic Acid	0.5-25 : 0.5-30 : 0.5-10	65/150	65/150			65/150	65/150	65/150		
Sulfanilic Acid (meta, para) <4,6,21>	All	100/210	100/210	100/210	100/210	100/210 <24>	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										
Sulfides scrubbing with caustic, see Sodium Hydroxide										
Sulfite / Sulfate Liquors, pulp mill		95/200	95/200	105/220	105/220	95/200	95/200	95/200	105/220	80/180
Sulfonated Detergents	100	70/160	80/180			80/180	70/160	80/180		70/160
Sulfur, molten, dry <16>	100		120/250			150/300		120/250		
Sulfur, molten (traces of Hydrogen Sulfide, Sulfur Dioxide, Sulfur Trioxide, Water)	100	NR					NR			
Sulfur, wettable, fungicide <4>	All	80/180	80/180			80/180	80/180	80/180		80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Sulfur Chloride	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Sulfur Chloride (no condensation, no coalescence)	fumes	95/200	95/200			95/200	95/200	95/200		80/180
Sulfur Dichloride (no condensation, no coalescence)	fumes			NR	NR		NR		NR	
Sulfur Dioxide, see Flue Gas										
Sulfur Trioxide, dry (no condensation, no coalescence) <6>	fumes	100/210		105/220			100/210			
Sulfur Trioxide, wet, see Sulfuric Acid <6>										
Sulfuric Acid <2,13>	0.5 - 25	100/210	105/220	105/220	105/220	105/220	100/210	105/220	105/220	80/180
Sulfuric Acid <2,13>	26 - 50	100/210	100/210	95/200	95/200	100/210	100/210	100/210	95/200	80/180
Sulfuric Acid <2,13,15>	51 - 70	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric Acid <2,13,15>	71 - 75	40/100	50/120	50/120	50/120	80/180	40/100	50/120	50/120	40/100
Sulfuric Acid <2,13,15>	76 - 80	40/100	40/100	NR	NR	50/120	40/100	40/100	NR	
Sulfuric Acid <2,13,15>	> 80	NR	NR			LS	NR	LS		NR
Sulfuric Acid / Ammonium Bifluoride <1>	0-75 : 0.1-3	40/100	50/120			65/150	40/100	50/120		
Sulfuric Acid / Ammonium Sulfate / Manganous Sulfate (concentrations in g/l)	up to 40 : up to 150 : up to 15			50/120	50/120		50/120			
Sulfuric Acid / Benzenesulfonic Acid / Water <2,12>	7 : 88 : 5	60/140		60/140			60/140			
Sulfuric Acid / Chromic Acid <2,12>	20:20	NR					NR			
Sulfuric Acid / Chromic Acid mixture (maximum total concentration 10%) <2,12>		50/120	65/150			65/150	50/120	65/150		50/120
Sulfuric Acid / Copper Salts, see Sulfuric Acid										
Sulfuric Acid / Copper Sulfate <2,12>	0-25 : 1-35	100/210	100/210			100/210	100/210	100/210		
Sulfuric Acid / Copper Sulfate / Sodium Persulfate / EDTA <2,12>	13 : 12 : 1 : 1	55/130	55/130			55/130	55/130	55/130		55/130
Sulfuric Acid / Hydriodic Acid <2,12>	60:20	40/100	40/100			50/120	40/100	40/100		
Sulfuric Acid / Hydrochloric Acid, iron and steel cleaning bath <2,8,9,12>	23:9	95/200		95/200	100/210		95/200		100/210	
Sulfuric Acid / Hydrochloric Acid <2,8,9,12>	1-25 : 1-10	80/180	100/210			100/210	100/210	100/210		80/180
Sulfuric Acid / Hydrochloric Acid <2,8,9,12>	50:15	40/100	45/110			50/120	40/100	50/120		
Sulfuric Acid / Hydrochloric Acid / Hydrofluoric Acid / Phosphoric Acid / Chlorinated Solvents <1,2,8,12>	40 : 20 : 5 : 35 : 1	NR	NR			LS	NR	LS		NR

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Sulfuric Acid/ Hydrofluoric Acid <1,2,12>	1-20 : 3-6	55/130	55/130			60/140	55/130	60/140		40/100
Sulfuric Acid / Hydrofluoric Acid <1,2,12>	10 : 10	40/100	50/120			65/150	40/100	40/100		
Sulfuric Acid / Hydrofluoric Acid <1,2,12>	25 : 10	40/100	45/110			50/120	40/100	40/100		
Sulfuric Acid / Hydrofluoric Acid <1,2,12>	30-35 : 3-5	LS	LS			LS	LS	LS		LS
Sulfuric Acid / Hydrofluosilicic Acid/ MIBK <1,2,12>	25 : 1 : 2	LS	40/100			50/120	LS	40/100		
Sulfuric Acid / Hydrogen Peroxide <2,3,12>	1-20 : 1-10	65/150	65/150			65/150	65/150	65/150		
Sulfuric Acid / Hydrogen Peroxide / Ammonium Sulfate / Copper Sulfate <2,3,12>	10 : 5 : 5 : 5	40/100	40/100			40/100	40/100	40/100		
Sulfuric Acid / Hydrogen Sulfide <2,12>	1-50 : 0-10	100/210	100/210			100/210	100/210	100/210		80/180
Sulfuric Acid / Inorganic Salts <2,12>	0.5-20 : 0.5-50	100/210	100/210			100/210	100/210	100/210		80/180
Sulfuric Acid / Inorganic Salts <2,12>	21-50 : 0.5-20	80/180	80/180			80/180	80/180	80/180		80/180
Sulfuric Acid / Lactic Acid / Sodium Sulfate <2,12>	50 : 20 : 0-10	40/100	50/120			65/150	40/100	50/120		40/100
Sulfuric Acid / Methanol <2,12>	30:5		40/100			50/120				
Sulfuric Acid / Nitric Acid <2,12>	20:5	65/150	80/180			80/180	65/150	80/180		65/150
Sulfuric Acid / Nitric Acid / Phosphoric Acid	0-13 : 0-11 : 0-30	65/150	65/150			65/150	65/150	65/150		
Sulfuric Acid / Phosphoric Acid <2,12>	0-25 : 0-25	80/180	80/180			80/180	80/180	80/180		80/180
Sulfuric Acid vapor, see Sulfuric Acid										
Sulfuric Acid / Sodium Dichromate, see Sulfuric Acid / Chromic Acid mixture										
Sulfuric Acid / Sulfate Salts, max. total concentration 80%, see Sulfuric Acid										
Sulfurous Acid	10	50/120	50/120	40/100	40/100	50/120	50/120	50/120	40/100	50/120
Superphosphoric Acid (76% P2O5), see Phosphoric Acid										
Surfactant, see specific chemical name <6,14>										
Surfactant, anionic	All	40/100	50/120			50/120	40/100	40/100		
Tall Oil, storage <6>	100	95/200	105/220	65/150	65/150	105/220	95/200	105/220	65/150	
Tall Oil, reactor <6>		100/210	105/220			105/220	100/210	105/220		
Tallow / Sulfuric Acid	99:1	80/180	80/180							

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Tannic Acid <21>	All	100/210	100/210	100/210		100/210 <24>	100/210	100/210		65/150
Tap Water, hard <2>	All	100/210	100/210			100/210	100/210	100/210		80/180
Tap Water, soft <2>	All	80/180	80/180			80/180	80/180	80/180		80/180
Tar Camphor, see Naphthalene										
Tartaric Acid	> 0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
t-Butyl Methyl Ether (MTBE)	20	40/100	50/120			50/120	40/100	50/120		30/90
t-Butyl Methyl Ether (MTBE)	100	NR	25/80			25/80	NR	25/80		NR
Tetrabutyltin	100	50/120	50/120			50/120	50/120	50/120		
Tetrachloroethane	100	40/100	50/120			55/130	40/100	50/120		NR
Tetrachloroethylene (Perchloroethylene)	100	25/80	50/120	40/100	40/100	50/120	25/80	50/120	40/100	NR
Tetrachloropyridine	100	25/80	50/120	50/120		50/120	25/80	50/120		NR
Tetraethyl Orthosilicate	100					40/100				
Tetrahydrofuran	0-5	40/100	40/100			50/120	40/100	50/120		
Tetrahydrofuran	10-100	NR	NR			LS	NR	NR		NR
Tetrahydrofuran (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Tetramethyl Ammonium Hydroxide <1>	0-10	50/120	40/100				50/120	40/100		
Tetra-n-Butylammonium Hydroxide <1,2>	40	40/100	40/100				40/100	40/100		
Tetra-n-Butylphosphonium Hydroxide <1,2>	40	40/100	40/100				40/100	40/100		
Tetrapotassium Diphosphate (Potassium Pyrophosphate)	0-60	55/130	65/150	40/100	65/450	65/150	55/130	65/150	65/150	55/130
Tetrasodium Ethylenediaminetetraacetic Acid (Tetrasodium salt of EDTA)	All	80/180	80/180			65/150	80/180	65/150		80/180
Tetrasodium Pyrophosphate (Sodium Pyrophosphate) <21>	All	40/100		40/100			40/100			
Thermal Oxidizer (HCl absorption), see Flue Gas, wet										
Thioglycolic Acid, see Mercaptoacetic Acid										
Thionyl Chloride	100	NR	NR			LS	NR	NR		NR
Thiourea	0-50	65/150	65/150			65/150	65/150	65/150		65/150

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Tin Fluoborate Plating Solution (18% Stannous Fluoborate, 7% Tin, 9% Fluoboric Acid, 2% Boric Acid) <1>		100/210	100/210	95/200	100/210	100/210	100/210	100/210	100/210	80/180
Titanium Dioxide	All	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		80/180
Titanium Tetrachloride	All	65/150	80/180			80/180	65/150	80/180		
Tobias Acid (2-Naphthylamine-1-Sulfonic Acid) <6>	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210		
Toluene	100	25/80	40/100	50/120	40/100	50/120	25/80	40/100	50/120	NR
Toluene / Acetone <2>	50:50	NR		NR	NR		NR			
Toluene (no condensation, no coalescence)	fumes		65/150			80/180	80/180	80/180		
Toluene Diisocyanate (TDI) <2>	100	NR	NR	25/80		30/85 <6>	NR	NR		NR
Toluenesulfonic Acid <6,21>	All	80/180	95/200	100/210	100/210	100/210 <24>	95/200	100/210	100/210	
Toluidine (o-, p-, m-)	100	NR	NR			20/70	NR	NR		NR
Tomato Sauce <18>	All	90/195	90/195							
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	100/210	100/210	150/300	110/230	120/250	100/210	
Tributyl Phosphate	100	50/120	60/140	65/150	65/150	60/140	50/120	60/140	65/150	40/100
Trichloroacetic Acid	50	100/210		100/210	100/210		100/210		100/210	
Trichloroacetic Acid	85	25/80	40/100			50/120	25/80	40/100		25/80
Trichlorobenzene	100	NR					NR			
Trichloroethane	100	40/100	50/120	25/80	25/80	50/120	40/100	50/120		NR
Trichloroethane (1,1,2-) (Vinyl Trichloride)	100			25/80	25/80					
Trichloroethylene <15>	100	NR	NR	NR	NR	LS	NR	NR		NR
Tricresyl Phosphate	100	70/160	70/160	50/120	50/120	70/160	70/160	70/160	50/120	
Triethanolamine	100	50/120	50/120	65/150	65/150	65/150	50/120	50/120	65/150	NR
Triethylamine	All	50/120	50/120	65/150	50/120	50/120	50/120	50/120	50/120	NR
Triethylamine / Triethylamine Hydrochloride / Hydrochloric Acid <2,8,12>	50 : 20 : 5	50/120	50/120			50/120	50/120	50/120		NR

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Triethylene Glycol, see Ethylene Glycol										
Trifluoroacetic Acid, see Chloroacetic Acid										
Trihydroxybenzoic Acid, see Gallic Acid										
Trimethyl Carbinol, see Butyl Alcohol										
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 (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Trimethylamine Hydrochloride (pH 3-4)	100			55/130			55/130			
Trimethylammonium Chloride (Trimethylamine HCl, TMA-HCl)	70	40/100	40/100			50/120 <7>	40/100	40/100		40/100
Trimethylbenzene	100	25/80	40/100			50/120	25/80	50/120		NR
Trimethylene Chlorobromide		NR	25/80			40/100	NR	25/80		NR
Trioctyl Phosphate	100	70/160	70/160			80/180	70/160	70/160		40/100
Trioctyl Phosphine Oxide / Di-2-Ethylhexyl Phosphoric Acid (DEHPA) / Kerosene	4 : 4 : 92	80/180	80/180			80/180	80/180	80/180		
Triphenyl Phosphite	100	40/100		40/100	40/100		40/100		40/100	
Tripropylene Glycol, see Ethylene Glycol										
Trisodium Phosphate <21>	All	100/210	100/210	80/180	80/180	100/210 <24>	100/210	100/210	80/180	80/180
Turpentine	100	65/150	100/210			100/210	65/150	100/210		40/100
Turpentine, crude sulfate	100	40/100		40/100			40/100			
Turpentine, pure gum	100	30/90		40/100	80/180		30/90			
Uranium <6>										
Uranium Extraction, see Kerosene										
Urea	All	70/160	70/160	80/180	80/180	70/160	70/160	70/160	80/180	65/150
Urea / Ammonium Nitrate / Water	35 : 44 : 20	65/150	65/150			65/150	65/150	65/150		65/150
Urea Formaldehyde Resin	All	40/100	50/120			50/120	40/100	50/120		40/100
Urine, see Urea										
Urotropine, see Hexamethylenetetramine										

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
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 (no condensation, no coalescence)	fumes					80/180	80/180	80/180		
Vinyl Toluene	100	25/80	50/120	25/80	25/80	50/120	25/80	50/120	25/80	NR
Water, deionized <2,6,22>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Water, distilled <2,6,22>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
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
Water, tap, hard <2,22>	100	100/210	100/210	105/220	105/220	100/210	100/210	100/210	105/220	80/180
Water, tap, soft <2,22>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Water / Urea / Ammonium Nitrate (fertilizer)	up to 40 : up to 30 : balance	50/120					50/120		-	
Water Vapor (no condensation, no coalescence), see Flue Gas, dry										
Water Vapor, wet <2>	All	80/180	80/180			80/180	80/180	80/180		80/180
Whey	All	65/150	65/150							
White Liquor (pulp mill) <1,2>	All	80/180	80/180	65/150	80/180	40/100	80/180	80/180	80/180	80/180
White Spirit, see Mineral Spirit										
Xylene	100	25/80	40/100	50/120	40/100	50/120	25/80	50/120		NR
Xylene / Amyl Acetate	70:30			50/120						
Xylene (no condensation, no coalescence)	fumes		65/150			80/180	80/180	80/180		
Xylene / Methyl Ethyl Ketone / Butyl Acetate / Methyl Acetate	50 : 20 : 20 : 10	NR	NR			LS	NR	NR		NR
Zinc Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>		100/210	100/210	80/180

chemical resistance table *(continued)*

maximum service temperatures for derakane™, derakane™ momentum™, and derakane™ signia™ resins

chemical environment	concentration	derakane™, derakane™ momentum™, or derakane™ signia™ resin								
		411	441	451	455	470	510A/B/C	510N	515	8084
	%	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F	°C/°F
Zinc Cyanide Plating Solution (9% Zinc Cyanide, 4% Sodium Cyanide, 9% Sodium Hydroxide) <1,2>		80/180	80/180			40/100	80/180	80/180		80/180
Zinc Electrolyte (Zinc Sulfate, 35g/l Sulfuric Acid), see Sulfuric Acid										
Zinc Fluoborate Plating Bath, 49% Zinc Fluoborate; 5% Ammonium Chloride, 6% Ammonium Fluoborate <1>		95/200	95/200	70/160		95/200	95/200	95/200		80/180
Zinc Fluoborate <1>	50	100/210		100/210	100/210		100/210		100/210	
Zinc Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Zinc Phosphate, slurry	All	80/180	80/180			80/180	80/180	80/180		80/180
Zinc Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210		80/180
Zinc Sulfite	All	80/180		80/180	80/180		80/180		80/180	

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