

# RESIN SELECTION GUIDE FOR CHEMICAL RESISTANCE

DERAKANE™ RESINS FOR CORROSION-RESISTANT FRP APPLICATIONS



**INEOS** Composites



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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 INEOS. Derakane™ resins possess outstanding corrosion-resistant and temperature-resistant properties, which make them well-suited for a variety of demanding industrial applications. With performance that has been proven over more than 50 years, Derakane™ resins not only deliver durable solutions, they also provide a high measure of confidence.

This guide briefly describes the various Derakane™ resins, as well as detailed chemical resistance data needed to assist engineers in specifying and designing corrosion-resistant fiber reinforced polymer (FRP) vessels or equipment.

FRP materials are designed with a corrosion-resistant barrier to enhance performance and longevity. Their corrosion-resistant properties make FRP an ideal structure for tanks, pipes and ducts in environments where corrosive materials are present. These structures are typically designed with a corrosion barrier that serves to minimize penetration of a corrosive media into the structural portion of the equipment. Typically, the entire corrosion barrier is 2.5 to 6.3 mm (100 to 250 mil) thick. The first layer of the corrosion barrier is usually 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 mils) 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 FRP structure. This guide provides guidelines for selecting the most appropriate resin for the corrosion-resistant equipment in question. Recommendations in this guide apply to a variety of corrosion-resistant structures.

Because many variables that affect the performance of a laminate are beyond INEOS' control, no warranty concerning the use of Derakane™ epoxy vinyl ester resins can be made. The temperatures shown in this guide are supported by extensive corrosion testing and/or case histories. When these guidelines are followed, properly designed, fabricated and installed equipment made with Derakane™ resins should provide excellent service life.

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 INEOS Technical Service at [derakane@ineos.com](mailto:derakane@ineos.com) or by visiting [www.derakane.com](http://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, providing 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 with 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 and exhibits excellent exotherm control and 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.<sup>1</sup> The incorporation of bromine not only provides flame retardancy, but also contributes to better toughness and fatigue resistance when compared to standard epoxy vinyl ester resins. Derakane 510™ resins are also very resistant to chemical attack in chlorine and bleach environments.

**Derakane™ 510N resin** is a brominated epoxy novolac vinyl ester resin that offers a high degree of fire retardance.<sup>1</sup> 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<sup>1</sup> epoxy vinyl ester resin. This product allows the use of standard MEKP, exhibits excellent exotherm control and industry-leading storage stability. In 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.

<sup>1</sup> 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.” Please contact INEOS Technical Service regarding LS entries. Generally, in these cases, the respective resins can be used for FRP that is exposed accidentally, and where cleaning and inspection are possible after 1 to 3 days depending on the service. Contact INEOS Technical Service for clarifications. An example of limited service is secondary containment.

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

<sup>8</sup> Double surfacing veil and a 5 mm/200 mil CR barrier should be used unless otherwise

weight-% in aqueous solution unless otherwise stated

not recommended

no data available

highest recommended temperature (°C/°F)

<sup>9</sup> Double C-veil should be used in the CR barrier

<sup>13</sup> Acid resistant glass should be used in the corrosion liner and may be used in the structural wall

<sup>15</sup> Solution may discolor

## 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 INEOS 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 5 mm/200 mil CR barrier should be used.
- 9 Double C- or ECR- veil should be used in the CR barrier.
- 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 Expected service life is proportional to the thickness of the CR barrier.
- 18 For food contact applications, local regulations apply. Please see our Fabricating Tips Guide or contact the INEOS Technical Service team.
- 19 Preference for Derakane™ 510 A or B at higher concentrations and temperatures, together with notes 2 and 3.
- 20 Filler for abrasion resistance may be required (Silicon carbide, quartz, alumina ...).
- 21 Maximum recommended temperature is 80°C/180°F for aqueous solutions below 0.5% concentration.

- 22 For potable water applications, local regulations apply. Please contact the INEOS 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 If the tank is vented, the operating temperature could be higher.
  - 26 A longer service life can be expected if Derakane™ 470 resin is used, especially in conjunction with synthetic veil, for environments containing hydrofluoric acid. Contact INEOS Technical Service for specific resin recommendation.
  - 27 Up to the boiling point at atmospheric pressure.
- NR: Not Recommended.  
LS: Limited Service.

## 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.

### **Post cure conditions:**

The post cure conditions as detailed in European Standard EN 13121-2 may be used:

Post cure means that the laminate shall be maintained for a minimum of 4 hours at a minimum temperature of 80°C (180°F) or the HDT of the resin or in accordance with the recommendation of the resin manufacturer.

## 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. It is recommended to consult with the INEOS 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 INEOS Technical Service team for a resin recommendation at [derakane@ineos.com](mailto:derakane@ineos.com) or by visiting [derakane.com](http://derakane.com).

# MIXTURES OF 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 INEOS sales representative, who can put you in touch with the appropriate technical resources at INEOS.

## 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 INEOS Technical Service team at [derakane@ineos.com](mailto:derakane@ineos.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 INEOS and knowledge of the characteristics of Derakane™ resins and are given in good faith. However, because as a material supplier, INEOS 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 INEOS for any system or application in which Derakane™ resins are utilized. The legal obligations of INEOS in respect of any sale of Derakane™ resins shall be determined solely by the terms of its respective sales contract.

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# DERAKANE™ EPOXY VINYL ESTER RESINS

## CHEMICAL RESISTANCE INQUIRY FORM

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

<b>Date:</b>		<b>Number of Pages:</b>		<b>*Project Reference ID:</b>	
To: <b>Technical Service Derakane™ Resins</b> <b>INEOS Composites</b>		From:		<b>Engineering:</b>	
E-Mail: <a href="mailto:derakane@ineos.com">derakane@ineos.com</a>		<b>Name:</b>		<b>End User:</b>	
		<b>Company:</b>		<b>Fabricator:</b>	
		<b>E-Mail:</b>		<b>Comments/notes:</b> (e.g., unusual process conditions, temperature cycling, high/low concentrations, addition and dilution, novel design or construction, abrasion)	
		<b>Fax:</b>			
		<b>Tel:</b>			
<b>Industry Sector/Process:</b> (Chemical, Paper, Mining, Flue Gas ...)					
<b>*Equipment Type:</b> (Tank, Scrubber, Pipe/Duct, Lining ...)		Tank or Pipe?	Other:		
		Full FRP Applications or lining on steel, concrete?			
<b>*Dimensions/Capacity:</b> (Height, Diameter, Flow Rate ...)					
<b>*OPERATING CONDITIONS</b>			<b>Concentration/Units (g/L, oz/gal, %)</b>		
<b>Chemical Environment or CAS Numbers</b> (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).					
<b>Temperatures</b> (°C) or (°F)?	Minimum:	Normal operating temperature:	Maximum:	Design:	
Upsets:	Maximum Temperature, Duration (h), Frequency per year:				
<b>Pressure (Bar, psi)/Vacuum:</b>			<b>pH – Typical:</b> Min., Normal, Max.:		

\* required fields

# CHEMICAL NAME/CAS NUMBERS

CAS Number/Chemical Name	CAS Number/Chemical Name	CAS Number/Chemical Name	CAS Number/Chemical Name	CAS Number/Chemical Name
50-00-0 Formaldehyde / Methanol	75-99-0 Dichloropropionic Acid	101-68-8 Diphenylmethane-4,4-Diisocyanate	111-46-6 Diethylene Glycol	143-07-7 Lauric Acid
50-21-5 Lactic Acid	76-03-9 Trichloroacetic Acid	101-84-8 Diphenyl Oxide (Diphenyl Ether, Phenyl Ether)	111-64-8 Octanoyl chloride	143-33-9 Sodium Cyanide
50-70-4 Sorbitol Solutions	76-05-1 Trifluoroacetic Acid	102-71-6 Triethanolamine	111-70-6 Heptyl Alcohol	144-55-8 Sodium Bicarbonate
56-23-5 Carbon Tetrachloride	76-06-2 Chloropicrin	104-15-4 Toluenesulfonic Acid	111-76-2 Ethylene Glycol Monobutyl Ether	144-62-7 Oxalic Acid
56-81-5 Glycerin	76-13-1 Chlorofluorocarbon	104-76-7 Ethylhexyl(-2) Alcohol	111-77-3 Diethylene Glycol Monomethyl Ether	149-91-7 Gallic Acid
56-86-0 Glutamic Acid	77-47-4 Hexachlorocyclopentadiene	104-76-7 Isooctyl Alcohol	111-87-5 Octanol	151-21-3 Sodium Lauryl Sulfate
56-93-9 Benzyltrimethylammonium Chloride	77-78-1 Dimethyl Sulfate in water	105-58-8 Diethyl Carbonate	111-96-6 Diethylene Glycol Dimethyl Ether	287-92-3 Cyclopentane
57-10-3 Palmitic Acid	77-92-9 Citric Acid	105-59-9 Methyl-diethanolamine	112-13-0 Decanoyl chloride	298-07-7 Di (2-Ethylhexyl) Phosphoric Acid (DEHPA)
57-11-4 Stearic Acid	78-10-4 Tetraethyl Orthosilicate	105-60-2 Caprolactam	112-16-3 Lauroyl Chloride	298-12-4 Glyoxylic Acid
57-13-6 Urea	78-83-1 Isobutyl Alcohol	106-43-4 Chlorotoluene	112-16-3 Lauryl chloride	298-14-6 Potassium Bicarbonate
57-50-1 Cane Sugar Liquor & Sweetwater	78-87-5 Dichloropropane	106-46-7 Dichlorobenzene	112-18-5 Dodecyl-dimethylamine	301-04-2 Lead Acetate
57-55-6 Propylene Glycol	78-93-3 Methyl Ethyl Ketone	106-49-0 Toluidine (o-, p-, m-)	112-27-6 Triethylene Glycol	302-01-2 Hydrazine
60-24-2 Mercaptoethanol	78-96-6 Isopropanol Amine	106-88-7 Butylene Oxide	112-30-1 Decanol	334-48-5 Capric Acid
60-29-7 Diethyl Ether	79-00-5 Trichloroethane	106-89-8 Epichlorohydrin	112-34-5 Diethylene Glycol Butyl Ether (2-[2-Butoxyethoxy] ethanol)	463-79-6 Carbonic Acid
60-29-7 Ethyl Ether	79-01-6 Trichloroethylene	106-93-4 Ethylene Dibromide	112-40-3 Dodecane	497-19-8 Sodium Carbonate
60-34-4 Monomethylhydrazine	79-03-8 Propionyl Chloride	106-94-5 Propyl Bromide	112-41-4 Dodecene	502-44-3 Caprolactone
62-53-3 Aniline	79-06-1 Acrylamide	106-97-8 Butane	112-52-7 Lauryl Chloride	506-59-2 Dimethylammonium Hydrochloride
62-56-6 Thiourea	79-09-4 Propionic Acid	106-99-0 Butadiene, gas	112-53-8 Dodecanol	506-64-9 Silver Cyanide
62-76-0 Sodium Oxalate	79-10-7 Acrylic Acid	107-02-8 Acrolein	112-55-0 Dodecylmercaptan	513-77-9 Barium Carbonate
64-02-8 Ethylenediaminetetraacetic Acid	79-11-8 Chloroacetic Acid	107-05-1 Allyl Chloride	112-73-2 Dibutyl Carbitol (Diethylene Glycol Dibutyl Ether)	526-83-0 Tartaric Acid
64-17-5 Ethanol	79-14-1 Glycolic Acid	107-06-2 Dichloroethane	112-80-1 Oleic Acid	526-95-4 Gluconic Acid
64-18-6 Formic Acid	79-20-9 Methyl Acetate	107-07-3 Ethylene Chlorohydrin	117-81-7 Dioctyl Phthalate	527-07-1 Sodium Gluconate
64-19-7 Acetic Acid	79-21-0 Peracetic Acid	107-13-1 Acrylonitrile	120-82-1 Trichlorobenzene	532-32-1 Sodium Benzoate
64-67-5 Diethyl Sulfate	79-41-4 Methacrylic Acid	107-15-3 Ethylenediamine	121-44-8 Triethylamine	540-54-5 Propyl Chloride
65-85-0 Benzoic Acid	79-43-6 Dichloroacetic Acid	107-18-6 Allyl Alcohol	121-47-1 Sulfanilic Acid	540-59-0 Dichloroethylene
67-43-6 Diethylene Triamine Pentaacetic Acid	80-62-6 Methyl Methacrylate	107-21-1 Ethylene Glycol	121-57-3 Sulfanilic Acid	540-72-7 Sodium Thiocyanate
67-48-1 Choline Chloride	81-16-3 Tobias Acid	107-22-2 Glyoxal	121-69-7 Dimethylaniline	540-82-9 Ethyl Sulfate
67-56-1 Methanol	84-69-5 Diisobutyl Phthalate	107-31-3 Methyl Formate	123-42-2 Diacetone Alcohol	542-16-5 Aniline Sulfate
67-63-0 Isopropyl Alcohol	84-74-2 Dibutyl Phthalate	107-39-1 Diisobutylene	123-51-3 Isoamyl Alcohol	542-62-1 Barium Cyanide
67-64-1 Acetone	85-44-9 Phthalic Anhydride	107-92-6 Butyric Acid	123-54-6 Acetyl Acetone	542-75-6 Dichloropropene
67-68-5 Dimethyl Sulfoxide	85-52-9 Benzoyl (o-) Benzoic Acid	107-96-0 Mercaptopropionic (3-) Acid	123-72-8 Butyraldehyde	543-59-9 Amyl Chloride
67-72-1 Hexachloroethane	85-68-7 Butyl Benzyl Phthalate	107-98-2 Methoxy (-1) - Propanol (-2)	123-76-2 Levulinic Acid	543-80-6 Barium Acetate
68-11-1 Mercaptoacetic Acid	87-61-6 Trichlorobenzene	108-01-0 Dimethylethanolamine	123-86-4 Butyl Acetate	544-63-8 Myristic Acid
68-12-2 Dimethylformamide	87-69-4 Tartaric Acid	108-05-4 Vinyl Acetate	123-91-1 Dioxane	544-92-3 Copper Cyanide
69-72-7 Salicylic Acid	87-86-5 Pentachlorophenol	108-10-1 Methyl Isobutyl Ketone	123-95-5 Butyl Stearate	546-93-0 Magnesium Carbonate
71-23-8 Propanol (n-)	88-89-1 Picric Acid, alcoholic	108-24-7 Acetic Anhydride	124-04-9 Adipic Acid	554-13-2 Lithium Carbonate
71-36-3 Butanol	88-99-3 Phthalic Acid	108-31-6 Maleic Anhydride	124-07-2 Caprylic Acid	557-21-1 Zinc Cyanide
71-41-0 Amyl Alcohol	91-20-3 Naphthalene	108-44-1 Toluidine (o-, p-, m-)	124-38-9 Carbon Dioxide	583-52-8 Potassium Oxalate
71-43-2 Benzene	91-22-5 Quinoline	108-65-6 Propylene Glycol Monomethyl Ether Acetate	124-40-3 Dimethylamine	584-08-7 Potassium Carbonate
71-55-6 Methyl Chloroform	94-75-7 Dichlorophenoxyacetic (2,4-) Acid	108-77-0 Cyanuric Chloride	126-73-8 Tributyl Phosphate	591-78-6 Methyl Butyl Ketone
74-82-8 Methane	95-49-8 Chlorotoluene	108-80-5 Cyanuric Acid	127-09-3 Sodium Acetate	593-81-7 Trimethylammonium Chloride
74-83-9 Methyl Bromide	95-50-1 Dichlorobenzene	108-83-8 Disobutyl Ketone	127-18-4 Perchloroethylene	598-54-9 Copper Acetate
74-87-3 Methyl Chloride	95-53-4 Toluene	108-88-3 Toluene	127-19-5 Dimethyl Acetamide	608-33-3 Dibromophenol
74-89-5 Methylamine	95-63-6 Trimethylbenzene	108-90-7 Chlorobenzene	127-20-8 Dalapon / Sodium Salt	615-58-7 Dibromophenol
74-90-8 Hydrocyanic Acid	96-13-9 Dibromopropanol	108-91-8 Cyclohexylamine	128-04-1 Sodium Dimethyldithiocarbamate	616-38-6 Dimethylcarbonate
74-93-1 Methyl Mercaptan	96-22-0 Diethyl Ketone	108-95-3 Phenol	131-11-3 Dimethyl Phthalate	617-84-5 Diethyl Formamide
74-96-4 Ethyl Bromide	97-65-4 Itaconic Acid	109-43-3 Dibutyl Sebacate	131-17-9 Diallyl Phthalate	627-03-2 Ethoxy Acetic Acid
74-98-6 Propane	98-00-0 Furfuryl Alcohol	109-60-4 Propyl Acetate	131-20-4 Diisooctyl Phthalate	628-63-7 Amyl Acetate
75-00-3 Ethyl Chloride	98-01-1 Furfural	109-64-8 Dibromopropane	132-27-4 Sodium Salt o-Phenylphenate	630-08-0 Carbon Monoxide
75-01-4 Vinyl Chloride	98-07-7 Benzotrichloride	109-69-3 Butyl Chloride	136-60-7 Butyl Benzoate	630-20-6 Tetrachloroethane
75-04-7 Ethylamine	98-09-9 Benzenesulfonyl Chloride	109-70-6 Trimethylene Chlorobromide	137-42-8 Sodium Methylthiocarbamate	631-61-8 Ammonium Acetate
75-05-8 Acetonitrile	98-11-3 Benzene Sulfonic Acid	109-73-9 Butyl Amine	140-01-2 Diethylene Triamine Pentaacetic Acid / Sodium Salt	763-69-9 Ethyl-3-Ethoxy Propionate
75-07-0 Acetaldehyde	98-82-8 Cumene	109-89-7 Diethylamine	140-31-8 Aminoethyl Piperazine	764-85-2 Nonanoyl chloride
75-09-2 Methylene Chloride	98-83-9 Alpha-Methylstyrene	109-99-9 Tetrahydrofuran	140-88-5 Ethyl Acrylate	853-68-9 Anthraquinone Disulfonic Acid
75-12-7 Formamide	98-86-2 Acetophenone	110-16-7 Maleic Acid	141-32-2 Butyl Acrylate	866-81-9 Cobalt Citrate
75-15-0 Carbon Disulfide	98-87-3 Benzal Chloride	110-27-0 Isopropyl Myristate	141-43-5 Ethanolamine	868-18-8 Sodium Tartrate
75-18-3 Dimethyl Sulfide	98-95-3 Nitrobenzene	110-54-3 Hexane	141-78-6 Ethyl Acetate	872-50-4 N-Methyl-2-Pyrrolidone
75-21-8 Ethylene Oxide	100-37-8 Diethylaminoethanol	110-61-2 Succinonitrile, aqueous	141-91-3 Dimethylmorpholine	929-06-6 Diglycolamine
75-31-0 Isopropyl Amine	100-41-4 Ethylbenzene	110-82-7 Cyclohexane	142-04-1 Aniline Hydrochloride	1066-33-7 Ammonium Bicarbonate and decomposition products
75-45-6 Chlorodifluoromethane	100-42-5 Styrene	110-86-1 Pyridine	142-59-6 Disodium Ethylene Bisdithiocarbamate	1071-83-6 Glyphosate
75-56-9 Propylene Oxide	100-44-7 Benzyl Chloride	110-89-0 Morpholine	142-62-1 Caproic Acid	1113-38-8 Ammonium Oxalate
75-59-2 Tetramethyl Ammonium Hydroxide	100-51-6 Benzyl Alcohol	110-94-1 Glutaric Acid	142-82-5 Heptane	1191-50-0 Sodium Myristyl Sulfate
75-69-4 Chlorofluorocarbon	100-52-7 Benzaldehyde	111-27-3 Hexyl Alcohol	142-91-6 Isopropyl Palmitate	1300-21-6 Dichloroethane
75-71-8 Chlorofluorocarbon	100-97-0 Hexamethylenetetramine	111-30-8 Glutaraldehyde	142-96-1 Dibutyl Ether	1300-72-7 Sodium Xylene Sulfonate
75-75-2 Methanesulfonic Acid	101-02-0 Triphenyl Phosphite	111-42-2 Diethanolamine		1302-42-7 Sodium Aluminate

# CHEMICAL NAME/CAS NUMBERS (continued)

CAS Number/Chemical Name	CAS Number/Chemical Name	CAS Number/Chemical Name	CAS Number/Chemical Name	CAS Number/Chemical Name
1303-96-4 Borax	7601-54-9 Trisodium Phosphate	7779-88-6 Zinc Nitrate	9003-35-4 Phenolic Resin	16672-87-0 Ethephon
1305-62-0 Calcium Hydroxide	7601-89-0 Sodium Perchlorate	7779-90-0 Zinc Phosphate	9004-32-4 Carboxymethyl Cellulose	16721-80-5 Sodium Bisulfide
1309-42-8 Magnesium Hydroxide	7601-90-3 Perchloric Acid	7782-41-4 Fluorine in flue gas, wet	9016-45-9 Ethoxylated Nonyl Phenol	16721-80-5 Sodium Hydrosulfide
1310-58-3 Potassium Hydroxide	7631-90-5 Sodium Bisulfite	7782-50-5 Chlorine, dry gas	10025-67-9 Sulfur (mono-, di-, tetra-) Chloride	16871-90-2 Potassium Silicofluoride
1310-65-2 Lithium Hydroxide	7631-99-4 Sodium Nitrate	7782-99-2 Sulfurous Acid	10025-87-3 Phosphorus Oxychloride	16872-11-0 Fluoroboric Acid
1310-73-2 Sodium Hydroxide	7632-00-0 Sodium Nitrite	7783-00-8 Selenious Acid	10025-91-9 Antimony Trichloride	16893-85-9 Sodium Fluorosilicate
1313-82-2 Sodium Sulfide	7646-78-8 Stannic Chloride	7783-06-4 Hydrogen Sulfide, aqueous	10028-15-6 Ozone in solution	16949-65-8 Magnesium Fluosilicate
1317-65-3 Calcium Carbonate	7646-79-9 Cobalt Chloride	7783-18-8 Ammonium Thiosulfate	10034-85-2 Hydroiodic Acid	16961-83-4 Fluosilicic Acid
1320-67-8 Propylene Glycol Monomethyl Ether	7646-85-7 Zinc Chloride	7783-20-2 Ammonium Sulfate	10035-10-6 Hydrobromic Acid	17194-00-2 Barium Hydroxide
1321-74-0 Divinylbenzene	7647-01-0 Hydrochloric Acid	7783-28-0 Ammonium Phosphate, dibasic	10043-01-3 Aluminum Sulfate	17496-08-1 Ammonium Propionate
1327-41-9 Aluminum Chlorohydrate	7647-14-5 Sodium Chloride	7783-28-0 Diammonium Phosphate	10043-35-3 Boric Acid	17746-05-3 Undecanoyl chloride
1327-52-2 Arsenic Acid	7647-15-6 Sodium Bromide	7784-18-1 Aluminum Fluoride, acidic	10043-52-4 Calcium Chloride	18483-17-5 Tannic Acid
1327-53-3 Arsenious Acid	7647-18-9 Antimony Pentachloride	7784-24-9 Potassium Aluminum Sulfate	10043-67-1 Aluminum Potassium Sulfate	21645-51-2 Alumina Hydrate
1330-20-7 Xylene	7664-38-2 Phosphoric Acid	7785-87-7 Manganese Sulfate	10049-04-4 Chlorine Dioxide	21645-51-2 Aluminum Hydroxide
1330-43-4 Sodium Tetraborate	7664-39-3 Hydrofluoric Acid	7786-30-3 Magnesium Chloride	10099-74-8 Lead	24347-58-8 Butylene Glycol
1330-78-5 Tricresyl Phosphate	7664-41-7 Ammonia, liquified gas	7786-81-4 Nickel Sulfate	10108-64-2 Cadmium Chloride	24800-44-0 Tripropylene Glycol
1330-86-5 Diisooctyl Adipate	7664-93-9 Sulfuric Acid	7789-23-3 Potassium Fluoride	10108-73-3 Cerous Nitrate	25013-15-4 Vinyl Toluene
1330-96-4 Sodium Borate	7681-11-0 Potassium Iodide	7789-32-4 Ammonium Bromide	10112-91-1 Mercury(II) Chloride	25154-52-3 Nonyl Phenol
1333-39-7 Phenol Sulfonic Acid	7681-38-1 Sodium Bisulfate	7789-38-0 Sodium Bromate	10124-37-5 Calcium Nitrate	25154-55-6 Nitrophenol
1333-83-1 Sodium Bifluoride	7681-49-4 Sodium Fluoride	7789-41-5 Calcium Bromide	10137-74-3 Calcium Chlorate, stable	25155-30-0 Sodium Dodecylbenzenesulfonate
1335-54-2 Diisopropanolamine	7681-52-9 Sodium Hypochlorite	7790-92-3 Hypochlorous acid	10141-05-6 Cobalt Nitrate	25265-71-8 Dipropylene Glycol
1336-21-6 Ammonium Hydroxide	7681-53-0 Sodium Monophosphate	7790-93-4 Chloric Acid	10196-04-0 Ammonium Sulfite	25322-68-3 Polyethylene Glycol
1341-49-7 Ammonium Bifluoride / Sulfuric Acid	7681-57-4 Sodium Metabisulfite	7790-94-5 Chlorosulfonic Acid	10222-01-2 Dibromo(-2,2)-Nitrilo(-3)-Propionamide	25339-17-7 Isodecanol
1344-09-8 Sodium Silicate	7697-37-2 Nitric Acid	7790-98-9 Ammonium Perchlorate	10257-55-3 Calcium Sulfite	25340-17-4 Diethylbenzene
1461-25-2 Tetrabutyltin	7704-34-9 Sulfur, molten, dry	8000-26-8 Pine Oil	10294-34-5 Boron Trichloride	26248-24-8 Sodium Tridecylbenzene Sulfonate
1634-04-4 Methyl t-Butyl Ether	7705-08-0 Ferric Chloride	8000-48-4 Eucalyptus Oil	10361-37-2 Barium Chloride	26952-21-6 Isooctane
1762-95-4 Ammonium Thiocyanate	7718-54-9 Nickel Chloride	8001-22-7 Soybean Oil	10377-48-7 Lithium Sulfate	26968-58-1 Ethyl Benzyl Chloride
1806-54-8 Trioctyl Phosphate	7719-09-7 Thionyl Chloride	8001-25-0 Olive Oil	10377-60-3 Magnesium Nitrate	27138-31-4 Dipropylene Glycol Dibenzoate
1863-63-4 Ammonium Benzoate	7719-12-2 Phosphorus Trichloride	8001-26-1 Linseed Oil	10377-66-9 Manganese Nitrate	27176-87-0 Dodecylbenzene Sulfonic Acid
2052-49-5 Tetra-n-Butylammonium Hydroxide	7720-78-7 Ferrous Sulfate	8001-29-4 Cottonseed Oil	10421-48-4 Ferric Nitrate	27458-94-2 Isononyl Alcohol
2082-81-7 Trimethylamine	7722-64-7 Potassium Permanganate	8001-30-7 Corn Oil	10450-55-2 Ferric Acetate	27554-26-3 Diisooctyl Phthalate
2090-64-4 Carbonic Acid / Magnesium Salt	7722-76-1 Ammonium Phosphate, monobasic	8001-31-8 Coconut Oil	10545-99-0 Sulfur (mono-, di-, tetra-) Chloride	28553-12-0 Disononyl Phthalate
2235-54-3 Ammonium Lauryl Sulfate	7722-84-1 Hydrogen Peroxide	8001-54-5 Benzalkonium Chloride	10553-31-8 Barium Bromide	31142-56-0 Aluminum Citrate
2402-79-1 Tetrachloropyridine	7722-86-3 Caro's Acid	8001-69-2 Cod Liver Oil	10588-01-9 Sodium Dichromate	34590-94-8 Dipropylene Glycol Methyl Ether
2836-32-0 Sodium Glycolate	7722-88-5 Tetrasodium Pyrophosphate	8001-79-4 Castor Oil	12007-89-5 Ammonium Pentaborate	35139-28-8 Ferric Sulfate
2971-90-6 Clopidol	7726-95-6 Bromine in Water	8002-03-7 Peanut Oil	12042-91-0 Aluminum Chlorohydroxide	36653-82-4 Cetyl Alcohol
3012-65-5 Ammonium Citrate	7727-15-3 Aluminum Bromide	8002-26-4 Tall Oil	12124-99-1 Ammonium Sulfide	36653-82-4 Hexadecanol
3039-83-6 Ethylenesulfonic Acid / Sodium Salt	7727-21-1 Potassium Persulfate	8002-74-2 Paraffin Wax	12125-01-8 Ammonium Fluoride	50864-67-0 Barium Sulfide
3251-23-8 Copper Nitrate	7727-43-7 Barium Sulfate	8002-92-4 Ammonium Carbonate	12125-02-9 Ammonium Chloride	51218-45-2 Metolachlor
3710-84-7 Diethyl Hydroxylamine	7727-54-0 Ammonium Persulfate	8006-61-9 Gasoline	12259-92-6 Ammonium Polysulfide	61789-32-0 Fatty Acids
4120-83-2 Dichlorophenol	7732-18-5 Water	8006-64-2 Turpentine	12501-45-0 Ammonium Molybdate	61789-40-0 Cocamidopropyl Betaine
5329-14-6 Sulfamic Acid	7733-02-0 Zinc Sulfate	8007-56-5 Aqua Regia	13235-36-4 Tetrasodium Ethylenediaminetetraacetic Acid	61789-77-3 Diccoco Dimethyl Ammonium Chloride
5421-46-5 Ammonium Thioglycolate	7738-94-5 Chromic Acid	8008-20-6 Kerosene	13397-24-5 Gypsum	64742-82-1 White Spirit
6164-98-3 Chlordimeform Insecticide	7757-79-1 Potassium Nitrate	8008-79-5 Spearmint Oil	13451-08-6 Sulfur (mono-, di-, tetra-) Chloride	65996-63-6 Corn Starch
6303-21-5 Hypophosphorous Acid	7757-82-6 Sodium Sulfate	8012-14-4 Sodium Hexametaphosphate	13463-67-7 Titanium Dioxide	68002-20-0 Melamine Formaldehyde Resin
6484-52-2 Ammonium Nitrate	7757-83-7 Sodium Sulfite	8013-07-8 Epoxidized Soybean Oil	13473-90-0 Aluminum Nitrate	68131-30-6 Green Liquor
6915-15-7 Malic Acid	7757-87-1 Magnesium Phosphate	8013-07-8 Soybean Oil, epoxidized	13478-00-7 Nickel Nitrate	68140-01-2 Cocamidopropyl Dimethylamine
7320-34-5 Potassium Pyrophosphate	7758-02-3 Potassium Bromide	8013-54-5 Chloroform	13520-68-9 Ferrous Nitrate	68334-30-5 FAME
7320-34-5 Tetrapotassium Diphosphate	7758-11-4 Dipotassium Phosphate	8014-95-7 Oleum	13598-36-2 Phosphorous Acid	68439-50-9 Ethoxylated Alcohol, C12-C14
7439-97-6 Mercury	7758-19-2 Sodium Chloride	8016-79-3 Beet Sugar Liquor	13601-19-9 Sodium Ferrocyanide	68439-57-6 Alpha-Olefin Sulfonate
7446-09-5 Sulfur Dioxide	7758-29-4 Sodium Tripolyphosphate	8017-16-1 Polyphosphoric Acid	13746-66-2 Potassium Ferricyanide	68476-34-6 Diesel Fuel
7446-11-9 Sulfur Trioxide, wet	7758-89-6 Copper Chloride	8028-52-2 Vinegar	13755-29-8 Sodium Fluoroborate	68476-78-8 Molasses
7446-70-0 Aluminum Chloride	7758-94-3 Ferrous Chloride	8028-89-5 Caramel	13770-89-3 Nickel Sulfamate	68476-85-7 Liquified Petroleum Gas
7447-39-4 Copper Chloride	7758-98-7 Copper Sulfate	8032-32-4 Naphtha	13774-25-9 Magnesium Bisulfite	68514-06-7 Ammonium Bisulfite black liquor
7447-40-7 Potassium Chloride	7761-88-8 Silver Nitrate	8052-41-3 White Spirit	13814-97-6 Tin Fluoroborate	68526-83-0 Isoctyl Alcohol
7447-41-8 Lithium Chloride	7772-98-7 Sodium Thiosulfate	8061-53-8 Ammonium Ligno Sulfonate	13826-88-5 Zinc Fluoroborate	68526-85-2 Isodecanol
7487-88-9 Magnesium Sulfate	7772-99-8 Stannous Chloride	8062-15-5 Lignin Sulfonate	13840-33-0 Lithium Hypochlorite	99400-01-8 Calcium Sulfate
7487-94-7 Mercury(II) Chloride	7773-01-5 Manganese Chloride	8064-96-2 Cashew Nut Oil	13843-59-9 Ammonium Bromate	99551-14-1 Mineral Oils, aliphatic
7488-52-0 Zinc Sulfite, slurry	7775-09-9 Sodium Chlorate	9000-11-7 Carboxyethyl Cellulose	13846-18-9 Calcium Bisulfite	105839-17-6 Epoxidized Castor Oil
7550-35-8 Lithium Bromide	7775-11-3 Sodium Chromate	9002-89-5 Polyvinyl Alcohol	13943-58-3 Potassium Ferrocyanide	
7550-45-0 Titanium Tetrachloride	7775-14-6 Sodium Hydrosulfite	9002-98-6 Polyethyleneimine	13967-50-5 Potassium Gold Cyanide	
7553-56-2 Iodine, crystals	7775-27-1 Sodium Persulfate	9003-01-4 Polyacrylic Acid	14217-21-1 Sodium Ferricyanide	
7558-79-4 Sodium Phosphate, mono-, di-, tribasic	7778-50-9 Potassium Dichromate	9003-04-7 Sodium Polyacrylate	14431-43-7 Glucose	
7558-80-7 Sodium Phosphate, mono-, di-, tribasic	7778-54-3 Calcium Hypochlorite	9003-05-8 Polyacrylamide	14518-69-5 Tetra-n-Butylphosphonium Hydroxide	
7601-54-9 Sodium Phosphate, mono-, di-, tribasic	7778-80-5 Potassium Sulfate	9003-20-7 Polyvinyl Acetate	15972-60-8 Alachlore, Herbicide	

## 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 <2>	20					40/100 <7>				
Acetaldehyde	100	NR	NR	NR	NR	LS	NR	NR	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	80/180	80/180	80/180	80/180	100/210	80/180	80/180	80/180	65/150
Acetic Acid	26-50					80/180				
Acetic Acid <2>	51-75					65/150				
Acetic Acid <2>	76-85					45/110				
Acetic Acid, glacial <2>	100	NR	NR	NR	NR	40/100	NR	NR	NR	NR
Acetic Acid / Sulfuric Acid	20:10	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Acetic Anhydride , see Acetic Acid glacial										
Acetone <2>	10					50/120				
Acetone <2>	20					40/100				
Acetone	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Acetone (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Acetone / Toluene	50:50	NR	NR	NR	NR	LS	NR	NR	NR	
Acetonitrile <2>	20					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	80/180	80/180	80/180	80/180	80/180	
Acetophenone	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Acetyl Acetone <2>	20					50/120				
Acetyl Acetone	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Acrolein (Acrylaldehyde) <2>	20					40/100				
Acrolein (Acrylaldehyde)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Acrylamide <2,6,23>	50		40/100	40/100	40/100	40/100		40/100	40/100	
Acrylic Acid <2,6,7,23>	10					40/100				
Acrylic Acid <2,6,23>	25		40/100	40/100	40/100	40/100		40/100	40/100	
Acrylic Acid <23>	100	NR	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
Acrylic Latex	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Acrylonitrile	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Acrylonitrile <2>	7 (max. solubility at 20 °C (68 °F))		40/100	40/100	40/100	40/100		40/100	40/100	
Adipic Acid	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Air (max. surface temperature of the FRP) <16>		180/360	180/360	180/360	180/360	200/392	160/320	160/320	160/320	
Alachlore, Herbicide <2,4>	All	NR	NR	NR	NR	40/100	NR	NR	NR	
Alcohol, Amyl, see Amyl alcohol										
Alcohol, Butyl, see Butanol										
Alcohol, Ethyl, see Ethanol										
Alcohol, Isodecyl, see Isodecanol										
Alcohol, Propyl, see Propanol										
Alcohol, see Ethanol										
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	95/200	95/200	100/210	80/180	95/200	95/200	
Alkyl (C8-C18) Chloride <21>	All	80/180	95/200	95/200	95/200	100/210	95/200	100/210	100/210	
Alkyl Aryl Sulfonic Acid, see Alkyl Benzene Sulfonic Acid										
Alkyl Benzene Sulfonic Acid <6,21>	All	80/180	80/180	80/180	80/180	100/210 <24>	95/200	100/210	80/180	
Alkyldiphenyloxide Disulfonate (anionic surfactant type)	All		50/120	50/120	50/120	50/120		50/120	50/120	
Alkyltolyl Trimethyl Ammonium Chloride <2>			50/120	50/120	50/120	50/120		50/120	50/120	
Allyl Alcohol	100					LS				
Allyl Chloride	100					LS				
Alpha-Methylstyrene <2>	100	LS				50/120	LS			NR
Alpha-Olefin Sulfonate	100		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
Alum <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Alumina Hydrate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Aluminum (reactor): Aluminum Chloride / Hydrochloric Acid <2,8,9,10,13>	<15% HCl	80/180	100/210 <7>	100/210 <7>	100/210	100/210	80/180	100/210	100/210	65/150
Aluminum Bromide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Chloride / Hydrochloric Acid <2,8,9,10,13>	40:0-30	65/150	70/160 <7>	70/160 <7>	70/160	80/180<15>	65/150	80/180 <15>	80/180	65/150
Aluminum Chlorohydrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Aluminum Chlorohydrate / Hydrochloric Acid <2,8,9,10,13>	<15% HCl	80/180	100/210 <7>	100/210 <7>	100/210	100/210	80/180	100/210	100/210	65/150
Aluminum Chlorohydroxide	50	100/210	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	95/200	95/200	95/200	95/200	
Aluminum Fluoride, acidic <1,6>	All									
Aluminum Fluoride, no Hydrofluoric Acid, pH>6 <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Aluminum Hydroxide	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Aluminum Nitrate	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	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	110/230	110/230	100/210	100/210	100/210	100/210	100/210	
Amine Salts <6>	All									
Amino Acids <6>	All		40/100	40/100	40/100	40/100		40/100	40/100	
Aminoethyl Piperazine	100	NR	NR	NR	NR	LS	NR	NR	NR	
Ammonia, aqueous, see Ammonium Hydroxide										
Ammonia, fumes, wet <2,8>	40 vol-%	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
Ammonia, gas <2,8>	100		40/100	65/150	40/100	40/100		40/100	40/100	
Ammonia, liquified gas		NR	NR	NR	NR	NR	NR	NR	NR	NR
Ammonium Acetate	All			40/100	40/100	40/100				NR
Ammonium Benzoate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Ammonium Bicarbonate and decomposition products	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	70/160
Ammonium Bifluoride <1>	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Bifluoride / Sulfuric Acid <1,2>	0.1–3:0–75	40/100	50/120	50/120	50/120	65/150	40/100	50/120	50/120	
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	65/150	65/150	65/150	
Ammonium Bromate	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160
Ammonium Bromide	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Carbonate and decomposition products	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	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 <sub>3</sub> )	80/180	80/180	95/200	65/150	65/150	95/200	65/150	65/150	80/180
Ammonium Hydroxide <27>	2–5 (as NH <sub>3</sub> )	80/180	80/180	80/180	65/150	65/150	80/180	65/150	65/150	80/180
Ammonium Hydroxide <27>	6–10 (as NH <sub>3</sub> )	65/150	65/150	70/160	40/100	40/100	70/160	40/100	40/100	65/150
Ammonium Hydroxide <27>	11–20 (as NH <sub>3</sub> )	50/120	50/120	50/120	40/100	40/100	50/120	40/100	40/100	50/120
Ammonium Hydroxide <27>	21–28 (as NH <sub>3</sub> )	45/110	45/110	45/110	40/100	40/100	45/110	40/100	40/100	40/100
Ammonium Hydroxide <27>	29–30 (as NH <sub>3</sub> )	40/100	40/100	40/100	40/100	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	50/120	50/120
Ammonium Ligno Sulfonate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Ammonium Molybdate <21>	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	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

## 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	°C/°F
Ammonium Oxalate	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Pentaborate	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Ammonium Perchlorate	All	75/170	75/170	75/170	75/170	75/170	75/170	75/170	75/170	75/170	
Ammonium Persulfate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Phosphate, dibasic <21>	All	100/210	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	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Polysulfide	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Ammonium Propionate <2>	All					40/100					NR
Ammonium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ammonium Sulfide (Bisulfide)	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Ammonium Sulfite	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Ammonium Thiocyanate	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Ammonium Thioglycolate <2>	All		40/100	40/100	40/100	40/100		40/100	40/100		
Ammonium Thiosulfate	All	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	
Amyl Acetate <2>	>0.5		40/100	40/100	50/120	50/120		50/120	50/120		
Amyl Alcohol <2>	100		60/140	65/150	65/150	65/150		60/140	65/150		
Amyl Alcohol, vapor (no condensation, no coalescence)	100		100/210	100/210	100/210	100/210		100/210	100/210		
Amyl Chloride <2>	100		50/120	50/120	50/120	50/120		50/120	50/120		
Aniline <2>	20					40/100					
Aniline	100	NR	NR	NR	NR	LS	NR	NR	NR	NR	NR
Aniline Hydrochloride	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Aniline Sulfate <21>	>0.5	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210		
Animal Fat <18>	100	80/180	100/210								
Anionic / Cationic Polymer Emulsions in Kerosene or Petroleum Distillates / Water Flocculants	0-50	40/100	50/120	50/120	50/120	50/120	40/100	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
Anionic Surfactant	All	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	
Anodize (15% Sulfuric Acid)		100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Anolyte <6>										
Anthraquinone Disulfonic Acid	1	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	
Antimony Pentachloride and decomposition products <4,13>	All	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Antimony Trichloride (molten) and decomposition products <13>	100	95/200	105/220	105/220	105/220	105/220	95/200	105/220	105/220	
Aqua Regia (concentrated Hydrochloric Acid / Nitric Acid, 3:1)		NR	NR	NR	NR	NR	NR	NR	NR	NR
Arsenic Acid	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Arsenious Acid	19°Be	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Barium Acetate	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	
Barium Bromide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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	65/150	65/150	65/150
Barium Hydroxide <21>	All	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
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							
Benzal Chloride (Benzyl Dichloride)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Benzaldehyde	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Benzalkonium Chloride <2>	Dilute		40/100	40/100	40/100	40/100		40/100	40/100	
Benzene <2>	100	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Benzene / Ethylbenzene <2>	All	NR	NR	NR	40/100	40/100	NR	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
Benzene / Ethylbenzene / Toluene / Trimethylbenzene / Xylene / BTX <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Benzene / Methyl t-Butyl Ether (MTBE) <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Benzene Sulfonic Acid <6>	All		65/150	80/180	80/180	80/180		80/180	80/180	
Benzene, vapor (no condensation, no coalescence)						50/120				NR
Benzenesulfonyl Chloride	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Benzoic Acid <4,11>	< Sat'd	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Benzotrichloride	100	NR	NR	NR	NR	LS	NR	NR	NR	
Benzoyl (o-) Benzoic Acid <4>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Benzyl Alcohol <2>	100	NR				40/100	NR			NR
Benzyl Alcohol <2,4,11>	< Sat'd		50/120	50/120	50/120	50/120		50/120	50/120	
Benzyl Chloride	All	NR	NR	NR	NR	LS	NR	NR	NR	NR
Benzyltrimethylammonium Chloride	60		40/100	40/100	40/100	40/100		40/100	40/100	
Biocide Chlorphenate (organic sulfur type, blend) <2>	100					50/120				
Biodiesel / FAME (maximum 0.2% Methanol)		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
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 recovery, furnace gases, see Flue Gas										
Black Liquor, thick, heavy (pulp & kraft mill) <1,2>	Thick	95/200	105/220	105/220	105/220	105/220	105/220	105/220	105/220	
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	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 and decomposition product <6>	All	65/150	65/150	65/150	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

## 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
Brine Mixture (0.4% MgSO <sub>4</sub> , 9.5% NaCl, 5.0% Na <sub>2</sub> SO <sub>4</sub> , 2.0% K <sub>2</sub> SO <sub>4</sub> , 7% CaSO <sub>4</sub> ·2H <sub>2</sub> O, 3% Na <sub>2</sub> SO <sub>3</sub> ·9H <sub>2</sub> O, pH 7)		100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Brine, chlorinated, (stable, alkaline pH>11) <2,3,5,9,19>	Maximum 6% active chlorine <6>	65/150	50/120	65/150	50/120	40/100	65/150	40/100	50/120		
Brine, chlorinated, pH 4-11 <6>	All	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Brine, chlorinated, pH<4 <2,3,8,9,17>	All	80/180	80/180	80/180	80/180	95/200	80/180	95/200	80/180		
Brine, salt <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	100/210	80/180
Brominated Phosphate Ester	>0.5					50/120					
Bromine / Hydrobromic Acid	2:40	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	
Bromine in Water (no pure Bromine phase)	<Sat'd	70/160	80/180	80/180	80/180	80/180	70/170	80/180	80/180		
Bromine, dry gas (no condensation, no coalescence)	100	40/100	40/100	40/100	40/100	40/100 <7>	40/100	40/100	40/100	40/100	40/100
Bromine, liquid	100	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bronze Plating Solution (4% Copper, 5% Sodium Cyanides, 3% Sodium Carbonate, 4.5% Rochelle Salts)		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Brown Stock, pulp mill		95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	
BTX / Benzene / Toluene / Xylene / Ethylbenzene / Trimethylbenzene <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR	
Bunker C Fuel Oil (heavy fraction)	100	100/210	105/220	105/220	105/220	105/220	100/210	105/220	105/220	105/220	65/150
Butadiene, gas <6>											
Butane	100	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Butanol <2>	100		50/120	50/120	65/150	65/150		50/120	50/120	NR	
Butyl Acetate <2>	100	NR			30/85	30/85	NR				NR
Butyl Acrylate	100					LS					
Butyl Alcohol, see Butanol											
Butyl Amine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR	NR
Butyl Benzoate <2>	70	NR	NR	NR	NR	40/100	NR	NR	NR	NR	NR
Butyl Benzyl Phthalate	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210		
Butyl Chloride	100					LS					

## 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
Butyl Ether, see Dibutyl Ether										
Butyl Stearate (5% in Mineral Spirits)			40/100	40/100	40/100	40/100	40/100		40/100	40/100
Butylene Glycol	100	70/160	80/180	80/180	80/180	80/180	80/180	70/160	80/180	80/180
Butylene Oxide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Butyraldehyde <2>	100					40/100				
Butyric Acid <2>	100				40/100	50/120				
Cadmium Chloride <21>	All		100/210	100/210	100/210	100/210	100/210	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	80/180	80/180					
Calcium Bisulfite <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Bromide <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Carbonate (slurry)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Calcium Chlorate, stable <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Chloride <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Chloride <21>	Sat'd	100/210	100/210	100/210	100/210	140/285 <6>	100/210	100/210	100/210	80/180
Calcium Chloride / Hydrochloric Acid <2,8,9,13>	<30% HCl	65/150	80/180	80/180	80/180	95/200	80/180	80/180	80/180	80/180
Calcium Hydroxide (slurry) <1>	0.5–25	80/180	80/180	80/180	80/180	80/180 <7>	80/180	80/180	80/180	65/150
Calcium Hydroxide <1>	Solid	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Hypochlorite <2,3,5,9,17>	All	80/180	80/180	80/180	40/100	40/100	80/180	40/100	40/100	80/180
Calcium Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Sulfate (slurry) <17,21,20>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Calcium Sulfite <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Cane Sugar Liquor & Sweetwater <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
Capric Acid (Decanoic Acid) <2>	100				50/120	80/180				
Caproic Acid (Hexanoic Acid) <2>	100				40/100	50/120				
Caprolactam	0-50	40/100	40/100	40/100	40/100	40/100		40/100	40/100	
Caprolactam	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Caprolactone	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Caprylic Acid (Octanoic Acid)	100				50/120	80/180				
Caramel <18>	All	50/120	50/120							
Carbon Dioxide Gas, see Air										
Carbon Disulfide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Carbon Disulfide (no condensation or coalescence)	Fumes	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	NR
Carbon Monoxide Gas, see Air										
Carbon Tetrachloride <2>	100		50/120	50/120	50/120	65/150		50/120	50/120	
Carbon Tetrachloride (no condensation or coalescence)	Fumes	80/180	95/200	95/200	95/200	95/200	80/180	95/200	95/200	
Carbonic Acid	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Carbonic Acid / Magnesium Salt	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Carboxyethyl Cellulose	10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Carboxymethyl Cellulose	10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Caro's Acid (Peroxysulfuric Acid) <6>										
Cashew Nut Oil	100	65/150	65/150							
Castor Oil (Ricinus Oil)	100	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160
Cationic / Anionic Polymer Emulsions in Kerosene or Petroleum Distillates/Water Flocculants	0-50	40/100	50/120	50/120	50/120	50/120		50/120	50/120	
Cationic Polyamine Flocculant, MW>40.000	All	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140
Caustic, see Sodium Hydroxide										
Cerous Nitrate	All		30/85	30/85	30/85	30/85		30/85	30/85	
Cetyl Alcohol (Hexadecanol)	100		80/180	80/180	80/180	80/180		80/180	80/180	
Chlordimeform Insecticide	100		50/120	50/120	50/120	50/120		50/120	50/120	
Chloric Acid <6>	All									

## 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
Chlorinated Brine, see Brine, chlorinated										
Chlorinated Paraffin Wax	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	
Chlorinated Pulp <6>	All	80/180	90/195	90/195	95/200	95/200	90/195	95/200	95/200	
Chlorinated Solvent, see specific solvents										
Chlorination Washer (hoods & vent systems)	Fumes	80/180	95/200	95/200	95/200	95/200	80/180	95/200	95/200	65/150
Chlorine / Hydrochloric Acid <2,8,9,13>	<20% HCl	80/180	90/195	90/195	90/195	100/210	80/180	100/210	100/210	80/180
Chlorine / Hydrogen Chloride, fumes, dry above 100°C/210°F, <2,8,9,13,16>; if above atmospheric pressure <6>		100/210	175/350	175/350	175/350	175/350	100/210	175/350	175/350	
Chlorine / Hydrogen Chloride, fumes, with aqueous condensate <8,9,13,16>	8–10% HCl	80/180	100/210	100/210	100/210	100/210; LS 175/350	80/180	100/210	100/210	80/180
Chlorine Dioxide Generator Effluent, R2 system <6>		65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	65/150
Chlorine Dioxide Scrubber <1,2,3>		75/170	75/170	75/170	75/170	75/170	75/170	75/170	75/170	
Chlorine Dioxide, Chlorine (bleaching solution, with or without pulp) <6>	All	80/180	90/195	90/195	90/195	95/200	90/195	95/200	95/200	
Chlorine Dioxide, cold solution storage <9>	Sat'd	20/70	20/70	20/70	20/70	20/70	20/70	20/70	20/70	
Chlorine Dioxide, no Chlorine (bleaching solution, with or without pulp) <6>	All	80/180	90/195	90/195	90/195	95/200	90/195	95/200	95/200	
Chlorine Water, see Brine, chlorinated										
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 <6>	100	80/180	90/195	90/195	90/195	100/210	80/180	100/210	90/195	65/150
Chloroacetic Acid <2>	1–25		50/120	50/120	50/120	50/120		50/120	50/120	
Chloroacetic Acid <2>	26–50		40/100	40/100	40/100	40/100		40/100	40/100	
Chloroacetic Acid	51–85				LS	LS				
Chloroacetic Acid	86–100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Chlorobenzene <2>	100	NR				40/100	NR			NR
Chlorodifluoromethane <6>	All					LS				
Chlorofluorocarbon (CFC): CFC-113 (Trichlorotrifluoroethane) <1,2>			40/100	40/100	40/100	40/100		40/100	40/100	
Chlorofluorocarbon (CFC): R-11 (Trichlorofluoromethane), R-12 (Dichlorodifluoromethane) <1,2>	100		40/100	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
Chloroform	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Chloroform (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Chloropentane (1 to 5 Cl atoms) <2>	100		50/120	50/120	50/120	55/130		50/120	50/120	NR
Chloropicrin (Nitrochloroform)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Chlorosulfonic Acid	All	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chlorotoluene <2>	100		40/100	40/100	40/100	40/100		40/100	40/100	NR
Choline Chloride	All	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	
Chrome Plating Solution (19% Chromic Acid with Sodium Fluorosilicate and Sulfate) <1>		50/120	50/120	50/120	50/120	65/150	50/120	50/120	50/120	50/120
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	50/120	50/120	50/120	65/150	50/120	65/150	50/120	50/120
Chromic Acid <2>	25	LS	LS	LS	LS	55/100	LS	LS	LS	
Chromic Acid	30	LS	LS	LS	LS	LS	LS	LS	LS	
Chromic Acid	40	NR	NR	NR	NR	LS	NR	NR	NR	
Chromic Acid / Nitric Acid <2,13>	5:10	40/100	50/120	50/120	50/120	65/150	40/100	40/100	40/100	40/100
Chromic Acid / Sodium Metabisulfite <2,6,7>	15:45	50/120	50/120	50/120	50/120	65/150	50/120	65/150	50/120	50/120
Chromic Acid / Sulfuric Acid <2,12>	20:20	NR	NR	NR	NR	LS	NR	NR	NR	
Chromic Acid / Sulfuric Acid mixture (maximum total concentration 10%) <2,12>	10	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	50/120
Chromium Sulfate, water-soluble forms (Chromous Sulfate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Citric Acid <18>	>0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Cleaner, check the composition <6>										
Clopidol <4>	All				40/100	40/100		40/100	40/100	
Cobalt Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Cobalt Citrate <21>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Cobalt Nitrate <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
Cocamidopropyl Betaine <7>	100	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Cocamidopropyl Dimethylamine <7>	100	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Coconut Oil	100	80/180	95/200	95/200	95/200	95/200	80/180	95/200	80/180	80/180
Cod Liver Oil <18>	100	40/100	40/100							
Copper Acetate	All	70/160	80/180	80/180	80/180	80/180	70/160	80/180	80/180	
Copper Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
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 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	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(BF <sub>4</sub> ) <sub>2</sub> , 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	90/195	90/195	90/195	90/195	
Corn Oil <18>	100	80/180	100/210							
Corn Starch <18>	Slurry	100/210	100/210							
Corn Sugar / Syrup (Glucose) <18>	All	80/180	80/180							
Cottonseed Oil <18>	100	100/210	100/210							
Crude Oil, sweet and sour <6>	100	80/180	100/210	100/210	120/250	120/250	80/180	120/250	120/250	65/150
Cumene <2>	100	NR	40/100	40/100	50/120	50/120	NR	50/120	50/120	NR
Cupric Chloride, see Copper Chloride										
Cyanuric Acid <4>	All		40/100	40/100	40/100	50/120		40/100	40/100	
Cyanuric Chloride <4>	All		50/120	50/120	50/120	50/120		50/120	50/120	
Cyclohexane <2>	100	50/120	65/150	65/150	65/150	65/150	50/120	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
Cyclohexane (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Cyclohexylamine <2>	100	LS	LS	LS	LS	40/100	LS	LS	LS	NR
Cyclopentane <2>	100	40/100	45/110	45/110	50/120	50/120	40/100	45/110	45/110	
Dalapon / Sodium Salt (2,2-Dichloropropionic Acid and Sodium Salt) <2>	100	NR				40/100	NR			NR
Decanoic Acid, see Capric Acid										
Decanol <2>	100		65/150	65/150	65/150	80/180		65/150	65/150	
Decanoyl chloride <2,7>						40/100				
Deionized Water (DI Water) <2,6,22>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Demineralized Water <2>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Detergents, check composition <6>										
Di (2-Ethylhexyl) Phosphoric Acid (DEHPA) in Kerosene	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
DI Water (Deionized Water) <2,6,22>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Diacetone Alcohol <2>	10		40/100	40/100	40/100	50/120		50/120	50/120	
Diacetone Alcohol	100	NR	NR	NR	NR	LS	NR	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	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Dibromo(-2,2)-Nitrilo(-3)-Propionamide <2>	40		40/100	40/100	40/100	40/100		40/100	40/100	NR
Dibromo(-2,2)-Nitrilo(-3)-Propionamide <2>	100	NR				40/100	NR			NR
Dibromophenol <2>	100	NR	40/100	40/100	40/100	40/100	NR	40/100	40/100	NR
Dibromopropane <2>	100	NR				40/100	NR			NR
Dibromopropanol <2>	100	NR	NR	NR	LS	40/100	NR	LS	LS	
Dibutyl Carbitol (Diethylene Glycol Dibutyl Ether) <2>	100					40/100				
Dibutyl Ether <2>	100					40/100				
Dibutyl Phthalate	100	80/180	80/180	95/200	95/200	100/210	80/180	80/180	95/200	
Dibutyl Sebacate	100	80/180	80/180	95/200	95/200	100/210	80/180	80/180	95/200	
Dichloroacetic Acid, see Chloroacetic Acid										

## 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
Dichlorobenzene (ortho and para) <2>	100	NR				40/100	NR			NR
Dichloroethane (EDC) <6>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dichloroethane (EDC), fumes (no condensation, no coalescence)	All					90/195				
Dichloroethylene	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dichloromethane, see Methylene Chloride										
Dichlorophenol (DCP)	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dichlorophenoxyacetic (2,4-) Acid (acid, salt, ester formulations) <2,4>					50/120	50/120		50/120	50/120	
Dichloropropane <2>	100	NR	LS	LS	LS	40/100	NR	LS	LS	NR
Dichloropropene	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dichloropropionic Acid <2>	100	NR	LS	LS	LS	40/100	NR	LS	LS	NR
Dichlorotoluene (Benzal Chloride) <2>	100				50/120	50/120		50/120	50/120	NR
Dicoco Dimethyl Ammonium Chloride <21>	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Diesel Fuel	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	65/150
Diethanolamine <2>	100	40/100	50/120	50/120	50/120	65/150	40/100	50/120	50/120	
Diethanolamine / Ethanolamine <2>	80:20					40/100				
Diethyl Carbonate <2>	100	NR	NR	NR	40/100	40/100	NR	25/80	25/80	NR
Diethyl Ether	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Diethyl Formamide <2>	20					40/100				NR
Diethyl Formamide <2>	100	NR	LS	LS	LS	40/100	NR	LS	LS	NR
Diethyl Hydroxylamine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Diethyl Ketone <2>	20		45/110	45/110	45/110	50/120		40/100	40/100	
Diethyl Ketone	100	NR	NR	NR	LS	LS	NR	LS	LS	NR
Diethyl Sulfate <2>	100		50/120	50/120	50/120	50/120		50/120	50/120	
Diethylamine <2>	20					40/100				NR
Diethylamine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Diethylaminoethanol <2>	100		50/120	50/120	50/120	50/120		50/120	50/120	
Diethylbenzene <2>	100		50/120	50/120	65/150	65/150		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
Diethylene Glycol	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	80/180
Diethylene Glycol Butyl Ether (2-(2-Butoxyethoxy)ethanol) <2>	100		40/100	40/100	40/100	40/100		40/100	40/100	NR
Diethylene Glycol Dimethyl Ether <2>	20		40/100	40/100	40/100	40/100		40/100	40/100	NR
Diethylene Glycol Dimethyl Ether	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Diethylene Glycol Monomethyl Ether	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Diethylene Triamine Pentaacetic Acid	All	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	
Diethylene Triamine Pentaacetic Acid / Sodium Salt	40	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	
Diglycolamine (Aminoethoxyethanol) <2>	20		50/120	50/120	50/120	50/120		50/120	50/120	
Diglycolamine (Aminoethoxyethanol) <2>	50		40/100	40/100	40/100	40/100		40/100	40/100	
Diglycolamine (Aminoethoxyethanol)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Diisobutyl Ketone <2>	100				50/120	50/120		50/120	50/120	
Diisobutyl Phthalate	100	80/180	80/180	95/200	95/200	100/210	80/180	80/180	95/200	
Diisobutylene <2>	100		40/100	40/100	40/100	40/100		40/100	40/100	
Diisononyl Phthalate	100	80/180	80/180	95/200	95/200	100/210	80/180	80/180	95/200	
Diisooctyl Adipate, see Diisooctyl Phthalate										
Diisooctyl Phthalate	100	80/180	80/180	95/200	95/200	100/210	80/180	80/180	95/200	
Diisopropanolamine	100	50/120	50/120	50/120	50/120	65/150	50/120	50/120	50/120	40/100
Dimethyl Acetamide <2>	20		40/100	40/100	40/100	40/100		40/100	40/100	NR
Dimethyl Acetamide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dimethyl Acetamide (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Dimethyl Phthalate	100	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	
Dimethyl Sulfate	100	NR	LS	LS	LS	LS	NR	NR	NR	NR
Dimethyl Sulfate in water <6>	<100									
Dimethyl Sulfide <6>	100	NR					NR			NR
Dimethyl Sulfoxide (DMSO) <2>	20					40/100				
Dimethyl Sulfoxide (DMSO)	100	NR	LS	LS	LS	LS	NR	NR	NR	NR
Dimethylamine <2>	20					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
Dimethylamine	40	LS	LS	LS	LS	LS	LS	LS	LS	NR
Dimethylammonium Hydrochloride (Dimethylamine HCl)	70	40/100	40/100	40/100	40/100	50/120 <7>	40/100	40/100	40/100	
Dimethylaniline	100	NR	LS	LS	LS	LS	NR	LS	LS	LS
Dimethylcarbonate	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dimethylethanolamine <2>	20		50/120	50/120	50/120	60/140		50/120	50/120	
Dimethylethanolamine <2>	100					40/100				NR
Dimethylformamide <2>	20					40/100				
Dimethylformamide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dimethylformamide (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Dimethylmorpholine <2>	100	NR				50/120	NR			NR
Diethyl Phthalate	100	80/180	80/180	95/200	95/200	100/210	80/180	80/180	95/200	
Dioxane	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Diphenyl Oxide (Diphenyl Ether, Phenyl Ether) <2>	100				40/100	50/120		50/120	50/120	NR
Diphenylmethane-4,4-Diisocyanate (MDI)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Dipotassium Phosphate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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	50/120	50/120	50/120	50/120	50/120	
Dipropylene Glycol Methyl Ether (2-(2-Methoxypropoxy)-1-Propanol) <2>	20		50/120	50/120	50/120	65/150		65/150	65/150	
Dipropylene Glycol Methyl Ether (2-(2-Methoxypropoxy)-1-Propanol)	100	NR	LS	LS	LS	LS	NR	NR	NR	NR
Dishwashing Detergent in solution <6,14>										
Disodium Ethylene Bisdithiocarbamate/ Sodium Dimethyldithiocarbamate	0.1–15:0.1–15	40/100	40/100	40/100	40/100	50/120	40/100	50/120	50/120	40/100
Distilled Water <2>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Divinylbenzene <2>	100					40/100				
Dodecane	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Dodecanol (Lauryl Alcohol) <2>	100	50/120	65/150	65/150	65/150	80/180	50/120	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
Dodecene	100	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	
Dodecylbenzene Sulfonic Acid <6>	100	80/180	95/200	100/210	100/210	100/210	100/210	100/210	95/200	
Dodecyldimethylamine	100	80/180	95/200	95/200	95/200	100/210	80/180	95/200	95/200	
Dodecylmercaptan <2>	100	80/180	95/200	95/200	95/200	65/150	80/180	65/150	95/200	
Epichlorohydrin	100	LS	LS	LS	LS	LS	LS	LS	LS	LS
Epoxidized Castor Oil <6,23>	100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	
Epoxidized Soybean Oil <23>	100	50/120	65/150	65/150	100/210	100/210	50/120	65/150	65/150	
Esters of Fatty Acid (including FAME)	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Ethanol (Ethyl Alcohol) <2>	10		50/120	65/150	65/150	65/150		65/150	65/150	
Ethanol (Ethyl Alcohol) <2>	50		40/100	40/100	65/150	65/150		65/150	65/150	NR
Ethanol (Ethyl Alcohol) <2>	70-100	NR	LS	LS	40/100	40/100		40/100	40/100	NR
Ethanol (Ethyl Alcohol), fumes (no condensation, no coalescence)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Ethanolamine <2>	20					50/120		50/120	50/120	
Ethanolamine <2>	100					40/100				NR
Ethanolamine / Diethanolamine <2>	20:80					40/100				
Ethanolamine / Methanol <2>	0-20:0-60	NR	LS	LS	LS	40/100	NR	NR	NR	NR
Ethephon	All		40/100	40/100	40/100	40/100		40/100	40/100	
Ethoxy Acetic Acid	10		40/100	40/100	40/100	40/100		40/100	40/100	
Ethoxy Acetic Acid	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Ethoxylated Alcohol, C12-C14 <2>	100	50/120	65/150	65/150	65/150	80/180	50/120	65/150	65/150	
Ethoxylated Alkyl Amines, C12 and higher <2>	100		40/100	40/100	40/100	60/140		40/100	40/100	
Ethoxylated Nonyl Phenol <2>	100		40/100	40/100	40/100	50/120		40/100	40/100	
Ethyl Acetate	100	NR	LS	LS	LS	LS	NR	LS	LS	NR
Ethyl Acetate (no condensation, no coalescence)	fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Ethyl Acrylate <23>	100	NR	NR	NR	NR	LS	NR	LS	LS	NR
Ethyl Alcohol, see Ethanol										
Ethyl Benzyl Chloride <2>	100	NR	NR	NR	NR	40/100	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
Ethyl Bromide	100	NR	LS	LS	LS	LS	NR	LS	LS	NR
Ethyl Chloride (Chloroethane)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Ethyl Ether	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethyl Silicate <2>	100				40/100	40/100		40/100	40/100	
Ethyl Sulfate <2>	100				40/100	40/100		40/100	40/100	
Ethyl-3-Ethoxy Propionate	100	NR	LS	LS	LS	LS	NR	LS	LS	NR
Ethylamine <2>	20					40/100				
Ethylamine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Ethylbenzene <2>	100	NR	40/100	40/100	50/120	50/120	NR	50/120	50/120	NR
Ethylbenzene / Benzene <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Ethylbenzene / Benzene / Toluene / Trimethylbenzene / Xylene / BTX <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Ethylene Chloride, see Dichloroethane										
Ethylene Chlorohydrin <2>	20		50/120	50/120	50/120	65/150		65/150	65/150	
Ethylene Chlorohydrin	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Ethylene Dibromide	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Ethylene Dichloride (EDC), see Dichloroethane										
Ethylene Glycol	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Ethylene Glycol / Sulfuric Acid	0-40:0-10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Ethylene Glycol based coolants	>0.5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol) <2>	20				65/150	65/150		65/150	65/150	
Ethylene Glycol Monobutyl Ether (2-Butoxyethanol) <2>	100				40/100	65/150		40/100	40/100	NR
Ethylene Oxide	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylenediamine <2>	20					40/100				
Ethylenediamine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Ethylenediaminetetraacetic Acid (EDTA)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Ethylenesulfonic Acid / Sodium Salt	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Ethylhexyl(-2) Alcohol <2>	100		65/150	65/150	65/150	80/180		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
Eucalyptus Oil <18>	100	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	
FAME (Fatty Acid Methyl Ester), see Esters of Fatty Acid										
FAME / Biodiesel (maximum 0.2% Methanol)		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Fatty Acids	All	100/210	100/210	120/250	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	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 <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ferric Chloride / Hydrochloric Acid <2,8,9,13>	0-29:1-20	80/180	105/220	105/220	105/220	105/220	80/180	105/220	105/220	80/180
Ferric Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Ferric Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Ferric Sulfate / Sulfuric Acid <13>	0-40:0-25	100/210	100/210	100/210	100/210	100/210	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 / Ferric 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 <2,8,9,13>	0-29:1-20	80/180	105/220	105/220	105/220	105/220	80/180	105/220	105/220	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
Ferrous Sulfate / Sulfuric Acid <13>	0-40:0-25	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Fertilizer Solution, Grades N-P-K	100	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Flocculant, Cationic Polyamine MW>40.000	All	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140
Flue Gas, dry <16>	All	165/325	175/350	175/350	175/350	205/400	160/320	160/320	160/320	
Flue Gas, wet	All	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	80/180
Fluorine in flue gas, wet <6>										
Fluoroboric Acid <1,2>	0.5-48	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	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 (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	0.5-10	80/180	80/180	80/180	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	60/140	60/140	60/140
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	21-35	40/100	40/100	40/100	50/120	50/120	40/100	50/120	50/120	40/100
Fluosilicic Acid (Fluorosilicic Acid, Hexafluorosilicic Acid) <1,2>	>35	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	
Fluosilicic 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	40/100	40/100	40/100
Fluosilicic Acid / Zinc Chloride <1,2>	20:All	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140
Fluosilicic Acid fumes <1,2>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Fly Ash Slurry		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Formaldehyde / Methanol	0-37:0-15					40/100				
Formamide <2>	20		50/120	50/120	50/120	65/150		65/150	65/150	
Formamide	100					LS				
Formic Acid	10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Formic Acid <2>	25	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	50/120
Formic Acid <2>	50		50/120	50/120	50/120	50/120		50/120	50/120	
Formic Acid <2>	85			50/120	50/120	50/120		50/120	50/120	
Formic Acid <2>	100				40/100	40/100		40/100	40/100	
Fuel C (50:50 Isooctane / Toluene)	100				50/120	50/120		50/120	50/120	
Fuel C / Methyl t-Butyl Ether (MTBE) (Fuel C is 50:50 Toluene / Isooctane)	85:15				50/120	50/120		50/120	50/120	
Fuel Oil	100	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	65/150
Furfural <2,11>	0-10		50/120	50/120	65/150	65/150		50/120	50/120	
Furfural <11>	11-100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Furfural in organic solvent <4,6>										
Furfuryl Alcohol <2>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Gallic Acid	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Gasohol, 1-85% Ethanol (E10, E15, E85)	All					40/100		40/100	40/100	
Gasoline with Alcohol, see Gasohol	All									

## 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
Gasoline, no Alcohol	100				50/120	50/120		50/120	50/120	
Gluconic Acid	50	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Glucose <18>	All	80/180	80/180							
Glutamic Acid <7,18>	All		40/100	40/100	40/100	40/100		40/100	40/100	
Glutaraldehyde <7>	50	50/120	50/120	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	50/120	50/120	50/120	
Glycerin	100	100/210	100/210	100/210	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	40/100	
Glycol	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Glycolic Acid <2>	0-70	50/120	50/120	50/120	50/120	65/150	50/120	65/150	65/150	
Glyoxal	40		40/100	40/100	40/100	40/100		40/100	40/100	
Glyoxylic Acid (Oxoacetic Acid)	25	NR	NR	NR	NR	LS	NR	NR	NR	NR
Glyphosate	All		40/100	40/100	40/100	40/100		40/100	40/100	
Gold Plating Solution (23% Potassium Ferrocyanide, Potassium Gold Cyanide, Sodium Cyanide)		100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Green Liquor <1,2> (Pulp mill)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Gypsum / Phosphoric Acid <6,20>, in case of Hydrofluoric Acid <1>	40:60	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Gypsum Slurry, see also Calcium Sulfate <17,21,20>	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	60/140	60/140	60/140	60/140	60/140	60/140	
Heat transfer agent <6,14>										
Heptane	100	95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	80/180
Heptane (no condensation, no coalescence)	Fumes	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Heptyl Alcohol	100		65/150	65/150	65/150	80/180		65/150	65/150	
Hexachlorocyclopentadiene	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Hexachloroethane <2>	100	LS	40/100	40/100	40/100	50/120	LS	40/100	40/100	NR
Hexadecanol	100		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
Hexafluorosilicic Acid, see Fluosilicic Acid										
Hexamethylenetetramine	40	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	
Hexane	100	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Hexanoic Acid, see Caproic Acid										
Hexyl Alcohol <2>	100		60/140	60/140	60/140	65/150		60/140	60/140	
Hot Stack Gas, see Flue Gas										
Hydraulic Fluid (glycols) <14>	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Hydrazine	All	NR	NR	NR	NR	LS	NR	NR	NR	
Hydriodic Acid / Sulfuric Acid <2,12>	20:60	40/100	40/100	40/100	40/100	50/120	40/100	40/100	40/100	
Hydrobromic Acid	1–25	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Hydrobromic Acid	48	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Hydrobromic Acid	62	40/100	40/100	40/100	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	40/100	40/100	40/100	40/100	
Hydrochloric Acid <9,13>	1–15	80/180	105/220	105/220	105/220	110/230	100/210	105/220	105/220	80/180
Hydrochloric Acid <2,8,9,13>	16–20	80/180	105/220	105/220	105/220	110/230	100/210	105/220	105/220	80/180
Hydrochloric Acid <2,8,9,13>	21–25	65/150	80/180	80/180	80/180	100/210	80/180	80/180	80/180	80/180
Hydrochloric Acid <2,8,9,13>	26–30	65/150	80/180	80/180	80/180	95/200	80/180	80/180	80/180	80/180
Hydrochloric Acid <2,8,9,13,25>	31–32	65/150	70/160	70/160	70/160	80/180 <15>	65/150	80/180 <15>	80/180	65/150
Hydrochloric Acid <2,8,9,13,25>	33–34	50/120	50/120	50/120	50/120	70/160 <15>	50/120	70/160 <15>	70/160	50/120
Hydrochloric Acid <2,8,9,13,25>	35–36	50/120	50/120	50/120	50/120	60/140 <15>	50/120	60/140 <15>	60/140	50/120
Hydrochloric Acid <2,8,9,13,25>	37	40/100	45/110	45/110	45/110	50/120 <15>	40/100	50/120 <15>	50/120	
Hydrochloric Acid, fumes, see Hydrogen Chloride										
Hydrochloric Acid / Aluminum Chloride <2,8,9,10,13>	30:0–40	65/150	70/160 <7>	70/160 <7>	70/160	80/180 <15>	65/150	80/180 <15>	80/180	65/150
Hydrochloric Acid / Aluminum Chloride (Aluminum reactor) <2,8,9,10,13>	<15% HCl	80/180	100/210 <7>	100/210 <7>	100/210	100/210	80/180	100/210	100/210	65/150
Hydrochloric Acid / Aluminum Chlorohydrate <2,8,9,10,13>	<15% HCl	80/180	100/210 <7>	100/210 <7>	100/210	100/210	80/180	100/210	100/210	65/150
Hydrochloric Acid / Calcium Chloride <2,8,9,13>	<30% HCl	65/150	80/180	80/180	80/180	95/200	80/180	80/180	80/180	80/180
Hydrochloric Acid / Chlorine <2,8,9,13>	<20% HCl	80/180	90/195	90/195	90/195	100/210	80/180	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
Hydrochloric Acid, fumes / Chlorine; see Hydrogen Chloride, Chlorine fumes										
Hydrochloric Acid / Dissolved Organics <2,6,8,9,13>	<34% HCl : Traces	NR	LS	LS	40/100	65/150 <15>	LS	40/100	40/100	NR
Hydrochloric Acid / Ferric Chloride <2,8,9,13>	1-20:0-29	80/180	105/220	105/220	105/220	105/220	80/180	105/220	105/220	80/180
Hydrochloric Acid / Ferrous Chloride <2,8,9,13>	1-20:0-29	80/180	105/220	105/220	105/220	105/220	80/180	105/220	105/220	80/180
Hydrochloric Acid / Hydrofluoric Acid <6>										
Hydrochloric Acid / Phosphoric Acid, sat'd with Chlorine <6>										
Hydrochloric Acid / Phosphorous Acid <2,9,12,15>	1-5:0-70	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Hydrochloric Acid / Sulfuric Acid <2,8,9,13,15>	1-10:1-25	80/180	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Hydrochloric Acid / Sulfuric Acid <2,8,9,13,15>	15:50	40/100	45/110	45/110	45/110	50/120	40/100	50/120	50/120	
Hydrochloric Acid / Sulfuric Acid (iron and steel cleaning bath) <2,8,9,13>	9:23	80/180	95/200	95/200	100/210	100/210	95/200	95/200	100/210	
Hydrocyanic Acid	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Hydrofluoric Acid <1,2,8,26>	5	65/150	65/150	65/150	65/150	80/180 <7>	60/140	60/140	60/140	
Hydrofluoric Acid <1,2,8,26>	10	60/140	60/140	60/140	65/150	65/150	60/140	60/140	40/100	
Hydrofluoric Acid <1,2,8,26>	15				40/100	40/100				
Hydrofluoric Acid <1,2,8,26>	20					40/100				
Hydrofluoric Acid	40					LS				
Hydrofluoric Acid	70					NR				
Hydrofluoric Acid / Hydrochloric Acid <6>										
Hydrofluoric Acid / Nitric Acid <6>										
Hydrofluoric Acid / Nitric Acid <1,2,8,26>	6:20	50/120	50/120	50/120	60/140	60/140	55/130	60/140	60/140	
Hydrofluoric Acid / Sulfuric Acid <1,2,8,26>	3-6:1-20	55/130	55/130	55/130	55/130	60/140	55/130	60/140	60/140	
Hydrofluoric Acid / Sulfuric Acid <1,2,8,26>	10:10	40/100	50/120	50/120	50/120	65/150	40/100	40/100	40/100	
Hydrofluoric Acid / Sulfuric Acid <1,2,8,26>	10:25	40/100	45/110	45/110	45/110	50/120	40/100	40/100	40/100	
Hydrofluosilicic Acid, see Fluosilicic Acid										
Hydrogen Bromide, dry gas <7>	100	80/180	80/180	80/180	80/180	100/210	80/180	100/210	100/210	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

## 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
Hydrogen Chloride, dry gas <6,16>	100	100/210	175/350	175/350	175/350	175/350	100/210	175/350	175/350	80/180
Hydrogen Chloride, wet gas, atmospheric pressure	100	100/210	110/230	110/230	110/230	110/230	100/210	110/230	110/230	80/180
Hydrogen Chloride, Chlorine, fumes, dry above 100°C/210°F, <2,8,9,13,16>; if above atmospheric pressure <6>		100/210	175/350	175/350	175/350	175/350	100/210	175/350	175/350	
Hydrogen Chloride, Chlorine, fumes, with aqueous condensate <8,9,13,16>	8–10% HCl	80/180	100/210	100/210	100/210	100/210; LS 175/350	80/180	100/210	100/210	80/180
Hydrogen Fluoride, dry gas <1,2,6,8,26>		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Hydrogen Fluoride, wet gas, atmospheric pressure <1,2,6,8,26>						40/100				
Hydrogen Peroxide <2,3,6,23>	5	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Hydrogen Peroxide <2,3,6,23>	30	40/100	40/100	40/100	50/120	50/120	40/100	50/120	50/120	40/100
Hydrogen Peroxide <2,3,6,23>	35					40/100		40/100	40/100	NR
Hydrogen Peroxide <23>	50	NR	NR	NR	NR	LS	NR	NR	NR	NR
Hydrogen Peroxide / Sulfuric Acid <2,3,6,7,12>										
Hydrogen Sulfide / Sulfuric Acid / <13>	0–10:1–50	80/180	80/180	80/180	80/180	90/195	80/180	80/180	80/180	80/180
Hydrogen Sulfide, aqueous	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Hydrogen Sulfide, dry gas	100	100/210	110/230	110/230	110/230	110/230	100/210	110/230	110/230	80/180
Hydrogen Sulfide, sewer gas <7>		50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Hydrogen Sulfide, wet gas	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Hydrogenated Tallow Alkyl Amine (C8-C18)	100		40/100	40/100	40/100	40/100		40/100	40/100	
Hydroiodic Acid (57% Hydrogen Iodide)	40	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Hydroiodic Acid (57% Hydrogen Iodide)	100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	
Hydroxyacetic Acid, see Glycolic Acid										
Hydroxylamine Acid Sulfate (Hydroxylammonium Acid Sulfate (HAS)), reaction of Hydroxylamine Acid Disulfate with steam to form HAS, Sulfuric Acid, Ammonium Sulfate <10,21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Hypochlorous Acid <6>										
Hypophosphorous Acid	0–50	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Incinerator Gases, see Flue Gas										

## 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
Iodine, crystals	100	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Iodine, vapor	100	65/150	65/150	65/150	65/150	80/180	65/150	65/150	65/150	65/150	65/150
Ion Exchange Resin, fine mesh resins		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Iron and Steel Cleaning Bath (9% Hydrochloric Acid / 23% Sulfuric Acid) <2,8,9,13>	9:23	80/180	95/200	95/200	100/210	100/210	95/200	95/200	100/210		
Iron Perchloride, see Ferric Chloride											
Iron Plating Solution (45% FeCl <sub>2</sub> , 15% CaCl <sub>2</sub> , 20% FeSO <sub>4</sub> , 11% (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> )		80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	100/210	80/180
Isoamyl Alcohol	20		65/150	65/150	80/180	80/180		65/150	65/150		
Isoamyl Alcohol <2>	100		60/140	60/140	60/140	65/150		60/140	60/140		
Isobutyl Alcohol	20		65/150	65/150	65/150	80/180		65/150	65/150		
Isobutyl Alcohol <2>	100		40/100	40/100	40/100	50/120		40/100	40/100	NR	
Isodecanol <2>	100		65/150	65/150	65/150	80/180		65/150	65/150		
Isononyl Alcohol <2>	100		65/150	65/150	65/150	80/180		65/150	65/150		
Isooctane	100	95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	80/180
Isooctane, Toluene (Fuel C 50:50)	100				50/120	50/120		50/120	50/120		
Isooctane, Toluene (Fuel C 50:50) / Methyl t-Butyl Ether (MTBE) <2>	85:15				50/120	50/120		50/120	50/120		
Isooctyl Alcohol <2>	100		65/150	65/150	65/150	80/180		65/150	65/150		
Isopropanol Amine <2>	100	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	NR
Isopropyl Alcohol (Isopropanol) <2>	100		50/120	50/120	50/120	50/120		50/120	50/120	NR	
Isopropyl Alcohol (Isopropanol) / Methyl Distearyl Ammonium Chloride <2>	25:75		50/120	50/120	50/120	50/120		50/120	50/120	NR	
Isopropyl Amine <2>	0.5–50				40/100	40/100		40/100	40/100		
Isopropyl Amine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR	NR
Isopropyl Myristate	100	100/210	110/230	110/230	110/230	110/230	100/210	110/230	110/230	110/230	65/150
Isopropyl Palmitate	100	100/210	110/230	110/230	110/230	110/230	100/210	110/230	110/230	110/230	65/150
Itaconic Acid	All	60/140	60/140	60/140	60/140	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
Jet Fuel, general <6>	100	60/140	60/140	60/140	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, wet										
Lactic Acid <18>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Latex (emulsion in water)	All	40/100	40/100	40/100	50/120	50/120	40/100	50/120	50/120	
Latex Paint, acrylic binders	100	40/100	40/100	40/100	50/120	50/120	40/100	50/120	50/120	
Latex Paint, dispersion in water	100	40/100	40/100	40/100	50/120	50/120	40/100	50/120	50/120	
Latex Paint, vinyl binders	100	40/100	40/100	40/100	50/120	50/120	40/100	50/120	50/120	
Lauric Acid	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Lauroyl Chloride <2>	100		40/100	40/100	50/120	50/120		40/100	40/100	
Lauryl Alcohol (See Dodecanol)										
Lauryl Chloride <2>	100	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	
Lauryl Mercaptan <2>	100					65/150		65/150		
Lead (II) Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	
Lead Acetate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	
Lead Plating Solution (acidic process, 8% Lead with Fluoboric Acid and Boric Acid) <1,6>		95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	
Lead Plating Solution (alkaline process, 8% Lead Acetate, 20% Sodium Hydroxide) <1,2>		65/150	40/100	50/120			65/150			
Levulinic Acid (4-Oxopentanoic 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	80/180	80/180	80/180	65/150
Lime Slurry, see Calcium Hydroxide										
Limestone Slurry, see Calcium Carbonate										
Linseed Oil <18>	100	100/210	110/230	110/230	110/230	110/230	100/210	110/230	110/230	65/150
Liquified Petroleum Gas (LPG)	100	60/140	60/140	60/140	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	100/210	80/180
Lithium Carbonate <1>	All	80/180	80/180	80/180	80/180	65/150	80/180	65/150	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 Chloride <21>	Sat'd	100/210	100/210	100/210	100/210	130/265 <6>	100/210	100/210	100/210	80/180
Lithium Hydroxide <1>	All	80/180	40/100	65/150	40/100	40/100	80/180	40/100	80/180	65/150
Lithium Hypochlorite <2,3,5,9,17>	All	80/180	80/180	80/180	40/100	40/100	80/180	40/100	40/100	80/180
Lithium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	
Magnesium Bisulfite <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Magnesium Carbonate	All	80/180	80/180	80/180	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	80/180	80/180	80/180	80/180
Magnesium Hydroxide <21>	All	100/210	100/210	100/210	80/180	80/180	100/210	80/180	100/210	80/180
Magnesium Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Magnesium Phosphate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Magnesium Salt / Carbonic Acid	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	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	100/210	100/210	80/180
Maleic Acid <21>	All	80/180	100/210	100/210	100/210	100/210 <24>	80/180	100/210	100/210	80/180
Maleic Anhydride	100	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	
Malic Acid	All	100/210	100/210	100/210	100/210 <24>	100/210 <24>	100/210	100/210	100/210	
Manganese Chloride (Manganous Chloride) <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
Manganese Nitrate (Manganous Nitrate) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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
MDI, see Diphenylmethane-4,4-Diisocyanate										
Melamine Formaldehyde Resin	All	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	40/100
Mercaptoacetic Acid <2>	All	NR			40/100	40/100	NR			NR
Mercaptoethanol	10	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Mercaptopropionic (3-) Acid <2>	100	NR			40/100	40/100	NR			NR
Mercury <16>	100	100/210	120/250	120/250	120/250	120/250	100/210	120/250	120/250	65/150
Mercury(I) Chloride (Mercurous Chloride) <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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) <9,13>	0.5–15 total	80/180	105/220	105/220	105/220	110/230	100/210	105/220	105/220	80/180
Methacrylic Acid <2,6,7,23>	25		40/100	40/100	40/100	50/120		40/100	40/100	
Methacrylic Acid <23>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Methanamide, see Formamide										
Methane / Nitrogen	All	60/140	80/180	80/180	80/180	95/200	80/180	95/200	95/200	60/140
Methanesulfonic Acid <2,6,15>	70	NR	LS	LS	LS	80/180	NR	NR	NR	NR
Methanol (Methyl Alcohol)	5	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	
Methanol (Methyl Alcohol) <2>	20	NR	30/85	30/85	40/100	40/100	NR	40/100	40/100	NR
Methanol (Methyl Alcohol) <2>	40–100	NR	LS	LS	40/100	40/100	NR	40/100	40/100	NR
Methanol, fumes (no condensation, no coalescence)	All	65/150	65/150	65/150	80/180	80/180	80/180	80/180	80/180	65/150
Methanol / Ethanolamine <2>	0–60:0–20	NR	LS	LS	LS	40/100	NR	NR	NR	NR
Methanol / Formaldehyde	0–15:0–37					40/100				
Methanol / Sulfuric Acid <2,12>	5:30	LS	40/100	40/100	40/100	50/120	LS	40/100	40/100	LS
Methoxy (-1) - Propanol (-2)	100	NR	LS	LS	LS	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
Methyl Acetate <2>	20					40/100				
Methyl Acetate	100	NR	NR	NR	NR	LS	NR	LS	NR	NR
Methyl Alcohol, see Methanol										
Methyl Bromide (no condensation, no coalescence)	Fumes	40/100	65/150	80/180	80/180	80/180	80/180	80/180	80/180	
Methyl Butyl Ketone (MBK), includes Methyl t-Butyl Ketone (MTBK) and other isomers <2>	100					50/120				NR
Methyl Chloride (no condensation, no coalescence)	Fumes	40/100	65/150	80/180	80/180	80/180	80/180	80/180	80/180	
Methyl Chloroform (also 1,1,1-Trichloroethane inhibited) <2>	100				50/120	50/120		50/120	50/120	NR
Methyl Distearyl Ammonium Chloride / Isopropanol <2>	75:25		50/120	50/120	50/120	50/120		50/120	50/120	NR
Methyl Ethyl Ketone <2>	20				40/100	40/100		40/100	40/100	
Methyl Ethyl Ketone <2>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Methyl Formate <2>	5		45/110	45/110	45/110	50/120		50/120	50/120	
Methyl Isobutyl Ketone (MIBK) <2>	100					50/120				NR
Methyl Mercaptan, (no condensation, no coalescence)	Fumes	40/100	65/150	65/150	65/150	65/150	40/100	65/150	65/150	NR
Methyl Methacrylate <6>	All									
Methyl Sulfate, see Dimethyl Sulfate										
Methyl t-Butyl Ether (MTBE) <2>	100		40/100	40/100	50/120	50/120		50/120	50/120	
Methyl t-Butyl Ether (MTBE) (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Methyl t-Butyl Ether (MTBE) / Fuel C (Fuel C is 50:50 Toluene/ Isooctane) <2>	15:85				50/120	50/120		50/120	50/120	
Methyl t-Butyl Ether (MTBE) / Benzene <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Methylamine <2>	20					40/100				
Methylamine	40	LS	LS	LS	LS	LS	LS	LS	LS	NR
Methylamine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Methyldiethanolamine <2>	20	50/120	65/150	65/150	65/150	80/180	50/120	65/150	65/150	40/100
Methyldiethanolamine <2>	100	40/100	50/120	50/120	50/120	65/150	40/100	50/120	50/120	
Methylene Chloride (Dichloromethane)	100	NR	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	80/180	80/180	80/180	80/180	80/180	
Methylstyrene (alpha)-, see Alpha-Methylstyrene										
Metolachlor (S-Metolachlor)	100		40/100	40/100	40/100	40/100		40/100	40/100	
Mineral Oils, aliphatic (may contain up to 2% aromatics)	100	100/210	100/210	100/210	100/210	120/250	100/210	100/210	100/210	65/150
Mineral Spirits	100	105/220	105/220	105/220	120/250	120/250	105/220	120/250	120/250	
Molasses <18>	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	NR	NR	LS	NR	NR	NR	NR
Morpholine <2>	20				45/110	50/120		50/120	50/120	
Morpholine <2>	100	NR	NR	NR	NR	25/80	NR	NR	NR	NR
Motor Oil	100	100/210	120/250	120/250	120/250	120/250	100/210	120/250	120/250	65/150
Muriatic Acid, see Hydrochloric Acid										
Myristic Acid	100	100/210	120/250	120/250	120/250	120/250	100/210	120/250	120/250	65/150
N-Methyl-2-Pyrrolidone <2>	10	LS			40/100	40/100	LS	40/100		NR
N-Methyl-2-Pyrrolidone	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Naphtha	100	80/180	100/210	100/210	100/210	120/250	80/180	100/210	100/210	80/180
Naphthalene	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Nickel Chloride <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Nickel Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Nickel Plating Solution (Nickel Sulfate, Nickel Chloride, Ammonium Chloride, Boric Acid) <21>	All	100/210	100/210	100/210	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	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
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	90/195	90/195	100/210	100/210	100/210	90/195	100/210	100/210	80/180
Nitric Acid <9>	2-5	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	65/150
Nitric Acid <9>	6-10	65/150	65/150	65/150	65/150	70/160	65/150	65/150	65/150	50/120
Nitric Acid <2,9,13>	11-20	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	50/120
Nitric Acid <2,9,13>	21-29	40/100	50/120	55/130	55/130	55/130	40/100	55/130	55/130	40/100
Nitric Acid <2,9,13>	30-35	30/85	30/85	50/120	50/120	50/120	30/85	40/100	40/100	NR
Nitric Acid <2,9,13>	36-40	NR	NR	NR	NR	40/100	NR		NR	NR
Nitric Acid	50	NR	NR	NR	NR	LS	NR	NR	NR	NR
Nitric Acid	70	NR	NR	NR	NR	LS	NR	NR	NR	NR
Nitric Acid, fumes (no condensation, no coalescence) <2>	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Nitric Acid / Chromic Acid <2,13>	10:5	40/100	50/120	50/120	50/120	65/150	40/100	40/100	40/100	40/100
Nitric Acid / Hydrofluoric Acid <6>										
Nitric Acid / Hydrofluoric Acid <1,2,8,26>	20:6	50/120	50/120	50/120	60/140	60/140	55/130	60/140	60/140	
Nitric Acid / Phosphoric Acid <2,13>	5:5	65/150	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Nitric Acid / Phosphoric Acid <2,13>	24:23	40/100	40/100	40/100	40/100	50/120	40/100	50/120	50/120	40/100
Nitric Acid / Sulfuric Acid <2,12>	5:20	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	65/150
Nitric Acid / Sulfuric Acid <2,12>	20:20	40/100	40/100	40/100	40/100	50/120	40/100	50/120	50/120	40/100
Nitrobenzene <2>	100	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Nitrogen / Methane	All	60/140	80/180	80/180	80/180	95/200	80/180	95/200	95/200	60/140
Nitrophenol <2,11>	All	NR				40/100	NR			NR
Non-condensable Blow-Down Gases, see Flue Gas										
Nonanoyl Chloride <2,7>						40/100				
Nonyl Phenol (Monononyl Phenol) <2>	100		45/110	45/110	45/110	45/110		45/110	45/110	
Octanoic Acid, see Caprylic Acid										
Octanol <2>	100		65/150	65/150	65/150	80/180		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
Octanoyl Chloride <2,7>						40/100				
Oil, lubricating, see Motor Oil										
Oil, see Crude Oil, sweet and sour										
Oleic Acid		100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Oleum (fuming Sulfuric Acid)		NR	NR	NR	NR	LS	NR	NR	NR	NR
Olive Oil <18>	100	100/210	120/250							
Organic Oil (animal, plants), see also the specific oil name; for example Peanut Oil <18>										
Organics (dissolved) / Hydrochloric Acid <2,6,8,9,13>	Traces :<34% HCl	NR	LS	LS	40/100	65/150 <15>	LS	40/100	40/100	NR
Organics / Sodium Hydroxide <6>										
Ortho-Dichlorobenzene, see Dichlorobenzene										
Oxalic Acid <1,18>	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Ozone in solution <6>										
Palladium suspensions in Ammonium Hydroxide, see Ammonium Hydroxide										
Palladium suspensions in Hydrochloric Acid, see Hydrochloric Acid										
Palmitic Acid (n-Hexadecanoic Acid) <18>	100	100/210	120/250	120/250	120/250	120/250	100/210	120/250	120/250	
Paper Mill Effluent, see Sulfite / Sulfate liquors (pulp mill)										
Para-Dichlorobenzene, see Dichlorobenzene										
Paraffin Wax	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Paraffin Wax Chlorinated, see Chlorinated Paraffin Wax										
Peanut Oil <18>	100	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Pentachlorophenol	All									
Pentanedioic Acid, see Glutaric Acid										
Peracetic Acid <1,2,3,6,13>	20		40/100	40/100	40/100	40/100		40/100	40/100	
Peracetic Acid	35	NR	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
Perchloric Acid	5	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Perchloric Acid	10	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Perchloric Acid	30	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Perchloroethylene <2>	100				40/100	50/120		40/100	40/100	NR
Petroleum Ether, see specific alkane hydrocarbon; for example Hexane										
Petroleum, see Crude Oil, sweet and sour										
Phenol (Carbolic Acid) <2>	0-2	LS	40/100	40/100	40/100	50/120	LS	40/100	40/100	NR
Phenol (Carbolic Acid) <2>	5-10	NR	LS	LS	LS	50/120	NR	LS	LS	NR
Phenol (Carbolic Acid) <2>	15	NR	NR	NR	NR	30/85	NR	NR	NR	NR
Phenol (Carbolic Acid)	85-100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Phenol / Phenolic Resin <2>	10:90					50/120				
Phenol / Phenolic Resin	20:80					LS				
Phenol Formaldehyde Resin	All	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	40/100
Phenol Sulfonic Acid <6>	All									
Phenolic Resin / Phenol	80:20					LS				
Phenolic Resin / Phenol <2>	90:10					50/120				
Phenyl Carbinol, see Benzyl Alcohol										
Phosphoric Acid <15>, in case of Hydrofluoric Acid <1>	0.5-85	100/210	100/210	100/210	100/210	105/220	100/210	100/210	100/210	80/180
Phosphoric Acid <15>, in case of Hydrofluoric Acid <1>	85-100	100/210	100/210	100/210	100/210	105/220	100/210	100/210	100/210	80/180
Phosphoric Acid, vapor <6>	Fumes	100/210	120/250	120/250	120/250	120/250	100/210	120/250	120/250	80/180
Phosphoric Acid (Polyphosphoric Acid, Superphosphoric Acid, P2O5) <15>, in case of Hydrofluoric Acid <1>	115	100/210	100/210	100/210	100/210	105/220	100/210	100/210	100/210	80/180
Phosphoric Acid / Gypsum <6,20>, in case of Hydrofluoric Acid <1>	60:40	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid / Hydrochloric Acid, sat'd with Chlorine <6>										
Phosphoric Acid / Magnesium Sulfate	1-36:0-40	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Phosphoric Acid / Nitric Acid <2,13>	5:5	65/150	80/180	80/180	80/180	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
Phosphoric Acid / Nitric Acid <2,13>	23:24	40/100	40/100	40/100	40/100	50/120	40/100	50/120	50/120	40/100
Phosphoric Acid / Sulfuric Acid <2,12,15>	0-25:0-25	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Phosphoric Acid / Zinc Chloride <15>	0-100:0.5-70	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Phosphorous Acid	70	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Phosphorous Acid / Hydrochloric Acid <2,9,12,15>	0-70:1-5	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Phosphorus Oxychloride	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Phosphorus Trichloride	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	100	100/210	100/210	100/210	100/210	120/250	100/210	100/210	100/210	
Picric Acid, alcoholic <2,4>	10	NR	LS	LS	LS	40/100	NR	NR	NR	NR
Pine Oil	100	90/195	90/195	90/195	90/195	100/210	90/195	90/195	90/195	
Piranha solution	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Polyacrylamide	All	80/180	80/180	80/180	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	80/180	80/180	80/180
Polyaluminum Chloride (Poly(aluminum hydroxy)chloride) / Fluosilicic Acid <1,2>	1-35:1-22	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Polyelectrolytes, anionic	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Polyethylene Glycol	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Polyethyleneimine	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Polyphosphoric Acid 115% H <sub>3</sub> PO <sub>4</sub> , see Phosphoric Acid										
Polyvinyl Acetate adhesives and emulsions	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Polyvinyl Alcohol	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Polyvinyl Chloride latex with 35 parts Dioctyl Phthalate	All	50/120	50/120	50/120	50/120	50/120	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	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
Potassium Bromide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Potassium Carbonate <1>	0–50	80/180	80/180	80/180	80/180	65/150	80/180	65/150	80/180	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	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
Potassium Fluoride <1>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Potassium Gold Cyanide	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Potassium Hydroxide <1,2,7>	0.5	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Potassium Hydroxide <1,2,7>	1	80/180	80/180	80/180	70/160	80/180	80/180	80/180	70/160	65/150
Potassium Hydroxide <1,2>	5	80/180	60/140	70/160	40/100	40/100	70/160	40/100	40/100	
Potassium Hydroxide <1,2>	6–45	65/150	40/100	65/150	25/80	25/80	65/150	25/80	25/80	
Potassium Hydroxide <1,2>	50	65/150	LS	65/150	LS	LS	65/150	LS	LS	
Potassium Iodide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
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	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) <7,18>	All	55/130	65/150	65/150	65/150	65/150	55/130	65/150	65/150	55/130
Potassium Silicofluoride <1,7>	All	40/100	40/100	40/100	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

## 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
Propane	100	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Propanol (n-) <2>	100		40/100	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	80/180	80/180	80/180
Propenoic Acid, see Acrylic Acid										
Propionic Acid <6>	100									
Propionyl Chloride	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Propyl Acetate	100	NR	LS	LS	LS	LS	NR	NR	NR	NR
Propyl Bromide	100	NR	LS	LS	LS	LS	NR	LS	LS	NR
Propyl Chloride	100	NR	LS	LS	LS	LS	NR	LS	LS	NR
Propylene Dichloride, see Dichloropropane										
Propylene Glycol	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Propylene Glycol Monomethyl Ether (1-Methoxy-2-Propanol) <2>	100	NR	LS	LS	LS	LS	NR	NR	NR	NR
Propylene Glycol Monomethyl Ether Acetate <2,11>	20		40/100	40/100	50/120	50/120		40/100	50/120	
Propylene Glycol Monomethyl Ether Acetate <2>	100	NR	LS	LS	LS	LS	NR	NR	NR	NR
Propylene Oxide	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
Propylene Oxide (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Pulp Paper Mill Blow Down (non-condensable gases), see Blow Down										
Pyridine <2>	20					40/100				NR
Pyridine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Quaternary Amine Salts	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Quaternary Ammonium Salts	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Quinoline	100	NR	NR	NR	NR	LS	NR	NR	NR	
Rayon Spin Bath <6>										
Rayon Spinning Fumes (no condensation, no coalescence) <6>	All									
Recovery Boiler Gases, see Flue Gas										
Salicylic Acid	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	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
Salt Brine, see Brine, salt	%									
Scrubbing Low MW Amines with 10% Sulfuric Acid, see Amine Salts										
Sea Water		100/210	100/210	105/220	100/210 <24>	100/210 <24>	100/210	100/210	100/210	80/180
Selenious Acid <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sewage Gas, see Hydrogen Sulfide										
Silver Cyanide <21>	All	100/210	100/210	100/210	100/210	100/210	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	80/180	80/180	80/180	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 Alkyl Aryl Sulfonates	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Sodium Alkyl Xanthate	All	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	
Sodium Aluminate <1,2>	All	70/160	50/120	70/160	50/120	50/120	70/160	50/120	70/160	50/120
Sodium Benzoate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Bicarbonate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Bicarbonate / Sodium Carbonate <1>	15:20	80/180	80/180	80/180	80/180	65/150	80/180	65/150	80/180	80/180
Sodium Bichromate, see Sodium Dichromate										
Sodium Bifluoride <1>	All	50/120	50/120	50/120	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	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

## 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 Bromate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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
Sodium Carbonate / Sodium Bicarbonate <1>	20:15	80/180	80/180	80/180	80/180	65/150	80/180	65/150	80/180	80/180
Sodium Chlorate / Sodium Chloride, stable <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	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 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 / 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 Chloride saturated solution, see Brine, salt										
Sodium Chloride with Chlorine, see Brine, chlorinated										
Sodium Chlorite, stable, <5,21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sodium Chromate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Cyanide <21>	All	100/210	100/210	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	NR	NR	LS	NR	NR	NR	
Sodium Dimethyldithiocarbamate / Disodium Ethylene Bisdithiocarbamate	0.1–15:0.1–15	40/100	40/100	40/100	40/100	50/120	40/100	50/120	50/120	40/100
Sodium Diphosphate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Dodecylbenzenesulfonate	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Sodium Ferricyanide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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
Sodium Ferrocyanide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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	95/200	95/200	95/200	95/200	95/200	
Sodium Fluorosilicate <1,2,8,26>	All	65/150	65/150	65/150	65/150	80/180	60/140	60/140	60/140	50/120
Sodium Gluconate <21>	All	80/180	95/200	95/200	95/200	100/210 <24>	95/200	100/210	100/210	65/150
Sodium Glycolate <21>	All	80/180	95/200	95/200	95/200	100/210 <24>	80/180	95/200	95/200	65/150
Sodium Hexametaphosphate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Hydrosulfide (Sodium Bisulfide)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Hydrosulfite	All	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Sodium Hydroxide <1,2,7>	<1	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Sodium Hydroxide <1,2,7>	1-2	80/180	80/180	80/180	70/160	80/180	80/180	80/180	70/160	65/150
Sodium Hydroxide <1,2>	3-5	80/180	60/140	70/160		40/100	70/160	40/100		
Sodium Hydroxide <1,2>	6-10	65/150	25/80	60/140			65/150			
Sodium Hydroxide <1,2>	11-25	65/150	25/80	50/120			65/150			
Sodium Hydroxide <1,2>	26-50	80/180	65/150	65/150			80/180			
Sodium Hydroxide / Organics <6>										
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9,19>	0.5-6	65/150	50/120	65/150	50/120	40/100	65/150	40/100	50/120	65/150
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9,19>	7-17	50/120	40/100	50/120			510A/B: 65/150 510C: 50/120			
Sodium Hypochlorite (stable, alkaline pH > 11) <2,3,5,9>	18-25						510A: 40/100			
Sodium Lauryl Sulfate	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Sodium Metabisulfite <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Metabisulfite / Chromic Acid <2,6,7>	45:15	50/120	50/120	50/120	50/120	65/150	50/120	65/150	50/120	50/120
Sodium Methylthiocarbamate	All	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
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	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	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Oxalate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Perchlorate	60	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100	40/100
Sodium Persulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Phosphate, mono-, di-, tribasic <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Polyacrylate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Sodium Salt / Dalapon (2,2-Dichloropropionic Acid and Sodium Salt) <2>	100	NR				40/100	NR			NR
Sodium Salt / Diethylene Triamine Pentaacetic Acid	40	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	
Sodium Salt / Ethylenesulfonic Acid	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Sodium Salt o-Phenylphenate, antimicrobial <18>	All	50/120	50/120	50/120	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
Sodium Sulfate / Sodium Sulfite <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Sulfhydrate, see Sodium Hydrosulfide										
Sodium Sulfide <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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

## 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 Sulfite / Sodium Sulfate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Sodium Tartrate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	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	95/200	80/180	95/200	95/200	80/180
Sodium Thiosulfate	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sodium Tridecylbenzene Sulfonate	All	70/160	70/160	70/160	70/160	70/160	70/160	70/160	70/160	
Sodium Tripolyphosphate <18,21>	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	70/160	70/160	70/160	70/160	70/160	70/160	
Solvent Extraction Solutions (3% Isodecanol, 6% Amines tri-C8-C10-alkyl, 91% Kerosene)		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Solvent Extraction Solutions (4% Trioctylphosphine Oxide (TOPO), 4% Di(2-ethylhexylphosphoric Acid (DEHPA), 92% Kerosene)		80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	65/150
Sorbitol Solutions <18>	All	70/160	70/160	70/160	70/160	80/180	70/160	70/160	70/160	
Sour Crude Oil, see Crude Oil										
Soy (Soya) Sauce <18>		70/160	70/160							
Soybean Oil <18>	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Soybean Oil, epoxidized (ESO) <23>	100	50/120	65/150	65/150	100/210	100/210	50/120	65/150	65/150	
Spearmint Oil <18>	100	40/100	40/100							
Stannic Chloride <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
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	95/200	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

## 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
Styrene <2>	100	NR	40/100	40/100	50/120	50/120	NR	50/120	50/120	NR
Styrene Acrylic Emulsion	All	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	
Styrene-Butadiene Latex	All	50/120	60/140	60/140	60/140	60/140	50/120	60/140	60/140	60/140
Succinonitrile, aqueous <2>	All									
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	80/180	
Sugar Cane, liquor and sweetwater <18>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Sulfamic Acid	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
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 non-condensable gases, see Flue Gas										
Sulfate Salts / Sulfuric Acid (maximum total concentration 80%), see Sulfuric Acid										
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	105/220	95/200	105/220	105/220	80/180
Sulfonated Detergents <6,14>	100	70/160	80/180	80/180	80/180	80/180	70/160	80/180	80/180	70/160
Sulfur (mono-,di-, tetra-) Chloride	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Sulfur (mono-,di-, tetra-) Chloride (no condensation, no coalescence)	Fumes	95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	80/180
Sulfur Dioxide, see Flue Gas										
Sulfur Trioxide, wet, see Sulfuric Acid <6>										
Sulfur Trioxide, dry (no condensation, no coalescence) <6>	Fumes	165/325	175/350	175/350	175/350	205/400	160/320	160/320	160/320	
Sulfur, molten (traces of Hydrogen Sulfide, Sulfur Dioxide, Sulfur Trioxide, Water)	100	NR	NR	NR	NR	LS	NR	NR	NR	
Sulfur, molten, dry <16>	100		120/250	120/250	120/250	150/300		120/250	120/250	
Sulfur, wettable, fungicide <4>	All	80/180	80/180	80/180	80/180	80/180	80/180	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
Sulfuric Acid <13>	0.5–25	100/210	105/220	105/220	105/220	105/220	100/210	105/220	105/220	80/180
Sulfuric Acid <13>	26–50	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid <13,15>	51–70	80/180	80/180	80/180	80/180	90/195	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	40/100	40/100	50/120	40/100	40/100	40/100	
Sulfuric Acid	>80	NR	NR	NR	NR	LS	NR	LS	NR	NR
Sulfuric Acid vapor, see Sulfuric Acid for the condensates <6>										
Sulfuric Acid / Acetic Acid	10:20	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Sulfuric Acid / Ammonium Bifluoride <1,2>	0–75:0.1–3	40/100	50/120	50/120	50/120	65/150	40/100	50/120	50/120	
Sulfuric Acid / Benzenesulfonic Acid / balance Water	7:88	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	
Sulfuric Acid / Chromic Acid <2,12>	20:20	NR	NR	NR	NR	LS	NR	NR	NR	
Sulfuric Acid / Chromic Acid mixture (maximum total concentration 10%) <2,12>	10	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	50/120
Sulfuric Acid / Copper Salts, see Sulfuric Acid										
Sulfuric Acid / Ethylene Glycol	0–10:0–40	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Sulfuric Acid / Ferric Sulfate <13>	0–25:0–40	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid / Ferrous Sulfate <13>	0–25:0–40	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid / Hydrochloric Acid <2,8,9,13,15>	1–25:1–10	80/180	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid / Hydrochloric Acid <2,8,9,13,15>	50:15	40/100	45/110	45/110	45/110	50/120	40/100	50/120	50/120	
Sulfuric Acid / Hydrochloric Acid, iron and steel cleaning bath <2,8,9,13>	23:9	80/180	95/200	95/200	100/210	100/210	95/200	95/200	100/210	
Sulfuric Acid / Hydrofluoric Acid <1,2,8,26>	1–20:3–6	55/130	55/130	55/130	55/130	60/140	55/130	60/140	60/140	
Sulfuric Acid / Hydrofluoric Acid <1,2,8,26>	10:10	40/100	50/120	50/120	50/120	65/150	40/100	40/100	40/100	
Sulfuric Acid / Hydrofluoric Acid <1,2,8,26>	25:10	40/100	45/110	45/110	45/110	50/120	40/100	40/100	40/100	
Sulfuric Acid / Hydrogen Peroxide <6>										
Sulfuric Acid / Hydrogen Sulfide <13>	1–50:0–10	80/180	80/180	80/180	80/180	90/195	80/180	80/180	80/180	80/180
Sulfuric Acid / Hydroiodic Acid <2,12>	60:20	40/100	40/100	40/100	40/100	50/120	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
Sulfuric Acid / Inorganic Salts; no reaction <13>	0.5–20:0.5–50	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Sulfuric Acid / Inorganic Salts; no reaction <13>	21–50:0.5–20	80/180	80/180	80/180	80/180	90/195	80/180	80/180	80/180	80/180
Sulfuric Acid / Methanol <2,12>	30:5	LS	40/100	40/100	40/100	50/120	LS	40/100	40/100	LS
Sulfuric Acid / Nitric Acid <2,12>	20:5	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	65/150
Sulfuric Acid / Nitric Acid <2,12>	20:20	40/100	40/100	40/100	40/100	50/120	40/100	50/120	50/120	40/100
Sulfuric Acid / Phosphoric Acid <2,12,15>	0–25:0–25	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Sulfuric Acid / Sodium Dichromate	up to 30 : up to 3	NR	NR	NR	NR	LS	NR	NR	NR	
Sulfuric Acid / Sodium Dichromate, see also Sulfuric Acid / Chromic Acid mixture										
Sulfuric Acid / Sulfate Salts (maximum total concentration 80%), see Sulfuric Acid										
Sulfuric Acid / Tallow <18>	1:99	80/180	80/180							
Sulfurous Acid <25>	10	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120	50/120
Superphosphoric Acid (76% P <sub>2</sub> O <sub>5</sub> ), see Phosphoric Acid										
Surfactant, see specific chemical name <6,14>										
Syrup (Glucose) / Corn Sugar <18>	All	80/180	80/180							
Tall Oil	100	100/210	105/220	105/220	105/220	105/220	100/210	105/220	105/220	
Tallow / Sulfuric Acid <18>	99:1	80/180	80/180							
Tannic Acid <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	65/150
Tap Water, soft <2, 22>	All	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Tap Water, hard <2, 22>	All	100/210	100/210	105/220	100/210	100/210	100/210	100/210	100/210	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
Tetra-n-Butylammonium Hydroxide <1,2>	40		40/100	40/100	40/100					
Tetra-n-Butylphosphonium Hydroxide <1,2>	40		40/100	40/100	40/100					
Tetrabutyltin <2>	100		50/120	50/120	50/120	50/120		50/120	50/120	
Tetrachloroethane <2>	100				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
Tetrachloroethylene, see Perchloroethylene	100									
Tetrachloropyridine <2>	100	40/100	50/120	50/120	50/120	50/120	LS	50/120	50/120	NR
Tetraethyl Orthosilicate	100		40/100	40/100	40/100	40/100		40/100	40/100	
Tetrahydrofuran <2>	0-5	40/100	40/100	40/100	40/100	50/120		50/120	50/120	
Tetrahydrofuran	10-100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Tetrahydrofuran (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Tetramethyl Ammonium Hydroxide <1,2>	0-10		40/100	40/100	40/100					
Tetrasodium Ethylenediaminetetraacetic Acid (Tetrasodium salt of EDTA)	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Tetrasodium Pyrophosphate (Sodium Pyrophosphate) <7,18>	All	55/130	65/150	65/150	65/150	65/150	55/130	65/150	65/150	55/130
Thermal Oxidizer (HCl Absorption), see Flue Gas, wet										
Thioglycolic Acid, see Mercaptoacetic Acid										
Thionyl Chloride	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Thiourea	0-50	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150	65/150
Tin Fluoborate Plating Solution (18% Stannous Fluoborate, 7% Tin, 9% Fluoboric Acid, 2% Boric Acid) <1>		100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Titanium Dioxide	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Titanium Tetrachloride <9,13>	All	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	
Tobias Acid (2-Naphthylamine-1-Sulfonic Acid)	> 0.5	80/180	100/210	100/210	100/210	100/210	80/180	100/210	100/210	
Toluene <2>	100	NR	40/100	40/100	50/120	50/120	NR	50/120	50/120	NR
Toluene (no condensation, no coalescence)	Fumes	65/150	80/180	80/180	80/180	80/180	65/150	80/180	80/180	
Toluene / Acetone	50:50	NR	NR	NR	NR	LS	NR	NR	NR	
Toluene / Ethylbenzene/ Benzene / Trimethylbenzene / Xylene / BTX <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Toluene Diisocyanate (TDI) <2,6,23>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Toluene, Isooctane (Fuel C 50:50)	100				50/120	50/120		50/120	50/120	
Toluene, Isooctane (Fuel C 50:50) / Methyl t-Butyl Ether (MTBE) <2>	85:15				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
Toluenesulfonic Acid <6,21>	All	80/180	95/200	95/200	100/210	100/210	80/180	100/210	100/210	
Toluidine (o-, p-, m-)	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Tomato Sauce <18>	All	90/195	90/195							
Transformer Oils, ester types	100	50/120	65/150	65/150	65/150	65/150	50/120	65/150	65/150	
Transformer Oils, Silicone and Mineral Oils <16>	100	100/210	120/250	120/250	120/250	150/300	110/230	120/250	120/250	
Tributyl Phosphate <2,6,7>	100					60/140				
Trichloroacetic Acid <2>	50		40/100	40/100	40/100	40/100		40/100	40/100	
Trichloroacetic Acid	85				LS	LS				
Trichlorobenzene <2,6>	100	NR				LS	NR			NR
Trichloroethane <2>	100				50/120	50/120	NR	50/120	50/120	NR
Trichloroethylene	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Tricresyl Phosphate	100		70/160	70/160	70/160	70/160		70/160	70/160	
Triethanolamine <2>	100	40/100	50/120	50/120	65/150	65/150	40/100	65/150	65/150	NR
Triethylamine	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Triethylene Glycol, see Ethylene Glycol										
Trifluoroacetic Acid <2>	1-25		50/120	50/120	50/120	50/120		50/120	50/120	
Trifluoroacetic Acid <2>	26-50		40/100	40/100	40/100	40/100		40/100	40/100	
Trifluoroacetic Acid	51-85				LS	LS				
Trifluoroacetic Acid	86-100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Trihydroxybenzoic Acid, see Gallic Acid										
Trimethyl Carbinol, see Butyl Alcohol										
Trimethylamine <2>	20					40/100 <7>				NR
Trimethylamine <2>	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Trimethylamine (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Trimethylamine Hydrochloride (pH 3-4)	100	55/130	55/130	55/130	55/130	55/130	55/130	55/130	55/130	
Trimethylammonium Chloride (Trimethylamine HCl, TMA-HCl) <2>	70		40/100	40/100	40/100	50/120 <7>		40/100	40/100	
Trimethylbenzene <2>	100	NR	40/100	40/100	50/120	50/120	NR	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
Trimethylbenzene / Toluene / Ethylbenzene / Benzene / Xylene / BTX <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR
Trimethylene Chlorobromide <2>	100	NR				40/100	NR			NR
Trioctyl Phosphate <2,6,7>	100					60/140				
Triphenyl Phosphite	100				40/100	40/100				
Tripropylene Glycol, see Propylene Glycol										
Trisodium Phosphate <21>	All	100/210	100/210	100/210	100/210	100/210 <24>	100/210	100/210	100/210	80/180
Turpentine	100	65/150	80/180	80/180	80/180	100/210	65/150	80/180	80/180	
Turpentine, crude sulfate	100	65/150	80/180	80/180	80/180	100/210	65/150	80/180	80/180	
Turpentine, pure gum	100	65/150	80/180	80/180	80/180	100/210	65/150	80/180	80/180	
Undecanoyl chloride <2,7>						40/100				
Uranium Extraction <6>										
Urea	All	80/180	80/180	80/180	50/120	50/120	80/180	50/120	50/120	50/120
Urea Formaldehyde Resin	All	40/100	50/120	50/120	50/120	50/120	40/100	50/120	50/120	40/100
Urine, see Urea										
Urotropine, see Hexamethylenetetramine										
Vanillin Black Liquor <18>		50/120	50/120							
Vinasse <18>	100	80/180	80/180							
Vinegar <18>	100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	65/150
Vinyl Acetate	100	NR	NR	NR	NR	LS	NR	NR	NR	NR
Vinyl Chloride (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Vinyl Chloride	liquified gas	NR	NR	NR	NR	LS	NR	NR	NR	NR
Vinyl Toluene <2>	100					40/100				
Water, tap, hard <2,22>	All	100/210	100/210	105/220	105/220	100/210	100/210	100/210	105/220	80/180
Water, tap, soft <2,22>	All	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180
Water, deionized - DI Water <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

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	°C/°F
Water, steam condensate, see also Steam <2>	100	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Water Vapor, wet <2,6>	All	80/180	80/180	95/200	80/180	80/180	80/180	80/180	80/180	80/180	80/180
Water Vapor, containing gases (no condensation, no coalescence), see Flue Gas, dry											
Water / Phenol, see Phenol											
Whey <18>	All	65/150	65/150								
White Liquor (pulp mill) <1,2>	All	80/180	65/150	80/180	65/150	40/100	80/180	40/100	65/150	80/180	
White Spirit, see Mineral Spirits											
Xylene <2>	100	NR	40/100	40/100	50/120	50/120	NR	50/120	50/120	50/120	NR
Xylene (no condensation, no coalescence)	Fumes	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	
Xylene / Benzene / Ethylbenzene / Trimethylbenzene / Toluene / BTX <2>	All	NR	NR	NR	40/100	40/100	NR	NR	LS	NR	
Zinc Chloride <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Zinc Chloride / Fluosilicic Acid <1,2>	All:20	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140	60/140
Zinc Chloride / Phosphoric Acid <15>	0.5-70:0-100	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Zinc Cyanide Plating Solution (9% Zinc Cyanide, 4% Sodium Cyanide, 9% Sodium Hydroxide) <1,2>		65/150	25/80	60/140			65/150				
Zinc Electrolyte (Zinc Sulfate, 35g/l Sulfuric Acid), see Sulfuric Acid											
Zinc Fluoborate <1>	50	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	
Zinc Fluoborate Plating Bath, 49% Zinc Fluoborate; 5% Ammonium Chloride, 6% Ammonium Fluoborate <1>		95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	95/200	80/180
Zinc Nitrate <21>	All	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	100/210	80/180
Zinc Phosphate, slurry <20>	All	80/180	80/180	80/180	80/180	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	100/210	100/210	100/210	100/210	80/180
Zinc Sulfite, slurry <20>	All	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	80/180	



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