RECOMMENDED USE DEFINITIONS

IMMERSION SERVICE (Most Severe) – IS
Suitable for continuous contact with chemical exposure up to specified temperature.

CARGO/TEMPORARY IMMERSION – CI
Suitable for 60 day continuous contact with chemical exposure up to specified temperature. Coating will show no effect except slight softening or color change, possibly permanent, after 60 days or less continuous immersion. When used in transport or hauling conditions, the vessel must be completely drained to prevent puddling that would constitute continuous immersion.

SECONDARY CONTAINMENT – SC
Suitable for continuous contact with chemical for up to 72 hours. Softening or discoloration may occur during the exposure.

FREQUENT CONTACT – FC
Suitable for frequent splash or up to 72 hours exposure to concentrated vapors. The coating will show no effects except slight softening or color change, possibly permanent, after eight hours continuous immersion in the liquid chemical or 72 hours exposure to the vapor.

OCCASIONAL CONTACT (Least Severe) – OC
Suitable for occasional splash and spillage or occasional exposure to concentrated vapors. The coating shows no effects, except slight softening or color changes, following short exposure to splash or spillage which evaporates, is hosed off, or dried overnight or, 24 hours exposure to vapor.

NOT TESTED – This chemical has not been tested or evaluated for the listed chemical.

NOT RECOMMENDED – This product is not recommended for the listed exposure. The product's resistance to the listed chemical is often queried, therefore this information is provided as a reference even though the product is not recommended.

IMPORTANT NOTES

The term "chemicals" is used broadly in this guide and can refer to various constituents including, but not limited to, acids, fatty acids, food and beverage materials, finished and unrefined hydrocarbons, as well as individual chemicals and chemical blends.

Temperature can have a significant effect on a coating's chemical resistance. Prior to coating selection, due care should be taken to determine the service temperature of stored chemicals, elevated temperature caused by natural environmental conditions (i.e. radiant heat from sun, weather), and temperature fluctuations during service (i.e. loading of cargo, service cycling).

Chemical mixtures and alternating chemical storage can aggressively degrade a coating or lining system. Prior to coating selection and application, the expected chemical exposures and sequence of chemical storage should be discussed with Tnemec Technical Service to ensure the proper coating is selected.

Proper surface preparation is always important to ensure optimum coating performance but it is even more so for coatings that will undergo chemical exposure. Carefully read product data sheets along with related application guides to determine the required level of surface preparation and surface profile.

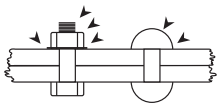
Structural designs of tanks, structures, and containment areas can greatly affect coating performance. Sharp angles, channels, edges, corners, pits, voids, defects, rough welds, and other similar conditions present areas that are either difficult to coat or achieve the required film thickness. Avoid skip welds in favor of continuous welds. A stripe coat on these areas, prior to full coating application, can help achieve needed film thickness and prevent premature coating failure. (Reference NACE SP0178-2007 for more information.)

The length of a coating system's service life depends on surface cleanliness and preparation prior to application, proper application procedures, exposure conditions, physical abuse, cleaning techniques, and frequency of inspection, maintenance, and repair. No coating system has an unlimited service life. Regular inspection of the coating system can prolong service life by identifying areas in need of repair. Additionally, regular inspections can determine when the coating system is nearing its end of service and should be completely replaced.

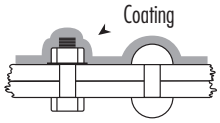
Chemical resistance information is provided for the purpose of establishing a general profile of the coating and was obtained through laboratory testing, field experience, and industry knowledge. Test results were produced in a controlled environment and Tnemec makes no claim that any tests, or published chemical resistance information, accurately represent all environments or correlate to actual field performance. Application, environmental and design factors, chemical temperatures, chemical mixtures, sequence of storage, conditions of service, and cleaning procedures can significantly impact coating performance, so due care must be exercised in the selection and use of the coating. Tnemec disclaims responsibility for product use outside its published information. Contact Tnemec Technical Service to review full project details before the coating or coating system is selected and applied.

COMMON PROBLEM AREAS FOR COATINGS AND SOLUTIONS

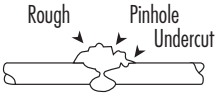
Problem: Points of failure due to thin spots in coating



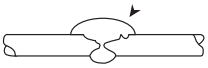
Solution: Carefully and fully coat



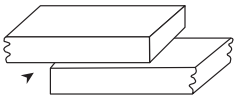
Problem: Uneven welds



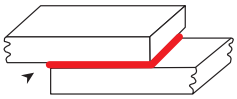
Solution: Grind smooth



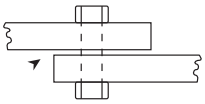
Problem: Gaps between plates, coating can not cover



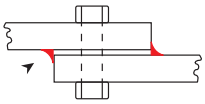
Solution: Continuous welds



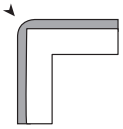
Problem: Gaps between plates, coating can not cover



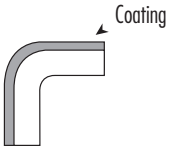
Solution: Continuous welds



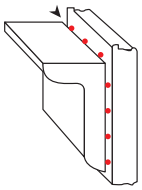
Problem: Sharp surface contours create thin spots in coating



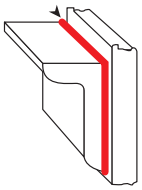
Solution: Round the contours



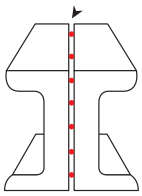
Problem: Skip welding creates gaps that coating can not cover



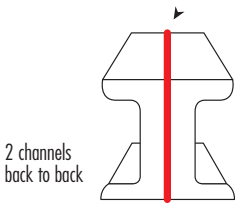
Solution: Continuous welds



Problem: Skip welding creates gaps that coating can not cover



Solution: Continuous welds



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	Intended Use (Maximum Temperature Listed)				
Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
1, 1, 1-Trichloroethane (Trichloroethane)	NR	NR	NR	NR	NR
Acetaldehyde	NR	NR	NR	NR	NR
Acetic Acid					
5%	NR	NR	NR	NR	NR
10%	NR	NR	NR	NR	NR
30%	NR	NR	NR	NR	NR
Acetic Acid, Glacial	NR	NR	NR	NR	NR
Acetic Anhydride	NR	NR	NR	NR	NR
Acetone	NR	NR	NR	NR	NR
Acetonitrile	NR	NR	NR	NR	NR
Acrylic Acid					
25%	NR	NR	NR	NR	NR
Acrylic Latex Solution	NR	NR	NR	NR	NR
Acrylonitrile					
100%	NR	NR	NR	NR	NR
Activated Carbon	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Adipic Acid (Dry)	100°F (38°C)	100°F (38°C)			
Allyl Chloride	NR	NR	NR	NR	NR
Aluminum Chloride					
25%	NR	NR	NR	NR	NR
50%	NR	NR	NR	NR	NR
Aluminum Hydroxide	NR	NR	NR	NR	NR
Aluminum Nitrate					
50%	NR	NR	NR	NR	NR
Aluminum Sulfate (Alum)					
49%	NR	NR	NR	NR	NR
Ammonium Bisulfite	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Ammonium Carbonate	NR	NR	NR	NR	NR
Ammonium Chloride					
50%	NR	NR	NR	NR	NR
Ammonium Fluoride	NR	NR	NR	NR	NR
Ammonium Hydroxide					
5%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
10%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
20%	PC	PC	PC	PC	PC
30%	PC	PC	PC	PC	PC
Ammonium Lauryl Sulfate					
30%	NR	NR	NR	NR	NR
Ammonium Nitrate					
10%	NR	NR	NR	NR	NR
20%	NR	NR	NR	NR	NR
38%	NR	NR	NR	NR	NR
50%	NR	NR	NR	NR	NR
Ammonium Nitrite					
50%	NR	NR	NR	NR	NR
Ammonium Perchlorate (Dry)	NR	NR	NR	NR	NR
Ammonium Persulfate					
10%	PC	PC	PC	PC	PC
Ammonium Phosphate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ammonium Sulfate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ammonium Sulfide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ammonium Sulfite	PC	PC	PC	PC	PC
Amyl Acetate	NR	NR	NR	NR	NR
Aniline					
20%	NR	NR	NR	NR	NR

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Animal Fats	PC	PC	PC	PC	PC
Aqua Ammonia	PC	PC	PC	PC	PC
Aqua Regia	NR	NR	NR	NR	NR
Aviation Gas	NR	NR	NR	NR	NR
Barium Chloride					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Barium Hydroxide					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Barium Nitrate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Barium Sulfate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Barium Sulfide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Beer (non-food contact) [1]	NR	NR	NR	NR	NR
Benzene	100°F (38°C)				
Benzene Sulfonic Acid	NR	NR	NR	NR	NR
Benzoic Acid	NR	NR	NR	NR	NR
Benzoyl Chloride	NR	NR	NR	NR	NR
Benzyl Alcohol	NR	NR	NR	NR	NR
Benzyl Chloride	NR	NR	NR	NR	NR
Borax	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Boric Acid					
1%	NR	NR	NR	NR	NR
3%	NR	NR	NR	NR	NR
5%	NR	NR	NR	NR	NR
Butyl Acrylate	NR	NR	NR	NR	NR
Butyl Amine	NR	NR	NR	NR	NR
Butyric Acid	NR	NR	NR	NR	NR
Cadmium Bromide					
10%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)

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Cadmium Chloride					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Cadmium Plating (Cyanide)	NR	NR	NR	NR	NR
Calcium Bisulfate	NR	NR	NR	NR	NR
Calcium Bromide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Carbonate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Chloride					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Hydroxide (Lime Slurry)					
10%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
30%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Hypochlorite					
5%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Nitrate	NR	NR	NR	NR	NR
Calcium Nitrite	100°F (38°C)				
Calcium Oxide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Sulfate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Calcium Sulfite	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Caprolactam	PC	PC	PC	PC	PC
Carbon Disulfide	PC	PC	PC	PC	PC
Carbon Tetrachloride	NR	NR	NR	NR	NR
Castor Oil	PC	PC	PC	PC	PC
Chlorine Dioxide	PC	PC	PC	PC	PC
Chlorobenzene	100°F (38°C)				
Chloroform	NR	NR	NR	NR	NR
Chlorosulfonic Acid	NR	NR	NR	NR	NR
Chromic Acid					

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
10%	100°F (38°C)				
20%	NR	NR	NR	NR	NR
Citric Acid	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Coal (high and low sulfur)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Cola (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Copper Acetate					
50%	PC	PC	PC	PC	PC
Copper Chloride	NR	NR	NR	NR	NR
Copper Sulfate					
10%	NR	NR	NR	NR	NR
20%	NR	NR	NR	NR	NR
50%	NR	NR	NR	NR	NR
Copper Sulfate (dry)	NR	NR	NR	NR	NR
Corn Mash Solution (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Corn Oil (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Cottonseed Oil (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Cresylic Acid	NR	NR	NR	NR	NR
Crude Oil (Sour)	PC	PC	PC	PC	PC
Crude Oil (Sweet)	PC	PC	PC	PC	PC
Cumene Hydroperoxide	NR	NR	NR	NR	NR
Cuprous Chloride	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Cyclohexane	NR	NR	NR	NR	NR
Cyclohexanol	NR	NR	NR	NR	NR
Cyclohexanone	NR	NR	NR	NR	NR
Cyclohexlamine	NR	NR	NR	NR	NR
Dextrose	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Diacetone Alcohol	NR	NR	NR	NR	NR
Dibutyl Phthalate	NR	NR	NR	NR	NR

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Diesel Fuel (Fuel Oil, Diesel Oil)	PC	PC	PC	PC	PC
Diethanolamine	NR	NR	NR	NR	NR
Diethylene Glycol	NR	NR	NR	NR	NR
Diethylene Glycol Monobutyl Ether (Butyl "Carbitol")	100°F (38°C)	100°F (38°C)			
Diethylenetriamine	NR	NR	NR	NR	NR
Dimethyl Formamide	NR	NR	NR	NR	NR
Dimethyl Sulfoxide					
20%	NR	NR	NR	NR	NR
Dioctyl Phthalate	100°F (38°C)	100°F (38°C)	100°F (38°C)		
Dipropylene Glycol	100°F (38°C)	100°F (38°C)			
Dodecyl Alcohol (Lauryl Alcohol)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ethanol (Ethyl Alcohol, Denatured Alcohol)	PC	PC	PC	PC	PC
Ethanolamine	100°F (38°C)	100°F (38°C)	100°F (38°C)		
Ethyl Acetate	NR	NR	NR	NR	NR
Ethyl Benzene	100°F (38°C)	100°F (38°C)			
Ethylamine					
20%	NR	NR	NR	NR	NR
Ethylene Glycol	100°F (38°C)	100°F (38°C)			
Ethylene Glycol Monobutyl Ether (Butyl "Cellosolve")	NR	NR	NR	NR	NR
Ethylenediamine					
20%	NR	NR	NR	NR	NR
Fatty Acids (Greater than C6)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ferric Nitrate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ferric Sulfate					
20%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Ferrous Chloride	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Fluorosilicic Acid (Hydrofluorosilicic Acid)					
10%	NR	NR	NR	NR	NR
Formaldehyde					
37%	NR	NR	NR	NR	NR
Formic Acid					
10%	NR	NR	NR	NR	NR
Fructose (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Furan	NR	NR	NR	NR	NR
Furfural					
10%	NR	NR	NR	NR	NR
Furfuryl Alcohol	NR	NR	NR	NR	NR
Gasoline (Unleaded)	100°F (38°C)	100°F (38°C)			
Glucose (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Glycerin	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Glycolic Acid					
70%	NR	NR	NR	NR	NR
Gold Plating Solution	NR	NR	NR	NR	NR
Grape Juice	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Guar Gum (non-food contact) [1]	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Heptane	PC	PC	PC	PC	PC
Hexane	PC	PC	PC	PC	PC
Hexanol	100°F (38°C)				
Hydraulic Fluid (Hydraulic Oil)	PC	PC	PC	PC	PC
Hydrochloric Acid					
5%	100°F (38°C)	100°F (38°C)			
10%	100°F (38°C)	100°F (38°C)			

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	Intended Use (Maximum Temperature Listed)				
Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
15%	100°F (38°C)	100°F (38°C)			
20%	100°F (38°C)	100°F (38°C)			
28%	100°F (38°C)	100°F (38°C)			
37%	100°F (38°C)	100°F (38°C)			
Hydrofluoric Acid					
10%	NR	NR	NR	NR	NR
20%	NR	NR	NR	NR	NR
Hydrofluoroboric Acid					
62%	NR	NR	NR	NR	NR
Hydrogen Peroxide	100°F (38°C)	100°F (38°C)			
Hydrogen Sulfide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Iodine					
5%	100°F (38°C)				
Isobutyl Acetate	NR	NR	NR	NR	NR
Isobutyl Alcohol	PC	PC	PC	PC	PC
Isopropyl Acetate	NR	NR	NR	NR	NR
Isopropyl Alcohol	NR	NR	NR	NR	NR
Jet A Fuel	PC	PC	PC	PC	PC
JP-4 Aviation Fuel	PC	PC	PC	PC	PC
JP-5 Aviation Fuel	PC	PC	PC	PC	PC
Kaolin	PC	PC	PC	PC	PC
Kerosene	PC	PC	PC	PC	PC
Lactic Acid					
2%	PC	PC	PC	PC	PC
10%	PC	PC	PC	PC	PC
85%	NR	NR	NR	NR	NR
Lauric Acid	PC	PC	PC	PC	PC
Lauryl Chloride	100°F (38°C)	100°F (38°C)			

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Lead Acetate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Levulinic Acid	NR	NR	NR	NR	NR
Linseed Oil	PC	PC	PC	PC	PC
Lithium Bromide	PC	PC	PC	PC	PC
Lithium Chloride	PC	PC	PC	PC	PC
Lithium Hydroxide (saturated)	100°F (38°C)	100°F (38°C)			
Lubricating Oil (SAE 5W-40, et al) (Motor Oil)	PC	PC	PC	PC	PC
Magnesium Bisulfite	100°F (38°C)	100°F (38°C)			
Magnesium Chloride					
50%	100°F (38°C)	100°F (38°C)			
Magnesium Hydroxide					
50%	100°F (38°C)	100°F (38°C)			
Magnesium Sulfate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Maleic Acid	100°F (38°C)	100°F (38°C)			
Maleic Anhyride	100°F (38°C)	100°F (38°C)			
Mercuric Chloride	100°F (38°C)	100°F (38°C)			
Mercury	NR	NR	NR	NR	NR
Methacrylic Acid	NR	NR	NR	NR	NR
Methane Gas	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Methanol (Methyl Alcohol)	100°F (38°C)	100°F (38°C)			
Methyl Acetate					
20%	NR	NR	NR	NR	NR
Methyl Acrylate	100°F (38°C)	100°F (38°C)			
Methyl Amyl Ketone	NR	NR	NR	NR	NR
Methyl Ethyl Ketone	NR	NR	NR	NR	NR
Methyl Isobutyl Chloride	NR	NR	NR	NR	NR
Methyl Isobutyl Ketone	NR	NR	NR	NR	NR

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Methyl Methacrylate	NR	NR	NR	NR	NR
Methyl Propyl Ketone	NR	NR	NR	NR	NR
Methyl tert-Butyl Ether (MTBE)	NR	NR	NR	NR	NR
Methylene Chloride	NR	NR	NR	NR	NR
Milk (non-food contact) [1]	PC	PC	PC	PC	PC
Mineral Oil	PC	PC	PC	PC	PC
Mineral Spirits	NR	NR	NR	NR	NR
Molasses (non-food contact) [1]	NR	NR	NR	NR	NR
Morpholine	NR	NR	NR	NR	NR
Mustard (non-food contact) [1]	NR	NR	NR	NR	NR
Naphtha	NR	NR	NR	NR	NR
Naphthalene	NR	NR	NR	NR	NR
Naphthenic Acid	NR	NR	NR	NR	NR
n-Butyl Acetate (Butyl Acetate)	NR	NR	NR	NR	NR
n-Butyl Alcohol (1-Butanol) (Butanol (Normal))	NR	NR	NR	NR	NR
n-Decyl Alcohol (Decyl Alcohol (1-Decanol))	NR	NR	NR	NR	NR
Nickel Chloride	NR	NR	NR	NR	NR
Nitric Acid					
5%	NR	NR	NR	NR	NR
10%	NR	NR	NR	NR	NR
25%	NR	NR	NR	NR	NR
70%	NR	NR	NR	NR	NR
Nitrobenzene	NR	NR	NR	NR	NR
n-Methyl-2-Pyrolidone	NR	NR	NR	NR	NR
n-Octyl Alcohol (Octanol)	NR	NR	NR	NR	NR
n-Propyl Alcohol (Propyl Alcohol)	NR	NR	NR	NR	NR

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Octane	PC	PC	PC	PC	PC
Oleic Acid	NR	NR	NR	NR	NR
Oxalic Acid					
10%	NR	NR	NR	NR	NR
Ozone <2 ppm	NR	NR	NR	NR	NR
Palm Oil	NR	NR	NR	NR	NR
Pentane	PC	PC	PC	PC	PC
Perchloroethylene	NR	NR	NR	NR	NR
Petroleum Ether	NR	NR	NR	NR	NR
Phosphoric Acid					
5%	NR	NR	NR	NR	NR
10%	NR	NR	NR	NR	NR
25%	NR	NR	NR	NR	NR
43%	NR	NR	NR	NR	NR
85%	NR	NR	NR	NR	NR
Phosphorous	NR	NR	NR	NR	NR
Phosphorous Acid	NR	NR	NR	NR	NR
Phthalic Acid (all)	NR	NR	NR	NR	NR
Picric Acid (conc)	NR	NR	NR	NR	NR
Pine Oil	NR	NR	NR	NR	NR
Polyethylene Glycol	NR	NR	NR	NR	NR
Polypropylene	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Polystyrene	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Polytetrafluoroethane	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Polyvinyl Chloride	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potash Ore	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Acetate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Bromide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Potassium Carbonate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Chlorate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Chloride	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Cyanide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Ferricyanide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Fluoride	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Hydroxide					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Potassium Iodide	NR	NR	NR	NR	NR
Potassium Nitrate	NR	NR	NR	NR	NR
Potassium Permanganate	NR	NR	NR	NR	NR
Potassium Persulfate	NR	NR	NR	NR	NR
Potassium Sulfate	NR	NR	NR	NR	NR
Propionic Acid					
50%	NR	NR	NR	NR	NR
Propylene Glycol	PC	PC	PC	PC	PC
Pulpmill (Black Liquor)	NR	NR	NR	NR	NR
Pulpmill (Green Liquor)	NR	NR	NR	NR	NR
Pulpmill (White Liquor)	NR	NR	NR	NR	NR
Pyridine					
20%	NR	NR	NR	NR	NR
Silver Nitrate	NR	NR	NR	NR	NR
Skydrol	NR	NR	NR	NR	NR
Sodium Acetate	NR	NR	NR	NR	NR
Sodium Aluminate	NR	NR	NR	NR	NR
Sodium Bicarbonate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Bisulfate					
30%	NR	NR	NR	NR	NR

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Sodium Bisulfite					
38%	NR	NR	NR	NR	NR
Sodium Borate	NR	NR	NR	NR	NR
Sodium Bromide (all)	NR	NR	NR	NR	NR
Sodium Carbonate (sat'd)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Carbonate (slurry)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Chlorate					
50%	NR	NR	NR	NR	NR
Sodium Chloride (sat'd) (Brine, Water (Sea), Salt Brine)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Chlorite (>6 pH)	NR	NR	NR	NR	NR
Sodium Chromate					
50%	NR	NR	NR	NR	NR
Sodium Cyanide					
18%	NR	NR	NR	NR	NR
Sodium Dichromate (all)	NR	NR	NR	NR	NR
Sodium Fluoride	NR	NR	NR	NR	NR
Sodium Formate					
50%	NR	NR	NR	NR	NR
Sodium Hydrosulfide					
72%	NR	NR	NR	NR	NR
Sodium Hydrosulfite					
10%	NR	NR	NR	NR	NR
Sodium Hydroxide (Caustic Soda)					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Hypochlorite (Bleach)					
5%	PC	PC	PC	PC	PC

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
13%	PC	PC	PC	PC	PC
Sodium Lauryl Sulfate	NR	NR	NR	NR	NR
Sodium Oxalate					
1%	NR	NR	NR	NR	NR
Sodium Phosphate					
10%	NR	NR	NR	NR	NR
Sodium Silicate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Sulfate					
6%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Sodium Sulfite	NR	NR	NR	NR	NR
Sodium Thiosulfate					
30%	NR	NR	NR	NR	NR
Sodium Tripolyphosphate					
1%	NR	NR	NR	NR	NR
Stannic Chloride (all)	NR	NR	NR	NR	NR
Stannous Chloride (all)	NR	NR	NR	NR	NR
Stearic Acid (conc)	NR	NR	NR	NR	NR
Styrene	NR	NR	NR	NR	NR
Sulfamic Acid					
25%	NR	NR	NR	NR	NR
Sulfite Liquor (paper industry)	NR	NR	NR	NR	NR
Sulfuric Acid (Sulphuric Acid)					
5%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
10%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
30%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
50%	NR	NR	NR	NR	NR
70%	NR	NR	NR	NR	NR

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
98%	NR	NR	NR	NR	NR
Sulfurous Acid					
10%	NR	NR	NR	NR	NR
Tall Oil	PC	PC	PC	PC	PC
Tannic Acid	NR	NR	NR	NR	NR
Tartaric Acid	NR	NR	NR	NR	NR
Tetrachloroethylene	NR	NR	NR	NR	NR
Tetrahydrofuran	NR	NR	NR	NR	NR
Toluene	NR	NR	NR	NR	NR
Transmission Fluid	NR	NR	NR	NR	NR
Trichloroethylene	NR	NR	NR	NR	NR
Trichlorofluoroethane	NR	NR	NR	NR	NR
Tricresyl Phosphate	NR	NR	NR	NR	NR
Triethanolamine	NR	NR	NR	NR	NR
Triethylamine	NR	NR	NR	NR	NR
Triethylenetetramine	NR	NR	NR	NR	NR
Trisodium Phosphate (Sodium Phosphate (Tribasic))					
20%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Turpentine	NR	NR	NR	NR	NR
Urea					
50%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Urea Ammonium Nitrate	NR	NR	NR	NR	NR
Vegetable Oil (non-food contact) [1]	PC	PC	PC	PC	PC
Vinegar (non-food contact) [1]	NR	NR	NR	NR	NR
Vinyl Trichloride	NR	NR	NR	NR	NR
Water (deionized, non-potable) (Water (Demineralized, Non-potable))	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Water (distilled, non-potable)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)

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Chemical	**Occasional Contact**	**Frequent Contact**	**Secondary Containment**	**Cargo Immersion**	**Immersion Service**
Water (fresh, non-potable)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Xylene	NR	NR	NR	NR	NR
Zinc Bromide	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Zinc Chloride					
40%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Zinc Phosphate (dry)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Zinc Sulfate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)

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