



## 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. The coating will show no effects, except slight softening or discoloration, 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 up to 72 hours with chemical exposure or vapors using a mat-reinforced coating system or polymer concrete. The coating will show no effects, except slight softening or discoloration, after 72 hours exposure to chemical or vapors.

### 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 discoloration, 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 will show no effects, except slight softening or discoloration, following short exposure to splash or spillage which evaporates, is hosed off, or dried overnight, or 24 hours exposure to vapor.

### NOT EVALUATED – NE

This chemical has not been evaluated for the listed chemical. Please contact Tnemec Technical Services for more information.

### NOT RECOMMENDED – NR

This product is not recommended for the listed exposure.

## 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. Unless otherwise referenced, the concentrations listed are aqueous solutions of the chemicals.

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.

IMPORTANT: Definitions for the terms and acronyms used in this guide to describe the recommended exposures, along with other important information, can be found on the cover page of this guide or by contacting Tnemec Technical Service. Coatings should not be applied in a chemical exposure environment until the user has thoroughly read and understood the product information and full project details have been discussed with Tnemec Technical Service.

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Chemical	Intended Use (Maximum Temperature Listed)				
	Occasional Contact	Frequent Contact	Secondary Containment	Cargo Immersion	Immersion Service
1, 1, 1-Trichloroethane (Trichloroethane)	120°F (49°C)	NR	NR	NR	NR
Activated Carbon <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ammonium Hydroxide (Aqua Ammonia)					
5%	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Ammonium Nitrate					
10% <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
20% <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
38% <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
50% <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
65% <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
83% <sup>1</sup>	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Ammonium Sulfate	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Aviation Gas	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
B20 Bio Diesel	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Benzene	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	NR
Cadmium Chloride	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Calcium Bromide	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Calcium Chloride	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Citric Acid					
50%	140°F (60°C)	140°F (60°C)	140°F (60°C)	NR	NR
Crude Oil (Sour)	275°F (135°C)	275°F (135°C)	275°F (135°C)	275°F (135°C)	275°F (135°C)
Crude Oil (Sweet)	275°F (135°C)	275°F (135°C)	275°F (135°C)	275°F (135°C)	275°F (135°C)
Diesel Fuel (Fuel Oil, Diesel Oil)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)
Ethanol (Denatured Alcohol, Ethyl Alcohol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Ferric Nitrate	NR	NR	NR	NR	NR
Ferric Sulfate					

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	Occasional Contact	Frequent Contact	Secondary Containment	Cargo Immersion	Immersion Service
20%	NR	NR	NR	NR	NR
60%	NR	NR	NR	NR	NR
Gasohol E10 (10% Ethanol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasohol E15 (15% Ethanol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasohol E30 (30% Ethanol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasohol E50 (50% Ethanol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasohol E85 (85% Ethanol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (Reformulated)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (Unleaded)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (w/ETBE, 15% max)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (w/MTBE, 15% max)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (w/TAME, 15% max)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (w/TBA, 15% max)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Gasoline (w/WTBE, 15% max)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Heptane	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	NR
Hydraulic Fluid (Hydraulic Oil)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)
Isopropyl Alcohol (Isopropanol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Jet A Fuel	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)
JP-4 Aviation Fuel	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
JP-5 Aviation Fuel	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Kerosene	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)
Lubricating Oil (SAE 5W-40, et al) (Motor Oil)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Magnesium Bisulfite	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Methanol (Methyl Alcohol)	NR	NR	NR	NR	NR
Methyl tert-Butyl Ether (MTBE)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Mineral Oil	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)

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Mineral Spirits	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Naphtha	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Parrafin Wax	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Propylene Glycol	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Sodium Bicarbonate <sup>1</sup> (Baking Soda)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Sodium Borate (Borax)	NR	NR	NR	NR	NR
Sodium Chloride (sat'd) (Brine, Water (Sea), Salt Brine)	180°F (82°C)	180°F (82°C)	180°F (82°C)	180°F (82°C)	180°F (82°C)
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 Oxalate	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Stoddard Solvent	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Toluene (Toluol)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	NR
Transmission Fluid	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Trichloroethylene	120°F (49°C)	NR	NR	NR	NR
Urea Ammonium Nitrate					
32%	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)	100°F (38°C)
Water (deionized, non-potable) (Water (Demineralized, Non-potable))	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)
Water (distilled, non-potable)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)	140°F (60°C)
Water (fresh, non-potable)	200°F (93°C)	200°F (93°C)	200°F (93°C)	200°F (93°C)	200°F (93°C)
Wine (alcohol by volume)					
10% <sup>1</sup>	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)
Xylene	120°F (49°C)	120°F (49°C)	120°F (49°C)	120°F (49°C)	NR

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