CHEMICAL RESISTANCE GUIDE

OVERVIEW

The data on this chart is based on short-term (30–60 day) laboratory immersion tests in a controlled environment (72–77ºF). It is to be used only as a guide in selecting the proper coating, lining or sealant for a particular chemical environment. Many factors must be considered when choosing the correct product for an application, including:

- Chemical Exposure (Single or Combinations)
- Operating Temperature
- Temperature Fluctuations
- Type of Substrate and its Condition
- Mechanical Abuse
- Degree of Protection Required

KEY TO GUIDE CODES

1. *Product is suitable for use in immersion and/or splash and spillage conditions*
2. *Product is suitable for occasional and inter-mittent contact for periods up to 72 hours in duration*
3. *Product is suitable for occasional and inter-mittent contact for short time periods with frequent washing*

NR *Not recommended for this application*
S *Product may be stained by this chemical*
P *Postcuring recommended; contact ITW Polymers Sealants North America for details*
C *Non-silica grade recommended for this application*

It's always best to test a product in the specific chemical environment prior to use. Test coupons will be furnished upon request.

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PolySpec THIOKOL

CHEMICAL RESISTANCE GUIDE

SUBSTANCE	NovoRez® Epoxy Novolac Coatings			THIOKOL® Flexible Sealants,Coatings & Linings					
	351	353	370	2235 M / SL	2282	FEC 2233	FEC 2234	FNEC 2515	RLP 2378+
Acetic Acid, 10%	1	1	1	2	2	1	1	1	2
Acetic Acid, 25%	2	2	2	2	2	3	2	2	2
Acetic Acid, 50%	3	3	3	2	2	3	3	3	2
Acetic Acid, Glacial	3	3	NR	3	3	NR	NR	NR	3
Acetic Anhydride			3						
Acetone	3	3	1	2	2	NR	NR	NR	2
Acrylic Acid			2						
Acrylonitrile	3	3	2	3	3	NR	NR	NR	3
Aluminum Chloride			1						
Aluminum Fluoride									
Aluminum Hydroxide			1						
Aluminum Nitrate			1						
Aluminum Potassium Sulfate			1						
Aluminum Sulfate	1	1	1	1	1	1	1	1	1
Ammonia, Gas			2						
Ammonium Bisulfite			1						
Ammonium Chloride	1	1	1	1	1	1	1	1	1
Ammonium Fluoride									
Ammonium Hydroxide	1	1	1	2	2	1	2	2	2
Ammonium Lauryl Sulfate, 30%			1						
Ammonium Nitrate	1	1	1	2	2	1	2	2	2
Ammonium Perchlorate, 50%	1	1		1	1	1	1	1	1
Ammonium Persulfate	1	1	1	1	1	1	1	1	1
Ammonium Polyphosphate	1	1		1	1	1	1	1	1
Ammonium Sulfide			1						
Ammonium Sulfite			1						
Amyl Alcohol	1	1	1	1	1	1	1	1	1
Aniline	1	1	1	NR	NR	3	NR	NR	NR
Aniline Hydrochloride			1						
Antimony Trichloride			1						
Arsenious Acid									
Barium Chloride			1						
Barium Hydroxide, 10%	1	1		1	1	1	1	1	1
Barium Sulfate			1						
Barium Sulfide			1						
Benzaldehyde			2						
Benzene	2	2	1	NR	NR	NR	NR	NR	NR
Benzene Sulfonic Acid			1						
Benzoflex 9-88	1	1		3	3	1	1	1	3
Benzoic Acid	1	1	1	2	2	1	1	1	2
Benzyl Alcohol			1						
Benzyl Choride			1						
Black Liquor			1						
Bleach			2S						
Boric Acid	1	1	1	1	1	1	1	1	1
Brine			1						
Bromine, Gas (Dry & Wet)									
Bromine, Liquid	NR	NR	NR	NR	NR	NR	NR	NR	NR
Butanol			1						
Butyl Acetate	2	2	1	3	3	2	3	3	3
Butyl Acrylate			1						
Butyl Cellosolve	1	1	1	1	1	3	3	3	1
Butyl Cellosolve Acetate				3	3	3	3	3	3
Butyl Oxitol				1	1	3	3	3	1
Butyric Acid			2						
Cadmium Chloride			1						

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Cadmium Cyanide - Plating Bath			1						
Calcium Bisulfite			1						
Calcium Chloride	1	1	1	1	1	1	1	1	1
Calcium Hydroxide	1	1	1	1	1	1	1	1	1
Calcium Hypochlorite	2	2	2	1	1	1	1	1	1
Calcium Nitrate			1						
Calcium Sulfate			1						
Calcium Sulfite			1						
Caprylic Acid			2						
Carbon Dioxide, Gas			1						
Carbon Disulflide	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon Tetrachloride	1	1	1	3	3	2	2	2	3
Carbitol Acetate				NR	NR	3	3	3	NR
Castor Oil			1						
Chlorinated Water, 100 ppm	1	1		1	1	1	1	1	1
Chlorine Dioxide			2						
Chlorine, Gas (Dry & Wet)			3						
Chloride, Water (Sat'd)			1						
Chloroacetic Acid			2						
Chlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chloroform			1P						
Chloropyridine (Tetra)			2						
Chlorosulfonic Acid									
Chlorotoluene			1						
Chromic Acid, 10%	1	1	1	NR	NR	1	1	1	NR
Chromic Acid, 15%	1	1	1	NR	NR	3	1	1	NR
Chromic Acid, 30%	2	2	2	NR	NR	NR	1	1	NR
Chromic Acid, 35%	2	2	2	NR	NR	NR	1	1	NR
Citric Acid	1	1	1	2	2	1	1	1	2
Copper Chloride			1						
Copper Cyanide			1						
Copper Nitrate			1						
Copper Sulfate	1	1	1	1	1	1	1	1	1
Corn Oil			1						
Cottonseed Oil			1						
Creosote	1	1		NR	NR	1	1	1	NR
Cresylic Acid	3	3	2	NR	NR	3	3	3	NR
Crude Oil, Sour			1						
Crude Oil, Sweet			1						
Cumene			1						
Cumene Hydroperoxide	2	2		NR	NR	3	3	3	NR
Cyclohexane	1	1	1	1	1	1	1	1	1
Decanol									
Dibutyl Phthalate			1						
Dichlorobenzene			1						
Diesel Fuel	1	1	1	1	1	1	1	1	1
Diethylbenzene			1						
Diethylene Glycol	1	1	1	1	1	1	1	1	1
Diethyl Ketone			1						
Dimethyl Formamide			2						
Divinylbenzene			1						
Epichlorohydrin	1	1	1	NR	NR	NR	NR	NR	NR
Ethoxylated Nonyl Phenol			1						
Ethyl Acetate	3	3	1	2	2	NR	NR	NR	2
Ethyl Acrylate	1	1	1	3	3	3	NR	NR	3
Ethyl Alcohol	1	1	1	1	1	2	3	3	1
2-Ethyl Hexyl Acrylate	1	1		1	1	1	1	1	1

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Ethylbenzene			1						
Ethyl Bromide			2						
Ethyl Chloride			1P						
Ethyl Chloroformate									
Ethylene Dichloride	2	2	1	NR	NR	NR	NR	NR	NR
Ethylene Glycol	1	1	1	2	2	1	1	1	2
Ethylene Oxide			3						
Ethyl Ether									
Ethyl Sulfate			1						
Fatty Acids	1	1	1			1	1	1	1
Ferric Chloride	1S	1S	1S	2	2	1	1S	1S	2
Ferric Nitrate			1						
Ferric Sulfate			1						
Ferrous Chloride			1						
Ferrous Sulfate, 10%	1	1		1	1	1	1	1	1
Fluosilicic Acid, 10%			1C						
Fluosilicic Acid, 35%									
Formaldehyde			1						
Formic Acid, 10%	3	3	3	NR	NR	NR	3	3	NR
Formic Acid, 90%	NR	NR	NR	NR	NR	NR	NR	NR	NR
Formic Acid, 98%			NR	NR	NR	NR	NR	NR	NR
Fuel Oil/Diesel Fuel	1	1	1	1	1	1	1	1	1
Furfural			2						
Furfuryl Alcohol			1						
Gasoline, Leaded	1	1	1	1	1	1	1	1	1
Glucose			1						
Glycerine	1	1	1	1	1	1	1	1	1
Glycolic Acid			1						
Gold Plating Solution			1						
Green Liquor			1						
Heptane	1	1	1	1	1	1	1	1	1
Hexane	1	1	1	1	1	1	1	1	1
Hexylene Glycol	1	1		1	1	1	1	1	1
Hydrazine, 35%			2						
Hydriodic Acid, 40%			1						
Hydrobromic Acid, 20%			1						
Hydrobromic Acid, 48%			2						
Hydrochloric Acid, 10%	1S	1S	1S	2	2	1S	2S	2S	2
Hydrochloric Acid, 20%	1S	1S	1S	2	2	1S	2S	2S	2
Hydrochloric Acid, 37%	1S	1S	1S	NR	NR	1S	2S	2S	NR
Hydrofluoric Acid, 10%	1	1	1	1	1	1	1	1	1
Hydrofluoric Acid, 20%	1	1	1	2	2	1	1	1	3
Hydrofluosilicic Acid, 10%									
Hydrofluosilicic Acid, 35%									
Hydrogen Peroxide, 30%	2	2	2	2	2	2	2	2	2
Hydrogen Sulfide, Gas			1						
Iodine, Crystals			2						
Isobutyl Alcohol	1	1		1	1	1	1	1	1
Isopropyl Alcohol	1	1	1	1	1	1	1	1	1
Jet Fuels	1	1	1	1	1	1	1	1	1
Kerosene	1	1	1	1	1	1	1	1	1
Lacquer Solvents				1	1	NR	NR	NR	1
Lactic Acid	2	2	2	3	3	2	2	2	3
Lauryl Chloride			1						
Lead Acetate			1						
Linseed Oil	1	1	1	1	1	1	1	1	1
Lithium Bromide			1						

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Lithium Chloride			1						
Lithium Hydroxide			1						
Lithium Hypochlorite									
Magnesium Bisulfite			1						
Magnesium Carbonate			1						
Magnesium Chloride	1	1	1	1	1	1	1	1	1
Magnesium Hydroxide	1	1	1	1	1	1	1	1	1
Magnesium Sulfate			1						
Maleic Acid	2	2	2						
Maleic Anhydride, 25% Slurry	1	1		1	1	1	1	1	1
Mercuric Chloride			1						
Mercurous Chloride			1						
Mercury			1						
Methanol	3	3	2	1	1	3	NR	NR	1
Methyl Acrylate				3	3	NR	NR	NR	3
Methyl Alcohol			1						
Methyl Ethyl Ketone	3	3	1	3	3	NR	NR	NR	3
Methyl Methacrylate				3	3	3	NR	NR	3
Methyl tert-Butyl Ether, 98%	1	1		1	1	1	1	1	1
Methylene Chloride	NR	NR	1P	NR	NR	NR	NR	NR	NR
Milk			1						
Mineral Spirits	1	1	1	1	1	1	1	1	1
Molasses			1						
Monochloroacetic Acid	3	3	2	NR	NR	3	3	3	NR
Monoethanolamine			1						
Motor Oil 10W/40	1	1		1	1	1	1	1	1
Muriatic Acid			1	NR	NR	2	2	2	NR
N-Butyl Acrylate				3	3	2	2	2	3
N-Butyl Alcohol				1	1	2	2	2	1
Naphtha	1	1	1	1	1	1	1	1	1
Naphtha VM&P	1	1		1	1	1	1	1	1
Naphthalene	2	2	1	3	3	2	2	2	3
Naphthalene Oil	1	1		1	1	1	1	1	1
Nickel Plating Solution #1									
Nickel Plating Solution #2									
Nitric Acid, 10%	2S	2S	2S	NR	NR	2	2	2	NR
Nitric Acid, 20%	2S	2S	2S	NR	NR	2	3	3	NR
Nitric Acid, 30%	3S	3S	3S	NR	NR	3	3	3	NR
Nitric Acid, 60%	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrobenzene			1						
Octanoic Acid			2						
Oleic Acid	2	2	2	1	1	1	1	1	1
Oleum			3S						
Oxalic Acid	2	2	2	1	1	1	1	1	1
Perchloric Acid, 10%	3	3	2	3	3	3	3	3	3
Perchloroethylene	3	3	1	3	3	3	3	3	3
Phenol, 5%	2	2	1	NR	NR	3	3	3	NR
Phenol 85%	3	3	2	NR	NR	NR	NR	NR	NR
Phenolic Resins	1S	1S		1	1	1	1	1	1
Phosphoric Acid, 50%	2S	2S	2S	1S	1S	1S	2S	2S	1S
Phosphoric Acid, 60%	3S	3S	2S	2S	2S	3S	3S	3S	2S
Phosphoric Acid, 75%	NR	NR	3S	3S	3S	NR	3S	3S	3S
Phosphoric Acid, 85%	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phosphoric Acid, 100%	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phosphorous Acid			2						
Phosphorous Trichloride			3						
Phthalic Acid	2	2	1	NR	NR	3	3	3	NR

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Pickling (20% nitric acid 4% HF)	1	1		3	3	1	1	1	3
Picric Acid, 10% (Alcoholic)									
Potassium Bicarbonate									
Potassium Carbonate, 1%	1	1	1	1	1	1	1	1	1
Potassium Carbonate, 25%	2	2	1	2	2	2	2	2	2
Potassium Chloride			1						
Potassium Dichromate			1						
Potassium Fluoride			1C						
Potassium Hydroxide, 10%	1	1	1	1	1	1	1	1	1
Potassium Hydroxide, 45%	1	1	1	1	1	1	1	1	1
Potassium Nitrate			1						
Potassium Permanganate	2	2	2	NR	NR	3	3	3	NR
Potassium Persulfate			1						
Potassium Sulfate			1						
Proprionic Acid, 50%			2						
Proprionic Acid, 100%			3						
Propylene Glycol	1	1	1	1	1	1	1	1	1
Pyridine			3						
Salicylic Acid			1						
Salt Brine			1						
Sea Water			1						
Selenious Acid									
Silver Nitrate			1S						
Skydrol 500B	1	1	1	2	2	1	2	2	2
Soap Solutions				3	3	1	1	1	3
Sodium Acetate			1						
Sodium Bicarbonate	1	1	1	1	1	1	1	1	1
Sodium Bisulfate			1						
Sodium Bromate			1						
Sodium Carbonate			1						
Sodium Chlorate			2						
Sodium Chloride	1	1	1	1	1	1	1	1	1
Sodium Chlorite			2						
Sodium Cyanide	1	1	1	2	2	1	1	1	2
Sodium Dichromate			1						
Sodium Fluoride			1C						
Sodium Hydrosulfide			2						
Sodium Hydroxide, 10%	1	1	1	2	2	1	1	1	2
Sodium Hydroxide, 25%	1	1	1	2	2	1	1	1	2
Sodium Hydroxide, 50%	1	1	1	2	2	1	1	1	2
Sodium Hypochlorite, 5%	2	2		NR	NR	2	2	2	NR
Sodium Hypochlorite, 8%	2	2		NR	NR	2	2	2	NR
Sodium Hypochlorite, 10%									
Sodium Hypochlorite, 18%									
Sodium Lauryl Sulfate			1						
Sodium Oxalate			1						
Sodium Phosphate			1						
Sodium Phosphate (Tri)			1						
Sodium Sulfate			1						
Sodium Sulfide	1	1	1	1	1	1	1	1	1
Sodium Sulfite			1						
Sodium Tartrate			1						
Sodium Thiosulfate			1						
Sorbitol Solutions									
Soybean Oil			1						
Stannic Chloride			1						
Stannous Chloride			1						

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Stearic Acid	1	1	1	1	1	1	1	1	1
Styrene	3	3	1	NR	NR	NR	NR	NR	NR
Sugar/Sucrose			1						
Sulfamic Acid			2						
Sulfite Liquor (Pulp)			1						
Sulfur Dioxide (Dry or Wet)			1						
Sulfuric Acid, 10%			1						
Sulfuric Acid, 20%	2	2	1	1	1	1	1	1	1
Sulfuric Acid, 25%	2	2	1						
Sulfuric Acid, 50%	2S	2S	1S	3	3	1	1	1	3
Sulfuric Acid, 66%	2S	2S	1S	NR	NR	1	1	1	NR
Sulfuric Acid, 75%	2S	2S	1S						
Sulfuric Acid, 98%	2S	2S	2S						
Sulfurous Acid, 10%									
Sulfur Trioxide			1						
Tall Oil			1						
Tetrachloroethane			1						
Tetrachloroethylene			1						
Tetrahydrofuran	NR	NR		NR	NR	NR	NR	NR	NR
Tetrahydrofurfuryl Alcohol				NR	NR	2	3	3	NR
Tobias Acid									
Toluene	1	1	1	3	3	3	3	3	3
Toluene Sulfonic Acid			1						
Trichloracetic Acid			2						
1,1,1, Trichloroethane	1	1	1	3	3	2	2	2	3
Trichloroethylene	2	2	1P	NR	NR	2	2	2	NR
Tricresyl Phosphate			1						
Triethylamine			2						
Trisodium Phosphate			1						
Triton X100	1	1		2	2	1	1	1	2
Turpentine			1						
Urea			1						
Urea, 10%	1	1		1	1	1	1	1	1
Urea Ammonium Nitrate, 32%	1	1		1	1	1	1	1	1
Vinegar			1						
Vinylidene Chloride			2	3	3	NR	NR	NR	3
Vinyl Acetate				2	2	NR	NR	NR	2
Vinyl Chloride			2						
Water, Deionized			1						
Water, Demineralized			1						
Water, Distilled			1						
Water Tap	1	1		1	1	1	1	1	2
White Liquor (Pulp)			1						
Wine			1						
Xylene	1	1	1	3	3	2	2	2	3
Zinc Chloride	1	1	1	1	1	1	1	1	1
Zinc Nitrate, 17%	1	1		1	1	1	1	1	1
Zinc Sulfate			1						

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