ENCLOSURES – CHEMICAL RESISTANCE

KEY:
S = Superior Resistance/Completely Unaffected under all Conditions
L = Limited Resistance, Some Chemical Attack May Occur Over Time
M = Moderate Resistance, Superficial Effects only, Testing Recommended
U = Unsatisfactory, Severe/Chemical Attack in a relatively short time
– = No Data Available

Chemical Resistance of Enclosure Materials								
				Steel			Stainless Steel	
CHEMICAL	Aluminum	Polycar-bonate	Fiberglass Polyester	Polyester Powder	Urethane Enamel	Galvanized	Type 304	Type 316
Acetyldehyde	S	—	U	—	—	—	S	S
Acetic Acid (10%)	L	S	S	U	U	U	S	U
Acetone	S	U	L	L	U	L	S	S
Aluminum Chloride (10%)	U	S	S	U	U	U	U	M
Aluminum Sulfate (10%)	L	S	S	U	U	U	U	S
Ammonia Gas	L	—	S	—	—	—	S	S
Ammonium Chloride	U	S	S	U	U	U	S	S
Ammonium Hydroxide (10%)	S	U	L	U	U	U	S	S
Ammonium Nitrate (10%)	M	U	S	U	U	U	S	S
Ammonium Phosphate (10%)	L	S	M	S	L	U	S	M
Ammonium Sulfate	S	—	S	—	—	—	S	S
Aniline	L	—	U	—	—	—	S	S
ASTM #1 Oil	S	M	S	S	S	S	S	S
ASTM #3 Oil	S	M	S	S	S	S	S	S
Axle Grease	S	M	S	S	S	S	S	S
Benzene	S	—	S	—	—	S	S	S
Boric Acid (10%)	M	S	S	U	U	U	S	S
Bromine	U	—	L	U	U	U	U	U
Butyl Acetate	M	—	L	—	—	—	S	S
Butyric Acid	U	—	S	—	—	—	S	S
Calcium Chloride (10%)	L	S	S	U	U	U	L	S
Calcium Hydroxide (10%)	U	S	S	U	U	U	S	S

Enclosures – Chemical Resistance

Chemical Resistance of Enclosure Materials								
CHEMICAL				Steel			Stainless Steel	
	Aluminum	Polycarb-onate	Fiberglass Polyester	Polyester Powder	Urethane Enamel	Galvanized	Type 304	Type 316
Calcium Hypochlorite (10%)	L	—	M	U	U	U	U	M
Calcium Sulfate	M	—	S	U	U	U	S	S
Carbolic Acid (25%)	M	U	L	U	U	U	S	S
Carbon Disulfide	S	—	L	—	—	—	S	S
Carbon Tetrachloride	S	U	M	U	S	S	U	S
Chlorine (dry)	S	—	S	—	—	—	S	S
Chlorine (water) 5-10 ppm	M	S	L	S	U	U	U	—
Chlorobenzene	S	—	S	—	—	S	S	S
Chloroform	L	—	U	—	—	—	S	S
Chrome Plating Solution	U	S	L	U	U	U	L	L
Chromic Acid	S	—	S	—	—	—	U	U
Citric Acid (10%)	U	S	M	U	U	U	S	S
Copper Sulfate	U	—	S	—	—	—	S	S
Creosote	L	—	L	—	—	—	S	S
Cutting Fluid (5 Star) 10%	S	—	S	U	U	U	S	S
Cutting Fluid (Castrol 980 H)	S	—	S	S	U	U	S	S
Cutting Fluid (Norton 205)	U	S	S	U	U	U	S	S
Cutting Fluid (Rustlick) 10%	M	—	S	U	U	U	S	S
Cutting Oil (Dark)	S	—	S	S	S	S	S	S
Diethyl Ether	S	—	S	—	—	—	S	S
Ethyl Alcohol	S	M	S	M	U	S	S	S
Ethylene Dichloride	S	—	L	—	—	—	—	—
Ethylene Glycol	S	S	S	S	S	U		S
Ferric Chloride	U	S	S	U	U	U	S	U
Ferric Nitrate	—	—	S	—	—	—	S	S
Ferric Sulfate	M	—	S	—	—	—	S	S
Fluorine	S	—	U	—	—	—	M	—
Formaldehyde	S	—	S	—	—	—	L	S
Formic Acid	U	S	S	U	U	U	M	S
Fuel Oil (#2)	S	—	S	M	S	S	S	M
Gasoline	S	—	M	—	—	—	S	S
Glycerine	S	—	S	—	—	S	S	S
Hydraulic Brake Fluid	S	U	S	U	U	S	S	S
Hydraulic Oil	S	M	S	S	S	S	S	S

Enclosures – Chemical Resistance

Chemical Resistance of Enclosure Materials								
CHEMICAL				Steel			Stainless Steel	
	Aluminum	Polycarb-onate	Fiberglass Polyester	Polyester Powder	Urethane Enamel	Galvanized	Type 304	Type 316
Hydrochloric Acid (10%)	U	S	M	U	U	U	U	U
Hydrocyanic Acid	S	—	U	—	—	—	S	S
Hydrofluoric Acid (20%)	U	M	U	U	U	U	U	U
Hydrogen Peroxide	S	—	M	—	—	—	L	S
Hydrogen Sulfide	M	S	S	—	—	—	L	S
Hypochlorus Acid	U	—	S	—	—	—	—	—
Isopropyl Alcohol	S	S	S	M	U	S	S	S
Kerosene	S	M	S	S	S	S	S	S
Lacquer Thinner	S	U	S	L	U	S	S	S
Lactic Acid	M	—	S	—	—	—	L	S
Lime	M	—	M	—	—	—	—	—
Liquid Dish Soap (10%)	M	S	S	U	U	U	S	M
Lubricating Oils	S	—	S	—	—	—	S	S
Magnesium Chloride (10%)	L	S	S	U	U	U	S	S
Magnesium Hydroxide (10%)	L	S	S	U	U	U	S	S
Mercuric Chloride (10%)	U	—	M	U	U	U	S	U
Methyl Ethyl Ketone	S	—	L	—	—	—	S	S
Methylene Chloride	S	U	S	U	U	M	S	S
Milk	S	—	S	—	—	—	S	S
Mineral Oil	S	—	S	—	—	—	S	S
Mineral Spirits	S	M	S	S	S	S	S	S
Motor Oil (10 weight)	S	S	S	S	S	S	S	S
Nickel Salts	L	—	S	—	—	—	L	S
Nitric Acid (10%)	U	L	M	U	U	U	S	S
Nitrobenzene	S	—	L	—	—	—	S	S
Oleic Acid	S	—	S	—	—	—	L	S
Perchlorethylene	S	U	S	S	U	S	S	S
Phosphoric Acid (25%)	U	S	L	U	U	U	S	S
Phosphoric Acid (50%)	U	S	U	U	U	U	S	S
Pickling Solution	U	—	M	U	U	U	S	M
Potassium Carbonate (10%)	U	S	S	S	S	L	S	S
Potassium Chloride (25%)	L	S	S	U	U	U	S	S
Potassium Hydroxide (25%)	U	U	U	U	U	U	M	M
Potassium Nitrate (10%)	U	S	S	U	U	U	S	S

Enclosures – Chemical Resistance

Chemical Resistance of Enclosure Materials								
CHEMICAL	Aluminum	Polycarb-onate	Fiberglass Polyester	Steel			Stainless Steel	
				Polyester Powder	Urethane Enamel	Galvanized	Type 304	Type 316
Potassium Sulfate (10%)	L	S	S	U	U	U	S	S
Soap (Igepal) 10%	L	S	S	S	U	U	S	S
Sodium Bicarbonate (10%)	L	S	S	S	S	U	S	S
Sodium Bisulfate (10%)	U	S	L	U	U	U	S	S
Sodium Chloride (25%)	L	S	S	U	U	U	S	S
Sodium Hydroxide	U	U	U	U	U	U	M	M
Sodium Hypochlorite	U	S	M	U	U	U	S	M
Sodium Nitrate (10%)	M	S	S	U	U	U	S	S
Sodium Phosphate (10%)	L	S	S	U	U	U	S	S
Sulfuric Acid (25%)	U	S	S	U	U	U	S	S
Sulfurus Acid (10%)	U	—	U	U	U	U	S	S
Tannic Acid ((10%)	L	S	S	U	U	U	M	M
Tetrahydrofuran	M	—	L	U	U	U	S	S
Toluene	S	U	S	L	U	S	S	S
Trichloroethylene	S	—	U	—	—	—	L	S
Trisodium Phosphate	L	—	M	—	—	—	—	—
Turpentine	S	S	M	M	U	L	S	S
Vegetable Oils	S	—	S	—	—	—	S	S
Vinegar	M	—	S	—	—	—	S	S
Water, Industrial	L	—	S	L	L	L	S	S
Water, Rain	L	—	S	S	L	L	S	S
Water, Sea	L	—	S	U	U	U	S	S
Water, Tap	L	—	S	S	L	L	S	S
Xylene	S	U	S	L	U	S	S	S
Zinc Acetate	S	—	S	—	—	—	S	S
Zinc Chloride	L	M	S	S	U	U	M	S
Zinc Sulfate	S	—	S	—	—	—	M	S

Enclosures – Chemical Resistance

KEY:
S = Superior Resistance/Completely Unaffected under all Conditions
L = Limited Resistance, Some Chemical Attack May Occur Over Time
M = Moderate Resistance, Superficial Effects only, Testing Recommended
U = Unsatisfactory, Severe/Chemical Attack in a relatively short time
– = No Data Available

Chemical Resistance of Other Materials Used for Enclosure Components							
CHEMICAL	Rigid PVC	Glass Nylon	Gaskets			Windows	
			Neoprene Rubber	Silicone Rubber	Urethane	Acrylic	Poly-carbonate
Acetyldehyde	U	—	**S**	**S**	—	—	—
Acetic Acid (10%)	L	U	U	M	L	**S**	**S**
Acetone	U	**S**	U	**S**	U	U	U
Aluminum Chloride (10%)	**S**	U	**S**	**S**	**S**	**S**	**S**
Aluminum Sulfate (10%)	**S**	L	U	**S**	**S**	**S**	**S**
Ammonia Gas	—	**S**	**S**	**S**	—	**S**	—
Ammonium Chloride	**S**	U	**S**	**S**	**S**	**S**	**S**
Ammonium Hydroxide (10%)	**S**	—	L	L	**S**	**S**	U
Ammonium Nitrate (10%)	**S**	U	U	**S**	**S**	**S**	U
Ammonium Phosphate (10%)	—	L	U	**S**	**S**	**S**	**S**
Ammonium Sulfate	**S**	U	**S**	**S**	—	—	—
Aniline	**S**	L	U	U	—	**S**	—
ASTM #1 Oil	—	—	M	**S**	**S**	**S**	M
ASTM #3 Oil	—	—	U	L	**S**	**S**	M
Axle Grease	—	—	L	**S**	**S**	**S**	M
Benzene	U	**S**	U	U	—	U	—
Boric Acid (10%)	L	**S**	**S**	**S**	**S**	**S**	**S**
Bromine	U	U	U	U	U	L	U
Butyl Acetate	U	**S**	U	U	—	U	—
Butyric Acid	U	U	U	—	—	—	—
Calcium Chloride (10%)	**S**	U	**S**	**S**	**S**	**S**	**S**
Calcium Hydroxide (10%)	**S**	—	U	**S**	L	**S**	**S**
Calcium Hypochlorite (10%)	**S**	U	U	**S**	U	M	**S**
Calcium Sulfate	**S**	U	**S**	**S**	**S**	**S**	**S**
Carbolic Acid (25%)	—	—	U	U	U	U	U
Carbon Disulfide	U	—	U	—	—	**S**	—
Carbon Tetrachloride	L	**S**	U	U	U	**S**	U
Chlorine (dry)	L	—	—	—	—	—	—
Chlorine (water) 5-10 ppm	L	—	L	**S**	**S**	**S**	**S**
Chlorobenzene	U	**S**	U	U	—	L	—
Chloroform	U	U	U	U	—	U	—
Chrome Plating Solution	—	—	U	U	U	**S**	**S**
Chromic Acid	L	U	U	M	—	U	—
Citric Acid (10%)	**S**	L	U	**S**	U	**S**	**S**

Enclosures – Chemical Resistance

Chemical Resistance of Other Materials Used for Enclosure Components							
CHEMICAL	Rigid PVC	Glass Nylon	Gaskets			Windows	
			Neoprene Rubber	Silicone Rubber	Urethane	Acrylic	Poly-carbonate
Copper Sulfate	S	L	S		—	U	—
Creosote	—	U	U	U	—	—	—
Cutting Fluid (5 Star) 10%	—	—	U	S	S	S	M
Cutting Fluid (Castrol 980 H)	—	—	L	S	S	S	L
Cutting Fluid (Norton 205)	—	—	S	S	S	S	S
Cutting Fluid (Rustlick) 10%	—	—	S	S	S	S	S
Cutting Oil (Dark)	—	—	U	S	S	S	S
Diethyl Ether	U	—	—	U	—	U	—
Ethyl Alcohol	S	—	L	S	S	U	M
Ethylene Dichloride	U	—	U	U	—	U	—
Ethylene Glycol	S	—	S	S	S	S	S
Ferric Chloride	S	U	L	S	L	S	S
Ferric Nitrate	S	U	S	M	—	—	—
Ferric Sulfate	S	U	S	M	—	—	—
Fluorine	L	—	—	U	—	—	—
Formaldehyde	L	U	U	M	—	S	—
Formic Acid	L	S	U	L	L	U	S
Fuel Oil (#2)	S	—	U	U	U	S	S
Gasoline	S	S	U	L	—	S	—
Glycerine	S	S	S	S	—	S	—
Hydraulic Brake Fluid	—	—	U	S	U	U	U
Hydraulic Oil	—	—	U	S	S	S	M
Hydrochloric Acid (10%) S	U	L	L	U	S	S	
Hydrocyanic Acid	S	—	S	M	M	—	—
Hydrofluoric Acid (20%)	L	U	U	U	—	S	M
Hydrogen Peroxide	S	U	U	M	—	S	—
Hydrogen Sulfide	S	—	U	M	—	—	—
Hypochlorus Acid	—	—	—	—	—	—	—
Isopropyl Alcohol	—	—	S	S	S	S	S
Kerosene	S	—	U	U	S	S	M
Lacquer Thinner	—	S	U	S	L	U	U
Lactic Acid	S	L	L	—	—	L	—

Enclosures – Chemical Resistance

Chemical Resistance of Other Materials Used for Enclosure Components							
CHEMICAL			Gaskets			Windows	
	Rigid PVC	Glass Nylon	Neoprene Rubber	Silicone Rubber	Urethane	Acrylic	Poly-carbonate
Lime	—	—	S	M	—	—	—
Liquid Dish Soap (10%)	S	—	L	S	S	S	S
Lubricating Oils	—	—	U	U	—	S	—
Magnesium Chloride (10%)	S	S	S	S	S	S	S
Magnesium Hydroxide (10%)	S	—	S	S	S	S	S
Mercuric Chloride (10%)	L	—	U	L	U	S	S
Methyl Ethyl Ketone	U	S	S	U	—	L	—
Methylene Chloride	—	U	U	S	U	U	U
Milk	S	—	S	S	—	S	—
Mineral Oil	S	—	L	M	—	S	—
Mineral Spirits	—	—	U	U	S	S	M
Motor Oil (10 weight)	—	—	U	U	S	S	S
Nickel Salts	S	—	U	S	—	—	—
Nitric Acid (10%)	S	U	U	U	U	S	L
Nitrobenzene	U	S	U	—	—	—	—
Oleic Acid	S	U	—	U	—	—	—
Perchlorethylene	—	—	U	S	U	U	U
Phosphoric Acid (25%)	S	U	S	S	U	S	S
Phosphoric Acid (50%)	S	U	S	S	U	S	S
Pickling Solution	—	—	L	M	M	S	S
Potassium Carbonate (10%)	L	S	S	S	S	S	S
Potassium Chloride (25%)	S	L	S	S	S	S	S
Potassium Hydroxide (25%)	S	S	U	L	M	U	U
Potassium Nitrate (10%)	S	L	S	S	S	S	S
Potassium Sulfate (10%)	S	S	S	S	S	S	S
Soap (Igepal) 10%	S	—	U	S	S	S	S
Sodium Bicarbonate (10%)	S	S	S	S	S	S	S
Sodium Bisulfate (10%)	S	L	S	S	L	S	S
Sodium Chloride (25%)	S	S	S	S	S	S	S
Sodium Hydroxide	S	S	U	U	M	S	U
Sodium Hypochlorite	S	U	U	S	U	S	S
Sodium Nitrate (10%)	S	S	S	S	S	S	S

Enclosures – Chemical Resistance

Chemical Resistance of Other Materials Used for Enclosure Components							
CHEMICAL	Rigid PVC	Glass Nylon	Gaskets			Windows	
			Neoprene Rubber	Silicone Rubber	Urethane	Acrylic	Poly-carbonate
Sodium Phosphate (10%)	S	—	U	S	S	S	S
Sulfuric Acid (25%)	S	U	S	S	U	S	S
Sulfurus Acid (10%)	S	—	U	U	L	S	S
Tannic Acid ((10%)	S	U	U	L	U	S	S
Tetrahydrofuran	—	S	U	U	U	U	U
Toluene	U	S	U	U	U	U	U
Trichloroethylene	U	U	U	U	—	U	—
Trisodium Phosphate	S	—	—	—	—	—	—
Turpentine	—	S	U	L	U	S	S
Vegetable Oils	S	—	L	S	—	S	—
Vinegar	—	S	L	S	—	S	—
Water, Industrial	S	—	S	S	S	S	S
Water, Rain	S	—	S	S	S	S	S
Water, Sea	S	—	S	S	S	S	S
Water, Tap	S	—	S	S	S	S	S
Xylene	—	S	U	M	U	S	U
Zinc Acetate	—	—	—	U	—	—	—
Zinc Chloride	S	U	M	S	U	S	M
Zinc Sulfate	S	L	S	S	—	—	—