

CHEMICAL RESISTANCE GUIDE

Information contained in this guide is based on data collected from several years of actual industrial applications. In addition, this guide is based on conservative evaluation of the changes which occur in certain properties of replicate laminates after exposures of one year or longer, both in the laboratory and the field, according to the American Society for Testing Materials (ASTM C-581).

Temperatures are not the minimum nor the maximum but represents standard test conditions (RT – Room Temperature: 70°C of the maximum temperature as noted). The products may be suitable at higher temperatures but individual test data should be required to establish such suitability. Contact Exel Composites for any special applications that you may have.

The recommendations or suggestions (R – Resistant: NR – Not Resistant) contained in this guide are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory or actual field trial prior to use. Our responsibility for claims arising from breach of warranty, negligence, or otherwise is limited to the purchase price of the material.

RESIN SELECTION

SERIES 500-525	Uses premium grade isophthalic polyester resins. Series 500 is non-fire retardant. Series 525 is fire retardant and complies with ASTM D635 and UL94 V.O. fire ratings.
SERIES 625	Uses vinyl ester fire retardant resin and complies with ASTM D635 AND UL94 V.O. fire ratings

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
ACETALDEHYDE	NR	NR	NR	NR
ACETIC ACID 0-25%	R	R	R	R
ACETIC ACID 25-50%	R	NR	R	R
ACETIC ANHYDRIDE	NR	NR	NR	NR
ACETONE	NR	NR	NR	NR
ACRYLONITRILE	NR	NR	NR	NR
ALCOHOL, BUTYL	NR	NR	R	NR
ALCOHOL, ETHYL 10%	NR	NR	R	66°
ALCOHOL, EHTYL 100%	NR	NR	R	NR
ALCOHOL, ISOPROPYL 10%	NR	NR	R	66°
ALCOHOL, ISOPROPYL 100%	NR	NR	R	NR
ALCOHOL, METHYL 10%	NR	NR	R	66°
ALCOHOL, METHYL 100%	NR	NR	NR	NR
ALCOHOL, METHYL ISOBUTYL	NR	NR	R	66°
ALCOHOL, SECONDARY BUTYL	NR	NR	R	66°
ALUM	R	R	R	R
ALUMINIUM CHLORIDE	R	R	R	R
ALUMINIUM HYDROXIDE	R	NR	R	49°
ALUMINIUM NITRATE	R	R	R	R
ALUMINIUM POTASSIUM SULFATE	R	R	R	R
AMMONIA, AQUEOUS 0-10%	NR	NR	R	38°
AMMONIA, GAS	NR	NR	R	38°
AMMONIUM BICARBONATE	R	NR	R	49°
AMMONIUM BISULFITE	NR	NR	R	49°
AMMONIUM CARBONATE	NR	NR	R	49°
AMMONIUM CITRATE	R	NR	R	49°
AMMONIUM FLUORIDE	NR	NR	R	49°
AMMONIUM HYDROXIDE 5%	R	NR	R	49°
AMMONIUM HYDROXIDE 10%	R	NR	R	49°
AMMONIUM HYDROXIDE 20%	NR	NR	R	49°

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
AMMONIUM NITRATE	R	R	R	49°
AMMONIUM PERSULFATE	NR	NR	R	49°
AMMONIUM PHOSPATE	NR	NR	R	49°
AMMONIUM SULFATE	R	R	R	R
ARSENIOUS ACID	R	NR	R	R
BARIUM CARBONATE	R	NR	R	R
BARIUM CHLORIDE	R	NR	R	R
BARIUM HYDROXIDE	NR	NR	R	49°
BARIUM SULFATE	R	R	R	R
BARIUM SULFIDE	NR	NR	R	R
BEER	R	NR	R	49°
BENZENE	NR	NR	NR	NR
5% BENZENE IN KEROSENE	R	NR	R	R
BENZENE SULFONIC ACID	R	R	R	R
BENZOIC ACID	R	NR	R	R
BENZYL ALCOHOL	NR	NR	R	NR
BENZYL CHLORIDE	NR	NR	NR	NR
BRASS PLATING SOLUTION				
- 3% COPPER CYANIDE				
- 6% SODIUM CYANIDE	NR	NR	R	R
- 1% ZINC CYANIDE				
- 3% SODIUM CARBONATE				
BUTYL ACETATE	NR	NR	NR	NR
BUTYRIC ACID 0-50%	R	NR	R	R
BUTYLENE GLYCOL	R	R	R	R
CADIUM CHLORIDE	R	NR	R	R
CADIUM CYANIDE PLATING				
- 3% CADIUM OXIDE				
- 6% SODIUM CYANIDE	NR	NR	R	49°
- 1% CAUSTIC SODA				

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
CALCIUM BISULFITE	R	R	R	R
CALCIUM CARBONATE	R	NR	R	R
CALCIUM CHLORATE	R	R	R	R
CALCIUM CHLORIDE	R	R	R	R
CALCIUM HYDROXIDE	R	NR	R	49°
CALCIUM HYPOCHLORITE	R	NR	R	40°
CALCIUM NITRATE	R	R	R	R
CALCIUM SULFATE	R	R	R	R
CALCIUM SULFITE	R	R	R	R
CAPRYLIC ACID	R	NR	R	R
CARBON DIOXIDE	R	R	R	R
CARBON DISULFIDE	NR	NR	NR	NR
CARBON MONOXIDE	R	R	R	R
CARBON TETRACHLORIDE	NR	NR	R	38°
CARBON ACID	R	NR	R	R
CASTOR OIL	R	R	R	R
CARBON METHYL CELLULOSE	NR	NR	R	49°
CHLORINATED WAX	NR	NR	R	R
CHLORINE DIOXIDE	R	NR	R	R
CHLORINE DIOXIDE, WET GAS	NR	NR	R	R
CHLORINE, DRY GAS	NR	NR	R	R
CHLORINE, WET GAS	NR	NR	R	R
CHLORINE, LIQUID	NR	NR	NR	NR
CHLORINE, WATER	NR	NR	R	R
CHLOROACETIC ACID 0-50%	NR	NR	R	38°
CHLOROBENZENE	NR	NR	NR	NR
CHLOROFORM	NR	NR	NR	NR
CHLOROSULFONIC ACID	NR	NR	NR	NR
CHROMIC ACID 20%	NR	NR	R	49°
CHROMIC ACID 30%	NR	NR	NR	NR
CHROMIUM SULFATE	R	R	R	R
CITRIC ACID	R	R	R	R
COCONUT OIL	R	NR	R	R
COPPER CHLORIDE	R	R	R	R
COPPER CYANIDE	NR	NR	R	R
COPPER FLUORIDE	NR	NR	R	R
COPPER NITRATE	R	R	R	R
COPPER PLATING SOLUTION: COPPER CYANIDE - 105% COPPER - 4% COPPER CYANIDE - 6% ROCHELLE SALTS	NR	NR	R	R
COPPER BRITE PLATING: CAUSTIC CYANIDE	NR	NR	R	38°
COPPER PLATING SOLUTION: - 45% COPPER FLUOROBRATE - 19% COPPER SULFATE - 8% SULFURIC ACID	NR	NR	R	R
COPPER MATTE DIPPING BATH: - 30% FERRIC CHLORIDE - 19% HYDROCHLORIC	NR	NR	R	R
COPPER PICKLING BATH: - 10% FERRIC SULFATE - 10% SULFURIC ACID	NR	NR	R	R

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
COPPER SULFATE	R	R	R	R
CORN OIL	R	NR	R	R
CORN STARCH-SLURRY	R	NR	R	R
CORN SUGAR	R	NR	R	R
COTTONSEED OIL	R	NR	R	R
CRUDE OIL, SOUR	R	NR	R	R
CRUDE OIL, SWEET	R	NR	R	R
CYCLOHEXANE	R	NR	R	49°
DETERGENTS, SULFONATED	R	NR	R	R
DI-AMMONIUM PHOSPHATE	NR	NR	R	R
DIBROMOPHENOL	NR	NR	NR	NR
DIBUTYL ETHER	NR	NR	R	49°
DICHLORO BENZENE	NR	NR	NR	NR
DICHLOROETHYLENE	NR	NR	NR	NR
DIESEL FUEL	R	NR	R	R
DIETHYLENE GLYCOL	R	NR	R	R
DIMETHYL PHTHALATE	NR	NR	R	R
DIOCTYL PHTHALATE	NR	NR	R	R
DIPROPYLENE GLYCOL	R	NR	R	R
DODECYL ALCOHOL	NR	NR	R	R
ESTERS, FATTY ACIDS	R	R	R	R
ETHYL ACETATE	NR	NR	NR	NR
ETHYL BENZENE	NR	NR	NR	NR
ETHYL ETHER	NR	NR	NR	NR
ETHYLENE GLYCOL	R	R	R	R
ETHYLENE DICHLORIDE	NR	NR	NR	NR
FATTY ACIDS	R	R	R	R
FERRIC CHLORIDE	R	R	R	R
FERRIC NITRATE	R	R	R	R
FERRIC SULFATE	R	R	R	R
FERROUS CHLORIDE	R	R	R	R
FERROUS NITRATE	R	R	R	R
FERROUS SULFATE	R	R	R	R
8-8-8- FERTILISER	R	NR	R	49°
FERTILISER: UREA AMMONIUM NITRATE	NR	NR	R	49°
FUEL GAS	NR	NR	R	R
FLUOBORIC ACID	NR	NR	R	49°
FLUOSILICIC ACID 0-20%	NR	NR	R	R
FORMALDEHYDE	R	NR	R	R
FORMIC ACID	R	NR	R	R
FUEL OIL	R	NR	R	R
GAS, NATURAL	R	NR	R	R
GASOLINE, AUTO	R	NR	R	R
GASOLINE, AVIATION	R	NR	R	R
GASOLINE, ETHYL	R	NR	R	R
GLUCONIC ACID	R	NR	R	R
GASOLINE, SOUR	R	NR	R	R
GLUCOSE	R	R	R	R
GLYCERINE	R	R	R	R
GLYCOL, ETHYLENE	R	R	R	R
GLYCOL, PROPYLENE	R	R	R	R
GLYCOLIC ACID	R	NR	R	R

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
GOLD PLATING SOLUTION: - 63% POTASSIUM FERROCYANIDE - 2% POTASSIUM GOLD CYANIDE - 8% SODIUM CYANIDE	NR	NR	R	R
HEPTANE	R	NR	R	R
HEXANE	R	NR	R	R
HEXYLENE GLYCOL	R	R	R	R
HYDRAULIC FLUID	R	NR	R	R
HYDROBROMIC ACID 0-25%	R	NR	R	R
HYDROCHLORIC ACID 0-37%	R	NR	R	R
HYDROCYANIC ACID	R	NR	R	R
HYDROFLUORIC ACID 10%	NR	NR	R	NR
HYDROFLUOSILICIC ACID 10%	NR	NR	R	R
HYDROGEN BROMIDE, WET GAS	NR	NR	R	R
HYDROGEN CHLORIDE, DRY GAS	NR	NR	R	R
HYDROGEN CHLORIDE, WET GAS	NR	NR	R	R
HYDROGEN PEROXIDE	NR	NR	R	49°
HYDROGEN SULFIDE, DRY	R	NR	R	R
HYDROGEN SULFIDE, AQUEOUS	R	NR	R	R
HYDROGEN FLUORIDE, VAPOUR	NR	NR	R	R
HYDROSULFITE BLEACH	NR	NR	R	49°
HYDROCHLORUS ACID 0-10%				
IRON PLATING SOLUTION: - 45% FECL:15% CACL - 20%FECL:11% (NH4)2SO4)	NR	NR	R	R
IRON & STEEL CLEANING BATH: - 9% HYDROCHLORIC - 23% SULFURIC	NR	NR	R	R
ISOPROPYL AMINE	NR	NR	R	38°
ISOPROPYL PALMITATE	R	R	R	R
JET FUEL	R	NR	R	R
KEROSENE	R	NR	R	R
LACTIC ACID	R	NR	R	R
LAUROYL CHLORIDE	NR	NR	R	R
LAURIC ACID	R	NR	R	R
LEAD ACETATE	R	NR	R	R
LEAD CHLORIDE	R	NR	R	R
LEAD NITRATE	R	NR	R	R
LEAD PLATING SOLUTION: - .8% FUOBORIC ACID - .4% BORIC ACID	NR	NR	R	R
LEVULINIC ACID	R	NR	R	R
LINSEED OIL	R	R	R	R
LITHIUM BROMIDE	R	R	R	R
LITHIUM SULFATE	R	R	R	R
MAGNESIUM BISULFITE	R	NR	R	R
MAGNESIUM CARBONATE	R	NR	R	R
MAGNESIUM CHLORIDE	R	R	R	R
MAGNESIUM HYDROXIDE	NR	NR	R	60°
MAGNESIUM NITRATE	R	NR	R	R
MAGNESIUM SULFATE	R	R	R	R
MALEIC ACID	R	R	R	R

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
MERCUROUS CHLORIDE	R	NR	R	R
METHYLENE CHLORIDE	NR	NR	NR	NR
METHYL ETHYL KETONE	NR	NR	NR	NR
METHYL ISOBUTYL CARBITOL	NR	NR	NR	NR
METHANOL (SEE ALCOHOL	R	NR	R	R
METHYL ISOBUTYL KETONE	NR	NR	NR	NR
METHYL STYRENE	NR	NR	NR	NR
MINERAL OILS	R	R	R	R
MOLYBDENUM DISULFIDE	R	NR	R	R
MONOCHLORO ACETIC ACID	NR	NR	NR	NR
MONOETHANOLAMINE	NR	NR	NR	NR
MOTOR OIL	R	R	R	R
MYRISTIC ACID	-	-	R	R
NAPHTHA	R	R	R	R
NAPHTHALENE	R	NR	R	R
NICKEL CHLORIDE	R	R	R	R
NICKEL NITRATE	R	R	R	R
NICKEL PLATING: - 8% LEAD - .8% FLUOBORIC ACID - .4% BORIC ACID	NR	NR	R	R
NICKEL PLATING: - 11% NICKEL SULFATE - 2% NICKEL CHLORIDE - 1% BORIC ACID	R	NR	R	R
NICKEL PLATING: - 44% NICKEL SULFATE - 4% AMMONIUM CHLORIDE - 4% BORIC ACID	R	NR	R	R
NICKEL SULFATE	R	R	R	R
NITRIC ACID 0-5%	R	R	R	R
NITRIC ACID 20%	NR	NR	R	49°
NITRIC ACID FUMES	NR	NR	NR	NR
NIBROBENZENE	NR	NR	NR	NR
O-BENZOYL BENZOIC ACID	NR	NR	R	R
OCTANOCI ACID	R	NR	R	R
OIL, SOUR CRUDE	R	R	R	R
OIL, SWEET CRUDE	R	R	R	R
OLEIC ACID	R	R	R	R
OLEUM, FUMING SULFURIC	NR	NR	NR	NR
OLIVE OILOXALIC ACID	R	R	R	R
PEROXIDE BLEACH: - 2% SODIUM PEROXIDE 95% - .025% EPSOM SALTS - 5% SODIUM SILICATE 42.BE - 1.4% SULFURIC ACID 66.BE	R	R	R	R
PHENOL	NR	NR	NR	NR
PHENOL SULFONIC ACID	NR	NR	NR	NR
PHOSPHORIC ACID	R	R	R	R
PHOSPHORIC ACID FUMES	R	R	R	R
PHOSPHOROUS PENTOXIDE	R	R	R	R
PHOSPHOROUS TRICHLORIDE	NR	NR	NR	NR
PHTHALIC ACID	R	R	R	R

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
PICKLING ACIDS, SULFURIC & HYDROCHLORIC	R	R	R	R
PICRIC ACID, ALCOHOLIC				
POLYVINYL ACETATE LATEX	R	NR	R	R
POLYVINYL ALCOHOL	R	NR	R	38°
POLYVINYL CHLORIDE LATEX w/35 (PARTS DOP)	NR	NR	R	49°
POTASSIUM ALUMINIUM SULFATE	R	R	R	R
POTASSIUM BICARBONATE	R	NR	R	60°
POTASSIUM BROMIDE	R	NR	R	38°
POTASSIUM CARBONATE	R	NR	R	60°
POTASSIUM CHLORIDE	R	R	R	R
POTASSIUM DICHROMATE	R	NR	R	60°
POTASSIUM FERRICYANIDE	R	R	R	R
POTASSIUM FERROCYANIDE	R	R	R	R
POTASSIUM HYDROXIDE	NR	NR	R	66°
POTASSIUM NITRATE	R	R	R	R
POTASSIUM PERMANGANATE	R	NR	R	60°
POTASSIUM PERSULFATE	R	NR	R	R
POTASSIUM SULFATE	R	R	R	R
PROPIONIC ACID 1-50%	NR	NR	R	49°
PROPIONIC ACID 50-100%	NR	NR	NR	NR
PROPYLENE GLYCOL	R	R	R	R
PULP PAPER MILL EFFLUENT	R	NR	R	R
PYRIDINE	NR	NR	NR	NR
SALICYLIC ACID	NR	NR	R	60°
SEBACIC ACID	NR	NR	R	R
SELENIOS ACID	NR	NR	R	R
SILVER NITRATE	R	R	R	R
SILVER PLATING SOLUTION: - 4% SILVER CYANIDE - 7% POTASSIUM CYANIDE - 5% SODIUM CYANIDE - 2% POTASSIUM CARBONATE	NR	NR	R	R
SOAPS	R	NR	R	R
SODIUM ACETATE	R	NR	R	R
SODIUM BENZOATE	R	NR	R	R
SODIUM BICARBONATE	R	R	R	R
SODIUM BIFLUORIDE	R	NR	R	49°
SODIUM BISULFATE	R	R	R	R
SODIUM BISULFITE	R	R	R	R
SODIUM BROMATE	R	R	R	60°
SODIUM BROMIDE	R	R	R	R
SODIUM CARBONATE 0-25%	R	NR	R	R
SODIUM CHLORATE	R	NR	R	R
SODIUM CHLORIDE	R	R	R	R
SODIUM CHLORITE	R	NR	R	R
SODIUM CHROMITE	R	R	R	R
SODIUM CYANIDE	R	NR	R	R
SODIUM DICHROMATE	R	R	R	R
SODIUM DI-PHOSPHATE	R	R	R	R
SODIUM FERRICYANIDE	R	R	R	R
SODIUM FLUORIDE	NR	NR	R	49°
SODIUM FLUORO SILICATE	NR	NR	R	49°

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
SODIUM HEXAMETAPHOSPHATES	NR	NR	R	38°
SODIUM HYDROXIDE 0-5%	NR	NR	R	66°
SODIUM HYDROXIDE 5-25%	NR	NR	R	66°
SODIUM HYDROXIDE 50%	NR	NR	R	66°
SODIUM HYDROSULFIDE	R	NR	R	R
SODIUM HYPOCHLORITE	R	NR	R	66°
SODIUM LAURYL SULFATE	R	R	R	R
SODIUM MONO-PHOSPHATE	R	R	R	R
SODIUM NITRATE	R	R	R	R
SODIUM SILICATE	R	NR	R	R
SODIUM SULFATE	R	R	R	R
SODIUM SULFIDE	R	NR	R	R
SODIUM SULFITE	R	NR	R	R
SODIUM TETRA BORATE	R	R	R	R
SODIUM THIOCYANATE	NR	NR	R	R
SODIUM THIOSULFATE	R	NR	R	R
SODIUM TRIPOLYPHOSPHATE	R	NR	R	R
SODIUM ZYLENE SULFONATE	R	NR	R	R
SODIUM SOLUTIONS	R	NR	R	R
SODIUM CRUDE OIL	R	R	R	R
SOYA OIL	R	R	R	R
STANNIC CHLORIDE	R	R	R	R
STANNOUS CHLORIDE	R	R	R	R
STEARIC ACID	R	R	R	R
STYRENE	NR	NR	NR	NR
SUGAR, BEET & CANE LIQUOR	R	NR	R	R
SUGAR, SUCROSE	R	R	R	R
SULFAMIC ACID	R	NR	R	R
SULFANILIC ACID	R	NR	R	R
SULFATED DETERGENTS	R	NR	R	R
SULFUR DIOXIDE, DRY OR WET	NR	NR	R	R
SULFUR TRIOXIDE/AIR	NR	NR	R	R
SULFURIC ACID 0-30%	R	R	R	R
SULFURIC ACID 30-50%	NR	NR	R	R
SULFURIC ACID 50-70%	NR	NR	R	49°
SULFUROUS ACID	NR	NR	R	38°
SUPERPHOSPHORIC ACID, 76% P ₂ O ₅	R	NR	R	R
TALL OIL	R	NR	R	60°
TANNIC ACID	R	NR	R	66°
TARTARIC ACID	R	R	R	R
THIONYL CHLORIDE	NR	NR	NR	NR
TIN PLATING: - 18% STANNOUS FLUORBORATE - 7% TIN - 9% FLUOROBORIC ACID - 2% BORIC ACID	NR	NR	R	R
TOLUENE	NR	NR	NR	NR
TOLUENE SOLFONIC ACID	NR	NR	R	R
TRANSFORMER OILS: MINERAL OIL TYPES CHLORO-PHENYL TYPES	R	R	R	R
TRYCHLOR ACETIC ACID	R	NR	R	R
TRICHLORETHYLENE	NR	NR	NR	NR

CHEMICAL	SERIES 500-525		SERIES 625	
	RT	70°C	RT	70°C
TRICHLOROPENOL	NR	NR	NR	NR
TRICRESYL PHOSPHATE	NR	NR	R	49°
TRIDECYLBENZENE SULFONATE	R	NR	R	R
TRISODIUM PHOSPHATE	R	NR	R	R
TURPENTINE	NR	NR	R	38°
UREA	NR	NR	R	38°
VEGETABLE OILS	R	R	R	R
VINEGAR	R	R	R	R
VINYL ACETATE	NR	NR	NR	NR
WATER, DEIONISED DEMINERALISED	R	R	R	R
WATER, DISTILLED	R	R	R	R
WATER, FRESH	R	R	R	R
WATER, SALT	R	R	R	R
WATER, SEA	R	R	R	R
WHITE LIQUOR: PULP MILL	R	NR	R	R
XYLENE	NR	NR	NR	NR
ZINC CHLORATE	R	R	R	R
ZINC NITRATE	R	R	R	R
ZINC PLATING SOLUTION: - 9% ZINC CYANIDE - 4% SODIUM CYANIDE - 9% SODIUM HYDROXIDE	NR	NR	R	49°
ZINC PLATING SOLUTION: - 49% ZINC FLUOROBORATE - 5% AMMONIUM CHLORIDE - 6% AMMONIUM FLUOROBORATE	R	NR	R	R
ZINC SULFATE	R	R	R	R