

Royal Edge Re-Flex TPO Chemical Resistance Guide

While it is difficult to foresee all chemicals, chemical combinations, and environments to which RPI Royal Edge TPO Roofing Membrane may be subjected, the following information is suggested to help guide your decisions. The best means to determine whether a substance is compatible with the Royal Edge TPO membrane is a laboratory analysis which can take some time to perform.

Some of the following factors affect the severity of a chemical in direct exposure to RPI Royal Edge TPO Roofing membrane.

1. Higher temperatures generally have a greater effect on severity of the chemical on the membrane.
2. The concentration of the chemical has a direct effect on degree of compatibility. Usually, the greater the dilution, the greater the potential for compatibility.
3. Occasional exposure to the chemical is typically less severe than continuous exposure.

When roofs are severely contaminated with another substance, such as grease, oil or a pool of chemicals, the membrane will be affected in one way or another. It is not recommended to allow any contaminate to remain on the roof surface over time, as it will compromise the reflectivity of the membrane and allow dirt and foreign substances to build up.

The following chart is suggested to rate the relative effects of the chemical on the RPI Royal Edge TPO Roofing membrane according to the following scale:

A = Negligible effect

B = Limited effect

C = Extensive Absorption

D = Extensive Attack

** May produce cracking in material under stress.

-- No data available

Note: When a concentration is not shown, the substance is pure or concentrated.

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Environment	Concentration %	Temperature °F (°C)		Environment	Concentration %	Temperature °F (°C)	
		70 (21)	140 (60)			70 (21)	140 (60)
Acetic acid (glacial)	97	A	B	Barium sulfate		A	A
Acetic acid	50	A	A	Barium sulfide		A	A
Acetic acid	40	A	A	Beer		A	A
Acetic acid	10	A	A	Benzene		C	D
Acetone		A	A	Benzoic acid		A	A
Acetophenone		B	B	Benzyl alcohol		A	A
Acriflavine (2% soln in H ₂ O)	2	A	A	Bismuth carbonate		A	A
Acrylic emulsions		A	A	Borax		A	A
Aircraft exhaust ^{gas & jet} fully burned		A	A	Boric acid		A	A
Airport environment ^{(fumes} & gases)		A	A	Brine		A	A
Aluminum chloride		A	A	Bromine liquid		D	--
Aluminum fluoride		A	A	Bromine water		**C	--
Aluminum sulfate		A	A	Butyl acetate		C	C
Alums (all types)		A	A	Butyl alcohol		A	--
Ammonia gas (dry)		A	A	Calcium carbonate		A	A
Ammonia (aqueous)	30	A	--	Calcium chlorate		A	A
Ammonium carbonate		A	A	Calcium chloride	50	A	A
Ammonium chloride		A	A	Calcium hydroxide		A	A
Ammonium fluoride	20	A	A	Calcium hydrochlorite bleach	20	A	B
Ammonium hydroxide	10	A	A	Calcium nitrate		A	A
Ammonium metaphosphate		A	A	Calcium phosphate	50	A	--
Ammonium nitrate		A	A	Calcium sulfate		A	A
Ammonium persulfate		A	A	Calcium sulfite		A	A
Ammonium sulfate		A	A	Carbon dioxide (dry)		A	A
Ammonium sulfide		A	A	Carbon dioxide (wet)		A	A
Ammonium thiocyanate		A	A	Carbon disulfide		B	C
Amyl acetate		B	C	Carbon monoxide		A	A
Amyl alcohol		A	B	Carbon tetrachloride		C	C
Amyl chloride		C	C	Carbonic acid		A	A
Aniline		A	A	Caster oil		A	--
Animal fat/grease		A	B	Cetyl alcohol		A	--
Anisole		B	B	Chlorine (gas)		D	D
Antimony chloride		A	A	Chlorobenzene		C	C
Aqua regia		**C	**C	Chloroform		C	D
Aviation gasoline ^{80 to 110} (octane)		C	D	Chlorosulfonic acid		D	D
Aviation turbine fuel		C	D	Chrome alum		A	A
Barium carbonate		A	A	Chromic/sulfuric acid		D	D
Barium chloride		A	A	Chromic acid	80	**B	--
Barium hydroxide		A	A	Chromic acid	50	**B	**B

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		70 (21)	140 (60)			70 (21)	140 (60)
Chromic acid	10	**B	**B	Fruit juices		A	A
Cider		A	A	Furfural		C	C
Citric acid	10	A	A	Gasoline <small>(the higher the octane the greater the affect)</small>		C	D
Copper chloride		A	A	Gas liquor		C	--
Copper cyanide		A	A	Gear box oil		B	C
Copper nitrate		A	A	Gelatin		A	A
Copper fluoride		A	A	Glucose	20	A	A
Copper sulfate		A	A	Glycerin <small>-lubricating (petroleum based)</small>		A	A
Cottonseed oil		A	B	Glycol		A	A
Cuprous chloride		A	A	Grease		B	C
Cyclohexanol		A	B	Hexane	100	C	D
Cyclohexanone		B	C	Hydrobromic acid	50	**B	C
Decalin		C	C	Hydrochloric acid	30	A	A
Detergents	2	A	A	Hydrochloric acid	20	A	A
Developers (photographic)		A	A	Hydrochloric acid	10	A	A
Dibutyl phthalate		B	C	Hydrochloric acid	2	A	A
Dichloroethylene		C	--	50-50 Hydrochloric-Nitric Acid		**B	**D
Diethanolamine		A	A	Hydrofluoric acid	40	A	--
Diisooctyl phthalate		B	C	Hydrofluoric acid	60	**B	**C
Emulsifiers		A	A	Hydrogen peroxide	30	A	B
Ethyl acetate		B	B	Hydrogen peroxide	10	A	B
Ethyl alcohol	96	A	A	Hydrogen peroxide	3	A	A
Ethylene glycol		A	A	Hydrogen chloride gas (dry)		A	A
Ethanolamine		A	A	Hydrogen sulfide		A	A
Ethyl ether		C	--	Hydroquinone		A	A
Ethyl chloride		C	C	Inks		A	A
Ethylene dichloride		B	--	Iodine tincture		A	--
Ethylene oxide		B	--	Isopropyl alcohol		A	A
Fatty acids (C ₆)		A	A	Iso-octane		C	D
Ferric chloride		A	A	Jet Fuel (kerosene based)		C	D
Ferric nitrate		A	A	Kerosene		C	D
Ferric sulfate		A	A	Ketones		A	--
Ferrous chloride		A	A	Lactic acid	20	A	A
Ferrous sulfate		A	A	Lanolin		A	A
Fluorosilicic acid		A	A	Lead acetate		A	A
Formaldehyde	40	A	A	Linseed oil		A	A
Formic acid		A	--	Lubricating oil (petroleum based)		B	C
Formic acid	10	A	A	Magenta dye (aqu. solutin)	2	A	A
Fructose		A	A	Magnesium carbonate		A	A

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		70 (21)	140 (60)			70 (21)	140 (60)
Magnesium chloride		A	A	Plating solutions, chromium		A	A
Magnesium hydroxide		A	A	Plating solutions, copper		A	A
Magnesium nitrate		A	A	Plating solutions, gold		A	A
Magnesium sulfate		A	A	Plating solutions, indium		A	A
Magnesium sulfite		A	A	Plating solutions, lead		A	A
Meat juices		A	A	Plating solutions, nickel		A	A
Mercuric chloride	40	A	A	Plating solutions, rhodium		A	A
Mercuric cyanide		A	A	Plating solutions, silver		A	A
Mercury		A	A	Plating solutions, tin		A	A
Mercurous nitrate		A	A	Plating solutions, zinc		A	A
Methyl ethyl ketone		A	B	Petroleum ether (B.P. 100-140°C)		C	D
Methyl alcohol		A	A	Potassium bicarbonate		A	A
Methylene chloride		A	--	Potassium borate	1	A	A
Milk and its products		A	A	Potassium bromate	10	A	A
Mineral oil		B	C	Potassium bromide		A	A
Molasses		A	A	Potassium carbonate		A	A
Motor oil (conventional)		B	C	Potassium chlorate		A	A
Motor oil (synthetic)		B	C	Potassium chloride		A	A
Naphthalene		A	A	Potassium chromate	40	A	A
Nickel chloride		A	A	Potassium cyanide		A	A
Nickel nitrate		A	A	Potassium dichromate	40	A	A
Nickel sulfate		A	A	Potassium ferri/ferrocyanide		A	A
Nitric acid	Fuming	D	D	Potassium fluoride		A	A
Nitric acid	70	**C	D	Potassium hydroxide	50	A	A
Nitric acid	60	**C	D	Potassium hydroxide	10	A	A
Nitric acid	10	A	D	Potassium nitrate		A	A
50-50 Nitric-Hydrochloric acid		**C	D	Potassium perborate		A	A
50-50 Nitric-Sulfuric Acid		**C	D	Potassium perchlorate	10	A	A
Nitrobenzene		A	A	Potassium permanganate	20	A	A
Oleic acid		A	B	Potassium sulfate		A	A
Olive oil		A	A	Potassium sulfide		A	A
Oxalic acid (aqueous)	50	A	B	Potassium sulfite		A	A
Paraffin		A	B	Propyl alcohol		A	A
Paraffin wax		A	A	Pyridine		A	--
Petrol (gasoline)		C	D	Silicone oil		A	A
Phenol		A	A	Soap solution (concentrated)		A	A
Phosphoric acid	95	A	B	Sodium acetate		A	A
Plating solutions, brass		A	A	Sodium bicarbonate		A	A
Plating solutions, cadmium		A	A	Sodium bisulfate		A	A

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Sodium bisulfite		A	A	Tartaric acid		A	A
Sodium borate		A	A	Tetrahydrofuran		C	D
Sodium bromide oil solution		A	A	Tetralin		C	C
Sodium carbonate		A	A	Toluene		C	D
Sodium chlorate		A	A	Transformer oil		B	C
Sodium chloride		A	A	Trichloroacetic acid	10	A	A
Sodium chlorite	2	A	A	Trichloroethylene		C	C
Sodium chlorite	5	A	A	Triethanolamine		A	A
Sodium chlorite	10	A	A	Turpentine		C	C
Sodium chlorite	20	A	A	Urea		A	A
Sodium cyanide		A	A	Urine		A	A
Sodium dichromate		A	A	Vaseline		A	A
Sodium ferricyanide		A	A	Vegetable oils (general)		A	B
Sodium ferricyanide		A	A	Vinegar		A	A
Sodium fluoride		A	A	Water (distilled, soft, hard & vapor)		A	A
Sodium hydroxide	50	A	A	Wet chlorine gas		--	D
Sodium hydroxide	10	A	A	Whisky		A	A
Sodium hypochlorite	20	A	B	White paraffin		A	B
Sodium nitrate		A	A	White spirit		B	C
Sodium nitrate		A	A	Wines		A	A
Sodium silicate		A	A	Xylene		C	D
Sodium sulfate		A	A	Yeast		A	A
Sodium sulfide	25	A	A	Zinc chloride		A	A
Sodium sulfite		A	A	Zinc oxide		A	A
Stannous chloride		A	A	Zinc sulfate		A	A
Stannic chloride		A	A				
Starch		A	A				
Sulfates of calcium & magnesium		A	A				
Sulfates of potassium & sodium		A	A				
Sulfur		A	A				
Sulfuric acid	98	**C	D				
Sulfuric acid	60	B	C				
Sulfuric acid	50	B	C				
Sulfuric acid	10	A	A				
50-50 Sulfuric-Nitric Acid		**C	D				
Sugars and syrups		A	A				
Sulfamic acid		A	A				
Tallow		A	B				
Tannic acid	10	A	A				

NOTE: The data shown are the result of laboratory tests and are intended only as a guide. No performance warranty is intended or implied and RPI guarantees and limited warranties do **not** cover damage due to oil, grease or chemicals. Ratings were determined by visual examination of coated fabric samples after contact with test fluid for 28 days at room temperature. When considering RPI Royal Edge TPO roofing membrane for a specific application, it is important to study other requirements such as permeability, service temperature, concentration, size to be contained, etc. A sample of RPI Royal Edge TPO roofing membrane should be tested in actual service before specification. When impractical, tests should be devised which simulate actual service conditions as closely as possible. Consult with RPI Technical Services Department for further recommendations. This table is presented and accepted at user's risk.