

EverGuard® TPO Chemical Resistance Guide

Information Sheet

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From North America's Largest Roofing Manufacturer™*

EverGuard® TPO Chemical Resistance Guide

Chemical Resistance Guide For EverGuard TPO Membrane Systems

While it is difficult to foresee all the potential chemicals and environments to which the EverGuard TPO Roofing Membrane may be subjected, the following guide is suggested to help guide your decisions. The best means to determine whether a substance is compatible with the EverGuard 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 EverGuard 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 covered 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 a good practice to let any substance remain on the roof surface over time as it will compromise the reflectivity of the membrane and will become a haven for dirt and foreign substances to congregate.

The following chart is suggested to rate the relative effects of the chemical on the EverGuard 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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| 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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| 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 GAF 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 EverGuard® 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 EverGuard 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. The GAF Contractor Services Department should be consulted for further recommendations. This table is presented and accepted at user's risk.