



Samples of both PTMG-ether and polyester-based elastomers were immersed for seven days at 75°F (24°C) in various chemicals. Samples were then removed, dried and measured for volume swell. Ratings were given based on the following key :

<u>Grading</u>	<u>Comment</u>	<u>Volume Swell %</u>
1	Excellent	0 - 3
2	Good	4 - 15
3	Fair	16 - 35
4	Poor	36 upwards

<u>Chemical</u>	<u>Ether</u>	<u>Ester</u>
Acetaldehyde	4	4
Acetic Acid	4 - 3	4 - 3
Acetic Anhydride	4	4
Acetone	4	4
Acetyl Bromide	3 - 4	4
Acetyl Chloride	3 - 4	4
Acetylene	2 - 3	3
Adipic Acid	1	2
Aluminum Chloride	2	2
Aluminum Sulfate	2	2
Aluminum Sulfide	2	2
Ammonia	2	2 - 3
Ammonium Acetate	3 - 4	3 - 4
Ammonium Carbonate	2	2
Ammonium Hydroxide	1 - 2	2
Ammonium Nitrate	2	2 - 3
Ammonium Persulfate	2	2
Ammonium Sulfate	2	2
Ammonium Sulfide	2	2
Ammonium Thiocyanate	2	2
Amyl Acetate	4	4
Amyl Alcohol	3	3 - 4
Amyl Chloride	3	3
Aniline	4	4
Aniline Hydrochloride	4	4
Animal Fats & Oils	2 - 3	2 - 3
Antimony Salts	2	2
Aqua Regia	4	4
Arsenic Salts	2 - 1	2
ASTM Oil #1	1 - 2	1
ASTM Oil #2	2	1
ASTM Oil #3	2	1
ASTM Reference Fuel A	1	1 - 2



<u>Chemical</u>	<u>Ether</u>	<u>Ester</u>
ASTM Reference Fuel B	2	2
Atlantic Oil	1	1 - 2
Barium Carbonate	2	2
Barium Hydroxide	1	2
Benzaldehyde	3 - 2	4
Benzene	4	4
Benzene (Gasoline) (aromatic)	2 - 3	3
Benzoic Acid	2 - 3	3 - 4
Boric Acid	1	2
Bromine	2 - 3	2 - 3
Bunker Oil	1 - 2	2
Butane	1	2 - 3
Butyl Acetate	4	4
Butyl Alcohol	2	3
Calcium Carbonate	2	2
Calcium Chloride	1	2
Calcium Hydroxide	1	2
Calcium Nitrate	2	2
Calcium Sulfate	2	2
Carbon Dioxide	1	1
Carbon Disulfide	2 - 3	2 - 3
Carbon Monoxide	1	1
Carbon Tetrachloride	3	4
Chloroacetic Acid	3 - 4	4
Chloroform	4	4
Chromic Acid	3 - 4	4
Chromium Potassium Sulfate	2	2
Citric Acid	2	2
Cottonseed Oil	1	2
Cresol (meta)	4	4
Cupric Chloride	1	2
Cupric Nitrate	2	2
Cupric Sulfate	2	2
Cyclohexanone	4	4
Cyclohexane	2	2
Dibutyl Phthalate	3 - 4	4
Dibutyl Ether	2	2
Dichlorobenzene (Ortho)	3	3
Dodecyl Mercaptan	2 - 3	2
Diester Oil	2	2
Dimethyl Acetamide	4	4
Dimethyl Formamide	4	4



<u>Chemical</u>	<u>Ether</u>	<u>Ester</u>
DTE Oil (heave, medium)	2	2 - 3
Ether	2 - 3	2 - 3
Ethyl Acetate	4	4
Ethyl Alcohol (Ethanol)	3	2 - 3
Ethyl Bromide	3	3 - 4
Ethyl Chloride	3	3 - 4
Ethylene Glycol	2	2 - 3
Esso #90 Lub. Oil	1	2
Ferric Chloride	2	2
Ferric Nitrate	2	2
Ferrous Chloride	2	2
Ferrous Sulfate	2	2
Formaldehyde	3	2
Formic Acid	3 - 4	4
Freon, 12 or 113	1	2
Fuel Oil	2	2
Gasoline	2	2 - 3
Glycerine (Glycerol)	1	2
Glycolic Acid	2	2 - 3
Greases	1 - 2	2
Heptane	1	2
Hexane	1	2
Hydrazine	4	4
Hydrobromic Acid	2	2
Hydrocarbon Oil	1	2
Hydrochloric Acid, 20%	2	2 - 3
Hydrofluoric acid	2 - 3	3
Hydrogen	1 - 2	2
Hydrogen Peroxide	2	2
Hydrogen Sulfide	3 - 4	4
Hydroiodic Acid	2	2
Iodine Solution	1	2
Isooctane	2	2
Isopropyl Alcohol (Isopropanol)	2 - 3	3
Isopropyl Ether	2	2 - 3
JP-4 oil	2 - 3	3
JP-5 & 6	4	4
Kerosene	2	2 - 3
Lactic Acid	2	2
Lead Acetate	2	2
Linseed Oil	2	2 - 3
Lubricating Oil	2	2 - 3
Magnesium Hydroxide	1	1 - 2
Magnesium Salts	2	2



<u>Chemical</u>	<u>Ether</u>	<u>Ester</u>
Malaic Acid	3 -4	4
Mercury	1 -2	2
Methyl Alcohol (methanol)	4	3
Methyl Ethyl Ketone	4	4
Methylene Chloride	4	4
MIL-D-5606 Oil	3	3 -4
MIL-L-7808	1 -2	2 -3
Mineral Oil	1	1
Mobil Artic Oil	1	2
Naphthalene	2	2 - 3
Natural Gas	2	2
Nickel Salts	3	3 -4
Nitric Acid	4	4
Nitrobenzene	4	4
Nitrogen	1	1
Oleic Acid	1 -2	2
Oxalic Acid (5%)	1	1 - 2
Oxygen	1	1
Ozone	1	1
Palmitic Acid	1	2
Paints	1 -2	2
Perchloric Acid	4	4
Perchloroethylene	3 -4	4
Petroleum	1 -2	2
Phenol (carbolic acid)	4	4
Phosphoric Acid (dil.)	2 -3	3
Phosphoric Acid (conc.)	3	4
Potassium Cyanide	1	2
Potassium Salts	2	2
Propane	2	2
Propyl Alcohol	2 -3	3
Propylene Glycol	2	2
Pydraul Oil	4	4
SAE #10 Oil	1	1
Seawater	1 -2	2
Silicic Acid	2 -1	2
Skydrol Oil (500)	4	3
Silver Nitrate	2	2
Soap	2 -3	2 - 3
Sodium Acetate	1 - 2	2
Sodium Bicarbonate	2	2
Sodium Bisulfate	2	2
Sodium Borate	2	2



<u>Chemical</u>	<u>Ether</u>	<u>Ester</u>
Sodium Carbonate	2	2
Sodium Chlorate	2	2
Sodium Chloride	2	2
Sodium Cyanide	2	2
Sodium Dichromate	2	2
Sodium Ferrocyanide	2	2
Sodium Fluoride	2	2 - 3
Sodium Hydrosulfite	2	2
Sodium Hydroxide, 45%	2	2
Sodium Nitrate	2	2
Sodium Silicate	1 - 2	2
Sodium Sulfate	2	2
Sodium Sulfide	2	2
Sodium Hypochlorite, 5%	4	4
Sperry Oil	2	2 - 3
Steam	4	4
Stoddard Solvent	1	2
Styrene	2	2
Sulfur Dioxide	2	2 - 3
Sulfuric Acid, 10-50%	3 - 4	4
Tannic Acid, 10%	1	2
Tartaric Acid	1	2 - 3
Tin Salts	2	2
Titanium Salts	2	2
Toluene	4	4
Transformer Oil	2 - 3	3
Trichloroacetic Acid	4	4
Trichloroethylene	4	4
Tricresyl Phosphate	3 - 4	4
Triethanol Amine	2	2
Trisodium Phosphate	2	2
Turpentine	3	2
Urea	2	2
Varnish	2	2 - 3
Vegetable	1	2
Water	2	2
Xylene	3	3 - 4
Xylol	3 - 4	4
Zinc Chloride	2	2
Zinc Sulfate	2	2