

# CHEMICAL RESISTANCE GUIDE

CHEMICALS (Please see page 6 for General Information and Cautions)	LATEX	NITRILE
Acetaldehyde	Yellow	Red
Acetamide	Red	Blue
Acetic acid (50% concentration)	Green	Green
Acetone	Red	Red
Acetonitrile	Green	Red
Acetophenone	Red	Red
Acetyl chloride	Red	Red
Acrylamide (same as 2-propenamide)	Grey	Grey
Acrylic acid	Green	Yellow
Aircraft stripper	Red	Green
Aluminum nitrate (nonhydrous) (10% concentration)	Green	Green
Ammonia (anhydrous)	Red	Green
Ammonium benzoate (same as benzoic acid)	Red	Red
Ammonium hydroxide (30% concentration)	Green	Blue
Ammonium hydroxide (concentrated)	Red	Red
Ammonium oxalate	Blue	Grey
Ammonium sulfate (aqueous)	Blue	Blue
Amyl acetate	Red	Red
Aniline	Red	Red
Antifreeze (methanol-based)	Blue	Blue
Benzaldehyde	Red	Red
Benzene	Red	Red
Benzoic acid	Red	Red
Boric acid	Blue	Blue
Brake cleaner (containing hexane or ethanol)	Red	Blue
Brake cleaner, non-chlorinated (containing acetone, n-heptane and/or xylene)	Red	Red
Brake fluid	Green	Green
Bromine (anhydrous liquid)	Red	Red
Bromoethane (methyl bromide)	Red	Red
Butyl acetate	Red	Red
n-Butyl alcohol (propyl carbinol)	Green	Blue
n-Butyl chloride	Red	Red
1, 3-Butylene glycol (1,3-butanediol)	Grey	Green
Calcium chloride (aqueous)	Blue	Blue
Calcium hydroxide (dental)	Blue	Blue
Carbamide peroxide (urea+hydrogen peroxide at 1:1 ratio)	Green	Yellow
Carbon dioxide	Green	Blue
Carbon disulfide	Red	Red
Carbon tetrachloride	Red	Green
Carburetor cleaner (typically xylene, toluene and/or acetone)	Red	Red
Castor Oil	Blue	Blue

CHEMICAL RATINGS KEY

EXCELLENT

GOOD

FAIR

NOT RECOMMENDED

NO DATA

The following chemical resistance ratings are based on published research data. Microflex® gloves have not been individually tested against the chemicals contained in this chart.

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Chlorine (wet)	Red	Red
Chlorobenzene	Red	Red
Chloroform	Red	Red
o-Chloronaphthalene	Red	Red
Chromic acid (50% concentration)	Red	Yellow
Citric acid (10% concentration)	Blue	Blue
Clonidine hydrochloride (0.1% concentration)	Grey	Grey
Cresols	Red	Red
Cupric sulfate (copper sulfate)	Green	Blue
Cyanic compounds	Grey	Yellow
Cyclohexane	Red	Blue
Cyclohexanol	Yellow	Green
Cyclohexanone	Red	Red
Decahydronaphthalene (decalin)	Red	Red
Denatured alcohol	Blue	Blue
Dental etching material	Green	Green
Dental resin cement	Yellow	Grey
Dental waxes	Red	Blue
Denture polishing material	Red	Green
Detergent solutions	Green	Blue
Developing fluids	Blue	Blue
Diamond polishing paste	Green	Green
Dibutyl phthalate	Red	Red
o-dichlorobenzene	Red	Red
p-dichlorobenzene	Red	Red
Dichloromethane	Red	Red
Diesel fuel	Red	Green
Diesel fuel additive	Red	Green
Diethylamine	Yellow	Yellow
Diethylene glycol	Blue	Blue
Diisobutyl ketone (DIBK)	Red	Red
N, N-dimethyl acetamide (same as dimethyl acetamide (DMAC), same as acetic acid)	Green	Green
Dimethylformamide	Red	Green
Dimethyl sulfoxide (DMSO)	Red	Red
Diethyl phthalate (DOP)	Red	Red
Dioxane	Red	Red
EDTA (17% solution)	Green	Green
Engine cleaner and degreaser (containing kerosene, petroleum distillates or propane-isobutane-n-butane as main components)	Red	Green
Epoxy primer (containing toluene, acetone, MEK and/or n-butyl acetate)	Red	Red
Ethanol (ethyl alcohol) (95% concentration)	Blue	Blue
Ethanolamine	Green	Green

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Ether	Red	Red
Ethidium bromide (0.5% concentration)	Grey	Grey
2-ethoxyethanol (ethoxyethanol)	Green	Blue
Ethyl acetate	Red	Red
Ethyl ether	Red	Red
Ethylene dichloride	Red	Red
Ethylene glycol	Blue	Blue
Ethylene oxide	Red	Red
Ferric chloride (aqueous)	Blue	Blue
Formaldehyde	Green	Green
Formalin (40% concentration of formaldehyde)	Green	Green
Formamide	Grey	Blue
Formic acid (90% concentration)	Green	Green
Freon 11	Red	Green
Freon 12	Red	Green
Freon 21	Red	Red
Freon 22	Red	Red
Fuel injector cleaner (primarily kerosene)	Red	Green
Furfural	Red	Red
Gasoline, leaded	Red	Blue
Gasoline, unleaded	Red	Blue
Glass ionomer dental cements	Green	Green
Glucose	Blue	Blue
Gluteraldehyde (50% concentration)	Grey	Grey
Glycerin	Blue	Blue
Glycerol	Blue	Blue
Grease, automotive (petroleum-based)	Red	Blue
Grease, automotive (silicon-based)	Green	Green
Grease, automotive (synthetic)	Red	Green
Heptane (n-heptane)	Red	Blue
Hexane	Red	Green
Hydraulic fluid (petroleum-based)	Red	Green
Hydrochloric acid (20% concentration)	Blue	Green
Hydrochloric acid (50% concentration)	Blue	Yellow
Hydrochloric acid (concentrated)	Green	Red
Hydrofluoric acid (48% concentration)	Yellow	Green
Hydrofluoric acid (concentrated)	Red	Red
Hydrogen peroxide (3% concentration)	Green	Green
Hydrogen peroxide (30% concentration)	Green	Red
Hydrogen peroxide (concentrated)	Red	Red
Hydroquinone	Green	Yellow

CHEMICAL RATINGS KEY	EXCELLENT	GOOD	FAIR	NOT RECOMMENDED	NO DATA
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Hydroxylamine hydrochloride		
Imidazole		
Isobutanol (isobutyl alcohol)	EXCELLENT	GOOD
Isooctane	NOT RECOMMENDED	EXCELLENT
Isopropanol (isopropyl alcohol)	EXCELLENT	EXCELLENT
Kerosene	NOT RECOMMENDED	EXCELLENT
Ketones	GOOD	NOT RECOMMENDED
Lacquers	NOT RECOMMENDED	NOT RECOMMENDED
Lacquer thinners	NOT RECOMMENDED	NOT RECOMMENDED
Lactic acid (85% concentration)	EXCELLENT	EXCELLENT
Laurel alcohol (lauryl alcohol)	EXCELLENT	EXCELLENT
Lauric acid (36% concentration)	NOT RECOMMENDED	NOT RECOMMENDED
Lead acetate	EXCELLENT	GOOD
Linoleic acid	NOT RECOMMENDED	GOOD
Linseed oil	NOT RECOMMENDED	GOOD
Lubricants (containing mineral spirits as primary component)	NOT RECOMMENDED	EXCELLENT
Maleic acid	FAIR	FAIR
2-Mercaptoethanol		
Mercuric chloride	EXCELLENT	EXCELLENT
Mercury	EXCELLENT	EXCELLENT
Methane	NOT RECOMMENDED	EXCELLENT
Methyl alcohol (methanol)	FAIR	GOOD
2-Methoxyethanol (ethylene glycol monomethyl)	NOT RECOMMENDED	FAIR
Methyl amine	FAIR	GOOD
Methyl bromide	FAIR	FAIR
Methyl butyl ketone	NOT RECOMMENDED	NOT RECOMMENDED
Methylene chloride	NOT RECOMMENDED	NOT RECOMMENDED
Methyl chloride	NOT RECOMMENDED	NOT RECOMMENDED
Methyl ethyl ketone (MEK)	NOT RECOMMENDED	NOT RECOMMENDED
Methyl isobutyl ketone (MIBK)	NOT RECOMMENDED	NOT RECOMMENDED
Methyl methacrylate	NOT RECOMMENDED	NOT RECOMMENDED
Mineral spirits	NOT RECOMMENDED	EXCELLENT
Monoethanolamine	GOOD	GOOD
Morpholine	NOT RECOMMENDED	NOT RECOMMENDED
Motor oil (includes oils made from petroleum distillates, synthetic oils, diesel oils, 2-stroke oils, and hydraulic oils)	NOT RECOMMENDED	EXCELLENT
Naphtha	NOT RECOMMENDED	EXCELLENT
Naphthalene	NOT RECOMMENDED	NOT RECOMMENDED
Nitric acid (50% concentration)	NOT RECOMMENDED	NOT RECOMMENDED
Nitromethane (95.5% concentration)	FAIR	NOT RECOMMENDED
Nitropropane (95.5% concentration)	NOT RECOMMENDED	NOT RECOMMENDED
Nitrophenols		

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Octyl alcohol (octanol)	Green	Green
Oleic acid	Yellow	Green
Oxalic acid	Green	Green
Paint (latex-based)	Red	Yellow
Paint (oil-based)	Red	Green
Paint, automotive (paint containing V.M.&P. naphtha, mineral spirits; with small amounts of toluene, xylene or n-butyl acetate)	Red	Green
Paint, automotive (paints containing large amounts of toluene, xylene or n-butyl acetate)	Red	Red
Paint activator, automotive (containing MEK, polyisocyanate resin, and/or butyl acetate)	Red	Yellow
Paint reducers/thinners, automotive (aliphatic hydrocarbons, eg. V.M.&P. naphtha or mineral spirits)	Red	Blue
Paint reducers/thinners, automotive (aromatic hydrocarbons, eg. toluene or xylene)	Red	Red
Paint thinner (Duco)	Red	Red
Palmitic acid	Green	Green
Paraformaldehyde	Red	Green
Parts wash, automotive (containing naphtha, n-hexane, cyclohexane and/or MEK)+A64	Red	Green
Pentane	Red	Blue
Pentyl ether (same as pentane)	Red	Blue
Perchloric acid (60% concentration)	Yellow	Red
Perchloroethylene	Red	Green
Periodic acid (50% concentration)	Grey	Grey
Petroleum distillates (naphthas)	Red	Green
Phenol (0.1% concentration)	Blue	Blue
Phenol (approx. 100% concentration)	Red	Red
Phenolphthalein (aromatic phenols)	Red	Red
Phosphoric acid (0 to 50% concentration)	Green	Green
Phosphoric acid (50-85% concentration)	Green	Red
Phosphoric acid (100% concentration)	Red	Red
Polysorbates	Grey	Grey
Potassium bromate	Blue	Blue
Potassium chloride	Blue	Blue
Potassium cyanide	Blue	Blue
Potassium dichromate (aqueous)	Green	Blue
Potassium hydroxide	Green	Green
Potassium iodide	Green	Blue
Potassium permanganate	Blue	Blue
Potassium sulfate (potassium sulphate)	Green	Blue
Propyl acetate	Red	Red
Propyl alcohol	Green	Blue
Propylene (1-propene, methylethylene)	Red	Red
Propylene glycol	Blue	Blue
Pyridine	Red	Red
Rust inhibitors, automotive	Blue	Blue

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Rust remover, automotive (containing <50% phosphoric acid)	Green	Green
Silver nitrate (0.17N)	Blue	Green
Sodium acetate (aqueous)	Blue	Green
Sodium azide (sodium salt)	Blue	Blue
Sodium bicarbonate (aqueous) (baking soda)	Blue	Blue
Sodium chloride (aqueous)	Blue	Blue
Sodium cyanide (aqueous)	Blue	Blue
Sodium hydroxide (50% concentration)	Blue	Blue
Sodium hypochlorite (bleach)	Yellow	Yellow
Sodium selenate (10% concentration)	Grey	Grey
Sodium thiosulfate (developing fluids)	Green	Green
Staining rating (all stains)	Blue	Yellow
Styrene	Red	Red
Sulfuric acid (50% concentration)	Blue	Blue
Sulfuric acid (93-98% concentration)	Red	Red
Tannic acid (65% concentration)	Blue	Blue
Tetrachloroethylene	Red	Yellow
Tetrahydrofuran	Red	Red
Tetramethylurea	Grey	Grey
Toluene	Red	Red
Toluene diisocyanate	Yellow	Red
Transmission fluid, Type A	Red	Blue
Transmission fluid, synthetic	Red	Green
Trichloroethylene	Red	Red
Triethanolamine	Green	Green
Triton X-100, Igepal CA, Polytergent G (octoxynol with varying ethylene oxide units)	Blue	Blue
Tung oil	Red	Blue
Turpentine	Red	Blue
Undercoater, rubberized (automotive)	Red	Green
Urea	Red	Green
Varnish	Red	Green
Vinyl chloride	Red	Red
Water	Blue	Blue
Wax remover, automotive (containing V.M.&P. naphtha, xylene and/or ethylbenzene)	Red	Red
Xylene (Xylol)	Red	Red

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The following chemical resistance ratings are based on published research data. Microflex<sup>®</sup> gloves have not been individually tested against the chemicals contained in this chart.

**General Information and Cautions:** Your understanding of how to use thin-film gloves is extremely important to your safety.

Microflex<sup>®</sup> gloves are intended for use as protection against incidental exposure to chemicals and other harmful substances. These gloves do not offer protection against all chemicals under all conditions, and are not designed to provide protection against prolonged or continuous exposure to harmful substances.

As a precaution, glove users are advised to change gloves immediately upon exposure to harmful substances. It is the responsibility of the user to choose the appropriate glove type, thickness and to change gloves as they become contaminated.

This Chemical Resistance Chart is offered as a guide and for reference purposes only. The chemical resistance ratings are based on published research data. Microflex cannot certify the accuracy of the data and therefore does not represent nor warrant that the information in the chemical resistance chart is accurate or complete.

Microflex<sup>®</sup> gloves have NOT been individually tested against the chemicals contained in this chart. The barrier properties of each glove type may be affected by differences in material thickness, chemical concentration, temperature, and length of exposure to chemicals.

If you ever have a problem, or have any questions about your Microflex<sup>®</sup> gloves, our Customer Service team is ready to assist you. Microflex is a glove provider that is ISO 13485 registered, exceeding the normal standards of FDA, QSR, and ISO 9000 requirements. Microflex<sup>®</sup> gloves meet or exceed all current medical grade examination glove standards imposed by the ASTM International and the Food and Drug Administration (FDA). At 1.5 AQL, our gloves meet or exceed new AQL standards.

**References:** Chemical Resistance Guide to Elastomers III; A Guide to Chemical Resistance of Rubber and Elastomeric Compounds, Compass Publications, La Jolla, CA, 2005. Plastics Design Library-Chemical Resistance of Plastics and Elastomers, 3rd edition, William Andrew Publishing, 2003. Dupont Dow Elastomers Chemical Resistance Guide; The Los Angeles Rubber Group; [www.dupont-dow.com](http://www.dupont-dow.com)