



CHEMICAL RESISTANCE GUIDE

FOR MICROFLEX LATEX & NITRILE GLOVES

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.

CHEMICALS	LATEX	NITRILE	CHEMICALS	LATEX	NITRILE
Acetaldehyde	Good	Not Recommended	Hydrogen Peroxide (30%)	Good	Not Recommended
Acetamide	Good	Not Recommended	Hydrogen Peroxide (Concentrated)	Good	Not Recommended
Acetic Acid (50%)	Good	Not Recommended	Hydroquinone	Good	Fair
Acetone	Not Recommended	Not Recommended	Hydroxylamine Hydrochloride	Not Recommended	Not Recommended
Acetonitrile	Good	Not Recommended	Imidazole	Not Recommended	Not Recommended
Acetophenone	Not Recommended	Not Recommended	Isobutanol (Isobutyl Alcohol)	Not Recommended	Good
Acetyl Chloride	Not Recommended	Not Recommended	Isooctane	Not Recommended	Not Recommended
Acrylamide (same as 2-Propenamida)	Not Recommended	Not Recommended	Isopropanol (Isobutyl Alcohol)	Not Recommended	Not Recommended
Acrylic Acid	Good	Fair	Kerosene	Not Recommended	Not Recommended
Aircraft Stripper	Not Recommended	Not Recommended	Ketones	Good	Not Recommended
Aluminum Nitrate (Nonhydrous) (10%)	Good	Not Recommended	Lacquers	Not Recommended	Not Recommended
Ammonia (Anhydrous)	Not Recommended	Not Recommended	Lacquer Thinners	Not Recommended	Not Recommended
Ammonium Benzoate (same as Benzoic Acid)	Not Recommended	Not Recommended	Lactic Acid (85%)	Not Recommended	Not Recommended
Ammonium Hydroxide (30%)	Good	Not Recommended	Laurel Alcohol (Lauryl Alcohol)	Not Recommended	Not Recommended
Ammonium Hydroxide (Concentrated)	Not Recommended	Not Recommended	Lauric Acid (36%)	Not Recommended	Not Recommended
Ammonium Oxalate	Not Recommended	Not Recommended	Lead Acetate	Not Recommended	Good
Ammonium Sulfate (Aqueous)	Not Recommended	Not Recommended	Linoleic Acid	Not Recommended	Good
Amyl Acetate	Not Recommended	Not Recommended	Linseed Oil	Not Recommended	Good
Aniline	Not Recommended	Not Recommended	Lubricants (containing Mineral Spirits as primary component)	Not Recommended	Not Recommended
Antifreeze (Methanol-Based)	Not Recommended	Not Recommended	Maleic Acid	Fair	Fair
Benzaldehyde	Not Recommended	Not Recommended	2-Mercaptoethanol	Not Recommended	Not Recommended
Benzene	Not Recommended	Not Recommended	Mercuric Chloride	Not Recommended	Not Recommended
Benzoic Acid	Not Recommended	Not Recommended	Mercury	Not Recommended	Not Recommended
Boric Acid	Not Recommended	Not Recommended	Methane	Not Recommended	Not Recommended
Brake Cleaner (containing Hexane or Ethanol)	Not Recommended	Not Recommended	Methyl Alcohol (Methanol)	Fair	Good
Brake Cleaner, Non-Chlorinated (containing Acetone, N-Heptane and/or Xylene)	Not Recommended	Not Recommended	2-Methoxyethanol (Ethylene Glycol Monomethyl)	Not Recommended	Fair
Brake Fluid	Good	Not Recommended	Methyl Amine	Fair	Good
Bromine (Anhydrous Liquid)	Not Recommended	Not Recommended	Methyl Bromide	Not Recommended	Fair
Bromoethane (Methyl Bromide)	Not Recommended	Not Recommended	Methyl Butyl Ketone	Not Recommended	Not Recommended
Butyl Acetate	Not Recommended	Not Recommended	Methylene Chloride	Not Recommended	Not Recommended
n-Butyl Alcohol (Propyl Carbinol)	Not Recommended	Not Recommended	Methyl Chloride	Not Recommended	Not Recommended
n-Butyl Chloride	Not Recommended	Not Recommended	Methyl Ethyl Ketone (MEK)	Not Recommended	Not Recommended
1, 3-Butylene Glycol (1,3-Butanediol)	Not Recommended	Not Recommended	Methyl Isobutyl Ketone (MIBK)	Not Recommended	Not Recommended
Calcium Chloride (Aqueous)	Not Recommended	Not Recommended	Methyl Methacrylate	Not Recommended	Not Recommended
Calcium Hydroxide (Dental)	Not Recommended	Not Recommended	Mineral Spirits	Not Recommended	Not Recommended
Carbamide Peroxide (Urea+Hydrogen Peroxide at 1:1 ratio)	Good	Fair	Monoethanolamine	Good	Not Recommended
Carbon Dioxide	Not Recommended	Not Recommended	Morpholine	Not Recommended	Not Recommended
Carbon Disulfide	Not Recommended	Not Recommended	Motor Oil (includes Oils made from Petroleum Distillates, Synthetic Oils, Diesel Oils, 2-Stroke Oils, and Hydraulic Oils)	Not Recommended	Not Recommended
Carbon Tetrachloride	Not Recommended	Not Recommended	Naphtha	Not Recommended	Not Recommended
Carburetor Cleaner (typically Xylene, Toluene and/or Acetone)	Not Recommended	Not Recommended	Naphthalene	Not Recommended	Not Recommended
Castor Oil	Not Recommended	Not Recommended	Nitric Acid (50%)	Not Recommended	Not Recommended
Chlorine (wet)	Not Recommended	Not Recommended	Nitromethane (95.5%)	Fair	Not Recommended
Chlorobenzene	Not Recommended	Not Recommended	Nitropropane (95.5%)	Not Recommended	Not Recommended
Chloroform	Not Recommended	Not Recommended	Nitrophenols	Not Recommended	Not Recommended
o-Chloronaphthalene	Not Recommended	Not Recommended	Octyl Alcohol (Octanol)	Not Recommended	Good
Chromic Acid (50%)	Not Recommended	Fair	Oleic Acid	Fair	Good
Citric Acid (10%)	Not Recommended	Not Recommended	Oxalic Acid	Not Recommended	Not Recommended
Clonidine Hydrochloride (0.1%)	Not Recommended	Not Recommended	Paint (Latex-Based)	Not Recommended	Fair
Cresols	Not Recommended	Not Recommended	Paint (Oil-Based)	Not Recommended	Good
Cupric Sulfate (Copper Sulfate)	Not Recommended	Not Recommended	Paint, Automotive (paint containing V.M.&P. Naphtha, Mineral Spirits; with small amounts of Toluene, Xylene or n-Butyl Acetate)	Not Recommended	Not Recommended
Cyanic Compounds	Not Recommended	Fair	Paint, Automotive (paints containing large amounts of Toluene, Xylene or n-Butyl Acetate)	Not Recommended	Not Recommended
Cyclohexane	Not Recommended	Not Recommended	Paint Activator, Automotive (containing MEK, Polyisocyanate Resin, and/or Butyl Acetate)	Not Recommended	Fair
Cyclohexanol	Not Recommended	Not Recommended	Paint Reducers/Thinners, Automotive (Aliphatic Hydrocarbons, eg. V.M.&P. Naphtha or Mineral Spirits)	Not Recommended	Not Recommended
Cyclohexanone	Not Recommended	Not Recommended	Paint Reducers/Thinners, Automotive (Aromatic Hydrocarbons, eg. Toluene or Xylene)	Not Recommended	Not Recommended
Decahydronaphthalene (Decalin)	Not Recommended	Not Recommended	Paint Thinner (Duco)	Not Recommended	Not Recommended
Denatured Alcohol	Not Recommended	Not Recommended	Palmitic Acid	Not Recommended	Good
Dental Etching Material	Not Recommended	Not Recommended	Paraformaldehyde	Not Recommended	Not Recommended
Dental Resin Cement	Fair	Not Recommended	Parts Wash, Automotive (containing Naphtha, n-Hexane, Cyclohexane and/or MEK)+A64	Not Recommended	Good
Dental Waxes	Not Recommended	Not Recommended	Pentane	Not Recommended	Not Recommended
Denture Polishing Material	Not Recommended	Not Recommended	Pentyl Ether (same as Pentane)	Not Recommended	Not Recommended
Detergent Solutions	Not Recommended	Not Recommended	Perchloric Acid (60%)	Fair	Not Recommended
Developing Fluids	Not Recommended	Not Recommended	Perchloroethylene	Not Recommended	Good
Diamond Polishing Paste	Not Recommended	Not Recommended	Periodic Acid (50%)	Not Recommended	Not Recommended
Dibutyl Phthalate	Not Recommended	Not Recommended	Petroleum Distillates (Naphthas)	Not Recommended	Not Recommended
o-Dichlorobenzene	Not Recommended	Not Recommended	Phenol (0.1%)	Not Recommended	Not Recommended
p-Dichlorobenzene	Not Recommended	Not Recommended	Phenol (approx. 100%)	Not Recommended	Not Recommended
Dichloromethane	Not Recommended	Not Recommended	Phenolphthalein (Aromatic Phenols)	Not Recommended	Not Recommended
Diesel Fuel	Not Recommended	Not Recommended	Phosphoric Acid (0 to 50%)	Not Recommended	Good
Diesel Fuel Additive	Not Recommended	Not Recommended	Phosphoric Acid (50-85%)	Not Recommended	Not Recommended
Diethylamine	Not Recommended	Fair	Phosphoric Acid (100%)	Not Recommended	Not Recommended
Diethylene Glycol	Not Recommended	Not Recommended	Polysorbates	Not Recommended	Not Recommended
Diisobutyl Ketone (DIBK)	Not Recommended	Not Recommended	Potassium Bromate	Not Recommended	Not Recommended
N, N-Dimethyl Acetamide (same as Dimethyl Acetamide (DMAC), same as Acetic Acid)	Not Recommended	Not Recommended	Potassium Chloride	Not Recommended	Not Recommended
Dimethylformamide	Not Recommended	Not Recommended	Potassium Cyanide	Not Recommended	Not Recommended
Dimethyl Sulfoxide (DMSO)	Not Recommended	Not Recommended	Potassium Dichromate (Aqueous)	Not Recommended	Not Recommended
Dioctyl Phthalate (DOP)	Not Recommended	Not Recommended	Potassium Hydroxide	Not Recommended	Good
Dioxane	Not Recommended	Not Recommended	Potassium Iodide	Not Recommended	Not Recommended
EDTA (17%)	Not Recommended	Not Recommended	Potassium Permanganate	Not Recommended	Not Recommended
Engine Cleaner & Degreaser (containing Kerosene, Petroleum Distillates or Propane-Isobutane-n-Butane as main components)	Not Recommended	Not Recommended	Potassium Sulfate (Potassium Sulphate)	Not Recommended	Not Recommended
Epoxy Primer (containing Toluene, Acetone, MEK and/or n-Butyl Acetate)	Not Recommended	Not Recommended	Propyl Acetate	Not Recommended	Not Recommended
Ethanol (Ethyl Alcohol) (95%)	Not Recommended	Not Recommended	Propyl Alcohol	Not Recommended	Not Recommended
Ethanolamine	Not Recommended	Not Recommended	Propylene	Not Recommended	Not Recommended
Ether	Not Recommended	Not Recommended	Propylene Glycol	Not Recommended	Not Recommended
Ethidium Bromide (0.5%)	Not Recommended	Not Recommended	Pyridine	Not Recommended	Not Recommended
2-ethoxyethanol (Ethoxyethanol)	Not Recommended	Not Recommended	Rust Inhibitors, Automotive	Not Recommended	Not Recommended
Ethyl Acetate	Not Recommended	Not Recommended	Rust Remover, Automotive (containing <50% Phosphoric Acid)	Not Recommended	Not Recommended
Ethyl Ether	Not Recommended	Not Recommended	Silver Nitrate (0.17N)	Not Recommended	Good
Ethylene Dichloride	Not Recommended	Not Recommended	Sodium Acetate (Aqueous)	Not Recommended	Not Recommended
Ethylene Glycol	Not Recommended	Not Recommended	Sodium Azide (Sodium Salt)	Not Recommended	Not Recommended
Ethylene Oxide	Not Recommended	Not Recommended	Sodium Bicarbonate (Aqueous)(Baking Soda)	Not Recommended	Not Recommended
Ferric Chloride (Aqueous)	Not Recommended	Not Recommended	Sodium Chloride (Aqueous)	Not Recommended	Not Recommended
Formaldehyde	Not Recommended	Not Recommended	Sodium Cyanide (Aqueous)	Not Recommended	Not Recommended
Formalin (40% of Formaldehyde)	Not Recommended	Not Recommended	Sodium Hydroxide (50%)	Not Recommended	Not Recommended
Formamide	Not Recommended	Not Recommended	Sodium Hypochlorite (Bleach)	Fair	Not Recommended
Formic Acid (90%)	Not Recommended	Not Recommended	Sodium Selenate (10%)	Not Recommended	Not Recommended
Freon 11	Not Recommended	Not Recommended	Sodium Thiosulfate (Developing Fluids)	Not Recommended	Good
Freon 12	Not Recommended	Not Recommended	Staining Rating (All Stains)	Not Recommended	Fair
Freon 21	Not Recommended	Not Recommended	Styrene	Not Recommended	Not Recommended
Freon 22	Not Recommended	Not Recommended	Sulfuric Acid (50% Concentration)	Not Recommended	Not Recommended
Fuel Injector Cleaner (primarily Kerosene)	Not Recommended	Not Recommended	Sulfuric Acid (93-98%)	Not Recommended	Not Recommended
Furfural	Not Recommended	Not Recommended	Tannic Acid (65%)	Not Recommended	Not Recommended
Gasoline, Leaded	Not Recommended	Not Recommended	Tetrachloroethylene	Not Recommended	Fair
Gasoline, Unleaded	Not Recommended	Not Recommended	Tetrahydrofuran	Not Recommended	Not Recommended
Glass Ionomer Dental Cements	Not Recommended	Not Recommended	Tetramethylurea	Not Recommended	Not Recommended
Glucose	Not Recommended	Not Recommended	Toluene	Not Recommended	Not Recommended
Glutaraldehyde (50%)	Not Recommended	Not Recommended	Toluene Diisocyanate	Fair	Not Recommended
Glycerin	Not Recommended	Not Recommended	Transmission Fluid, Type A	Not Recommended	Not Recommended
Glycerol	Not Recommended	Not Recommended	Transmission Fluid, Synthetic	Not Recommended	Not Recommended
Grease, Automotive (Petroleum-Based)	Not Recommended	Not Recommended	Trichloroethylene	Not Recommended	Not Recommended
Grease, Automotive (Silicon-Based)	Not Recommended	Not Recommended	Triethanolamine	Not Recommended	Not Recommended
Grease, Automotive (Synthetic)	Not Recommended	Not Recommended	Triton X-100, Igepal CA, Polytergent G (Octoxynol with varying Ethylene Oxide units)	Not Recommended	Not Recommended
Heptane (n-Heptane)	Not Recommended	Not Recommended	Tung Oil	Not Recommended	Not Recommended
Hexane	Not Recommended	Not Recommended	Turpentine	Not Recommended	Not Recommended
Hydraulic Fluid (Petroleum-Based)	Not Recommended	Not Recommended	Undercoater, Rubberized (Automotive)	Not Recommended	Not Recommended
Hydrochloric Acid (20%)	Not Recommended	Not Recommended	Urea	Not Recommended	Good
Hydrochloric Acid (50%)	Not Recommended	Fair	Varnish	Not Recommended	Not Recommended
Hydrochloric Acid (Concentrated)	Not Recommended	Not Recommended	Vinyl Chloride	Not Recommended	Not Recommended
Hydrofluoric Acid (48%)	Fair	Good	Water	Not Recommended	Not Recommended
Hydrofluoric Acid (Concentrated)	Not Recommended	Not Recommended	Wax Remover, Automotive (containing V.M.&P. Naphtha, Xylene and/or Ethylbenzene)	Not Recommended	Not Recommended
Hydrogen Peroxide (3%)	Not Recommended	Not Recommended	Xylene (Xylol)	Not Recommended	Not Recommended

CHEMICAL RATING KEY

EXCELLENT

GOOD

FAIR

NOT RECOMMENDED

NO DATA

GENERAL INFORMATION AND CAUTIONS: YOUR UNDERSTANDING OF HOW TO USE THIN-FILM GLOVES IS EXTREMELY IMPORTANT TO YOUR SAFETY. Microflex® 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® 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® gloves, our Customer Service team is ready to assist you. Microflex® exam 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.

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CHEMICAL RESISTANCE GUIDE

FOR MICROFLEX LATEX AND SYNTHETIC GLOVES

MICROFLEX®

Please see inside panel for chemical resistance guide for Microflex® Latex and Nitrile Gloves

Powder-Free **Latex**
Examination Gloves



Powder-Free **Latex**
Examination Gloves
for High Risk Environments



Powder-Free **Nitrile**
Examination Gloves



Powder-Free **Nitrile**
Examination Gloves
for High Risk Environments



Powder-Free **Chloroprene**
Examination Gloves



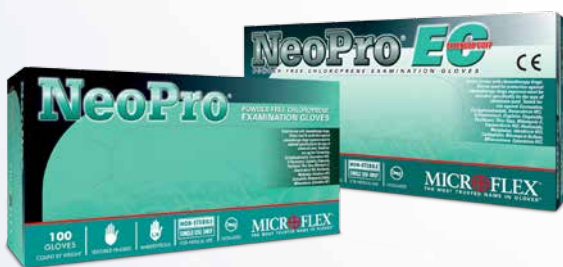
Powder-Free **Nitrile**
Examination Gloves
INDUSTRIAL GRADE



Caution (**LATEX**): This product contains natural rubber latex which may cause allergic reactions. Safe use of this glove by or on latex sensitized individuals has not been established. (**NITRILE & CHLOROPRENE**): Components used in making these gloves may cause allergic reactions in some users. Follow your institution's policies for use. (**NITRILE: INDUSTRIAL GRADE**): These gloves are intended for Industrial Use Only. They may not be worn for barrier protection in medical or healthcare applications. Components used in making these gloves may cause allergic reactions in some users. Follow your institution's policies for use.

Microflex® Chemical Resistance Guide

For NeoPro® and NeoPro® EC Gloves



Test Method Description: The test method uses analytical equipment to determine the concentration of and the time at which the challenge chemical permeates through the glove film. The liquid challenge chemical is collected in a liquid miscible chemical (collection media). Data is collected in three separate cells; each cell is compared to a blank cell which uses the same collection media as both the challenge and collection chemical.

Cautionary Information: These glove recommendations are offered as a guide and for reference purposes only. The barrier properties of each glove type may be affected by differences in material thickness, chemical concentration, temperature, and length of exposure to chemicals. Thin-film gloves are designed for transient and single-use only. Gloves should be removed and replaced with a new pair upon exposure to chemicals. Please follow your institution's policies for use.

The data presented in this guide is deemed accurate to the best of Microflex's knowledge.

Test Method: ASTM F739 continuous contact

Chemicals	NeoPro®
Acetaldehyde	0
Acetic Acid (50%)	NBT
Aluminum Nitrate (10%)	NBT
Ammonium Hydroxide (30%)	15 min
Benzene	0
Butyl Acetate	0
Chloroform	0
Clonidine Hydrochloride (10%)	NBT
Copper(II) Ethylenediamine (1 molar)	NBT
Diesel Fuel (1%)	10 min
Dimethylformamide	1 min
Dimethyl Sulfoxide	30 min
Ethanol	52 min
Ethanolamine (99%)	NBT
Ether	2 min
Ethidium Bromide (1%)	NBT
Ethyl Acetate	2 min
Formaldehyde (37%)	NBT
Formamide	NBT
Gluteraldehyde (50%)	NBT
Guanidine Hydrochloride	NBT
Hydrochloric Acid (18%)	NBT
Methanol	0
Methyl Ethyl Ketone	0
Methyl Methacrylate (33%)	0

Chemicals	NeoPro®
Nitric Acid (50%)	NBT
Perchloric Acid (50%)	NBT
Phenol (10%)	NBT
Phenylmethylsulfonyl Fluoride (5%)	0
Silver Nitrate (10%)	NBT
Sodium Dodecyl Sulfate (0.10%)	NBT
Sodium Hydroxide (40%)	NBT
Sodium Selenate (10%)	NBT
Sulfuric Acid (50%)	NBT
Tetrahydrofuran	0
Toluene	0
Trifluoroacetic Acid	0
Xylene	0

KEY: CHEMICAL PERMEATION RATES

Greater than 60 minutes = **EXCELLENT**
 31-60 minutes = **VERY GOOD**
 21-30 minutes = **GOOD**
 11-20 minutes = **FAIR**
 3-10 minutes = **POOR**
 Less than 3 minutes = **NOT RECOMMENDED**

Normalized Breakthrough Time: Identified in minutes
 NBT = No Breakthrough Time up to 120 minutes

Caution: Components used in making these gloves may cause allergic reactions in some users. Follow your institution's policies for use.