Nitrile Glove Chemical-Compatibility Reference

In general, nitrile rubber provides **short-term splash protection** against the following chemicals.

Nitrile has good general resistance to:
- Oils
- Fuels
- Some organic solvents
- Weak acids
- Weak caustics

*Breakthrough will not occur in under 15 mins for a 5-mil or greater thickness glove.

If gloves come in contact with the chemical below, they must be changed immediately* to avoid exposure.

Nitrile has poor resistance to:
- Alcohols
- Ketones
- Halogenated hydrocarbons
- Aromatic hydrocarbons
- Esters
- Ethers
- Amines
- Concentrated acids

*Breakthrough may occur in under one minute for a 5-mil or lesser thickness glove.

Disposable nitrile gloves do not provide protection against these highly corrosive chemicals. These are just a few examples. This is not a complete list.

Nitrile: Short-term splash protection

<table>
<thead>
<tr>
<th>Organics</th>
<th>Aqueous/Inorganic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexane</td>
<td>37% Formaldehyde</td>
</tr>
<tr>
<td>Glutaraldehyde</td>
<td>10% Hydrochloric acid</td>
</tr>
<tr>
<td>Heptane</td>
<td>37% Hydrochloric acid</td>
</tr>
<tr>
<td>Mineral spirits</td>
<td>30% Hydrogen peroxide</td>
</tr>
<tr>
<td>Pentane</td>
<td>10% Nitric acid</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>50% Potassium hydroxide</td>
</tr>
<tr>
<td>Naphtha</td>
<td>85% Phosphoric acid</td>
</tr>
<tr>
<td>Octane</td>
<td>50% Sodium hydroxide</td>
</tr>
<tr>
<td>Octanol</td>
<td>10 - 13% Bleach</td>
</tr>
<tr>
<td>Hexane</td>
<td>47% Sulfuric acid</td>
</tr>
<tr>
<td>Heptane</td>
<td>Ethidium bromide</td>
</tr>
<tr>
<td></td>
<td>Mercury (metallic)</td>
</tr>
</tbody>
</table>

Nitrile: Poor protection (<1 minute) Organics

- Acetone
- 1,4-Dioxane
- Acetonitrile
- Acrylonitrile
- Benzene
- Carbon disulfide
- Chloroform
- Dichloromethane
- Diethyl ether
- Dimethylformamide (DMF)
- Ethanol
- Ethyl acetate
- Methanol
- n-Butanol
- Nitrobenzene
- o-Xylene
- Phenol
- Pyridine
- Tetrahydrofuran
- Toluene

The chemicals listed in red are able to penetrate the skin, contributing to systemic toxic effects of exposure to the chemical (ACGIH, Skin notation)

Poorest resistance (<1-minute breakthrough) + Skin corrosion hazard and/or high toxicity

- Concentrated acetic acid
- 88% Formic acid
- 30% Ammonium hydroxide
- 70% Nitric acid
- 95% Sulfuric acid
- *Hydrofluoric acid (HF)

*See the [FACT SHEET: Hydrofluoric Acid](#) in the Chemical Hygiene Plan for glove recommendations for HF.

This poster is adapted from Penn’s CHP Fact Sheet: Disposable Nitrile Gloves in Chemical Lab. Scan the QR code to see the full Fact Sheet.