COVID-19 CHEMICAL DISINFECTANT SAFETY INFORMATION

*Updated April 9, 2020*

The COVID-19 pandemic has caused an increase in the number of disinfection products used throughout UW departments. This document provides general information about EPA-registered disinfectants, such as potential health hazards and personal protective equipment recommendations, for the commonly used disinfectants at the UW.

<table>
<thead>
<tr>
<th>Category</th>
<th>Chemical Disinfectant Base / Products</th>
<th>Potential Hazards</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohols</td>
<td>• Ethyl alcohol &lt;br&gt; • Isopropyl alcohol &lt;br&gt; o Super Sani Cloth Germicidal Wipe &lt;br&gt; o Opti-Cide Surface Wipes</td>
<td>• Highly flammable and could form explosive vapor/air mixtures. &lt;br&gt; • May react violently with strong oxidants. &lt;br&gt; • Alcohols may de-fat the skin and cause dermatitis. &lt;br&gt; • Inhalation of concentrated alcohol vapor may cause irritation of the respiratory tract and effects on the central nervous system.</td>
<td>• Disposable nitrile gloves &lt;br&gt; • Use in well-ventilated areas away from ignition sources &lt;br&gt; • Wear long sleeve shirt and pants &lt;br&gt; • Closed toe shoes</td>
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<tr>
<td>Aldehydes</td>
<td>• Formaldehyde &lt;br&gt; • Paraformaldehyde &lt;br&gt; • Glutaraldehyde &lt;br&gt; • Ortho-phthalaldehyde (OPA)</td>
<td>• Formaldehyde in gas form is extremely flammable. It forms explosive mixtures with air. &lt;br&gt; • It should only be used in well-ventilated areas. &lt;br&gt; • The chemicals are irritating, toxic to humans upon contact or inhalation of high concentrations. &lt;br&gt; • Glutaraldehyde and Formaldehyde are known sensitizing agents (may cause allergic reaction). &lt;br&gt; • Formaldehyde is a known carcinogen.</td>
<td>• Disposable nitrile gloves for concentrations 10% or less &lt;br&gt; • Medium or heavyweight nitrile, neoprene, natural rubber, or PVC gloves for concentrated solutions &lt;br&gt; • Protective clothing to minimize skin contact &lt;br&gt; • EH&amp;S recommends against using formaldehyde and glutaraldehyde based products for disinfection</td>
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<tr>
<td>Chlorine Compounds (Hypochlorites)</td>
<td>Oxidizing Agents</td>
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<tr>
<td>Sodium hypochlorite</td>
<td>Hydrogen peroxide</td>
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<tr>
<td>○ Clorox Clean-Up Cleaner + Bleach</td>
<td>○ Ecolab Peroxide Multi Cleaner and Disinfectant</td>
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<tr>
<td>○ 10% Bleach Solution</td>
<td>○ Clorox Commercial Solutions Clorox Hydrogen Peroxide Disinfecting Cleaner</td>
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<tr>
<td>○ Clorox Toilet Bowl Cleaner with Bleach Gel</td>
<td>○ Diversey Oxivir Tb</td>
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<tr>
<td>Calcium hypochlorite</td>
<td>○ Clorox Healthcare HP Cleaner Disinfectant Wipes</td>
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<tr>
<td>Chlorine dioxide</td>
<td>○ Accel TB/PREempt</td>
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<tr>
<td>○ Clidox-S</td>
<td>○ Peroxyacetic Acid</td>
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<tr>
<td>○ ProKure V RTU Solution</td>
<td></td>
<td>• Mixing hypochlorite with strong acids may result in violent chemical reactions that could release toxic gases.</td>
<td></td>
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<tr>
<td>Sodium dichloroisocyanurate</td>
<td></td>
<td>• React explosively with ammonia, amines, or reducing agents.</td>
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<td>○ Brutab 6S</td>
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<td>• May cause skin irritation. Concentrated hypochlorite solutions can cause chemical burns of the skin.</td>
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<td>• May cause serious eye irritation.</td>
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<td>• React explosively with ammonia, amines, or reducing agents.</td>
<td>• Safety glasses or goggles where splash potential exists</td>
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<td>• May cause serious eye irritation.</td>
<td>• Perform a secondary water rinse to minimize surface damage</td>
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- Disposable nitrile gloves
- Safety glasses or goggles where splash potential exists
- Do not mix with ammonia-based cleaners or disinfectants
- Perform a secondary water rinse to minimize surface damage
- Long sleeve shirt and long pants
- Closed toe shoes

- Concentrated peroxide solutions are reactive and explosive.
- Irritants - may cause chemical burns of the skin and eyes when concentrated.
### Phenols
- **Thymol**
  - Bioesque Solutions Botanical Disinfectant Solution
- **Cresol**
- **Hexachlorophene**

Phenols can cause skin and eye irritation. When phenol compounds are inhaled, ingested, or applied to the skin at high concentrations, the chemicals are harmful to humans.

- Disposable nitrile gloves
- Safety glasses or goggles where splash potential exists
- Protective clothing to minimize skin contact

### Quaternary Ammonium
- **Alkyl dimethyl benzyl ammonium chlorides**
  - 3M #5
  - 3M #5 Ready-to-use
  - 3M #41
  - 3M #41 Ready-to-use
  - Brighton Professional Hepastat 256 Ready-to-use
  - Staples SE66 Disinfectant
  - Diversey All Purpose Virex Disinfectant Cleaner
  - US Chemical Lemon Cleaner Disinfectant
  - Virex II 256
  - Super Sani Cloth Germicidal Wipe
  - 3M TB Quat Disinfectant RTU
  - Lysol Disinfecting Wipes
  - Multi-Clean 64 Millenium Q
  - Waxie 320 Disinfectant Bathroom Cleaner
  - CaviCide and Envirocide
  - Kennelsol

Contact dermatitis
- May trigger asthma
- Eye and mucous membrane injury
- Oral and gastrointestinal injuries from swallowing solutions

- Adequate ventilation
- Disposable nitrile gloves
- Safety glasses or goggles where splash potential exists
- Do not mix with bleach-based cleaners or other chlorine solutions
- Do not eat/drink without washing hands after use
- Long sleeve shirt and long pants
- Closed toe shoes
### ShockWave Concentrate
- Renown Disinfecting Multi-Surface & Glass Cleaner Ready-to-use (Reno 2746)
- Renown Fresh Citrus Disinfectant Cleaner (Reno 2903)

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### Others
- Ethylene oxide (NOT ALLOWED)
- Highly flammable and explosive.
- Irritant to the skin, eyes, and the respiratory tract.
- Toxic by inhalation and is a known carcinogen.

**PRODUCT NOT ALLOWED AT UW DUE TO EMISSIONS REGULATIONS**

### NOTES
- Always follow the manufacturers product-use instructions to ensure safe application.
- Refer to product safety data sheet for hazard communication information.
- Additional controls and procedures may be necessary when applying products with a mechanical sprayer. This includes garden sprayers, foggers, and ionizing sprayers. Consult with EH&S prior to utilizing mechanical devices to apply disinfectant.

Please note this list is not exhaustive as there are a large number of disinfectants currently on the market. As new disinfectants are purchased and used by UW departments, EH&S will update this table as needed. For the full list of EPA-registered disinfectants for COVID-19, see the EPA website: [List N: Disinfectants for Use Against SARS-CoV-2](https://www.epa.gov/nosb/disinfectants-use-against-sars-cov-2).