

CHEMICAL DISINFECTANTS AGAINST SARS-CoV-2

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Refer to the EPA website for List N - a list of disinfectants with label claims to be effective against SARS-CoV-2: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

Clean surfaces prior to disinfection – Visibly soiled surfaces should be cleaned using a detergent or soap and water prior to disinfection. Inorganic and organic materials on the surfaces of equipment and other materials may interfere with the effectiveness of the chemical product.

For electronics – Consider the use of wipeable covers. If no manufacturer guidance for disinfecting the product is available, consider the use of alcohol-based wipes or sprays containing at least 70% alcohol. Dry surfaces thoroughly to avoid pooling of liquids.

Category	Active Ingredient	Concentration / Solution Prep	Application / Contact Time	Potential Hazards	Controls	Examples of EPA-approved products (RTU = Ready to Use solution)
Alcohols	Ethyl alcohol Isopropyl Alcohol	70%	Hard, non-porous surfaces 5 minutes	<ul style="list-style-type: none"> Highly flammable and could form explosive vapor/air mixtures. May react violently with strong oxidants, reducing agents, halogens, acids, bases, perchlorates, and trimethylaluminum Alcohols may de-fat the skin and cause dermatitis. Inhalation of concentrated alcohol vapor may cause irritation of the respiratory tract and effects on the central nervous system. 	<u>Engineering/Facility</u> <ul style="list-style-type: none"> Use in well-ventilated areas away from ignition sources <u>PPE and attire</u> <ul style="list-style-type: none"> Disposable nitrile gloves, lab coat, safety glasses Long pants and closed-toe shoes <u>Additional considerations</u> <ul style="list-style-type: none"> Do not mix with strong oxidants, reducing agents, halogens, acids, bases, perchlorates, and trimethylaluminum. 	<ul style="list-style-type: none"> Cavicide 1 (w/ Quat.), RTU Caviwipes 1 (w/ Quat.) Opti-cide 3 (w/ Quat.), RTU Opti-cide Max Wipes (w/ Quat.) Opti-cide Max Disinfectant Cleaner (w/ Quat.), RTU Super Sani-Cloth Germicidal Disposable Wipe (w/ Quat.)
Chlorine Compounds (Hypochlorites)	Sodium hypochlorite	<p>Make fresh daily 2-10% bleach solution</p> <p>2% bleach sol'n (~1000 ppm free Cl) 1 part bleach to 49 parts water</p> <p>10% bleach sol'n (~5000 ppm free Cl) 1 part bleach to 9 parts water</p>	<p>Hard, non-porous surfaces</p> <p>≥10 minutes, recommended</p> <p>Liquid waste (not mixed with incompatible chemicals)</p> <p>≥30 minutes</p>	<ul style="list-style-type: none"> Mixing hypochlorite with strong acids may result in violent chemical reactions that could release toxic gases. React explosively with ammonia, amines, or reducing agents. May cause skin irritation. Concentrated hypochlorite solutions can cause chemical burns of the skin. May cause serious eye irritation. 	<u>Engineering/Facility</u> <ul style="list-style-type: none"> Use in well-ventilated areas <u>PPE and attire</u> <ul style="list-style-type: none"> Disposable nitrile gloves, lab coat, safety glasses Safety goggles where splash potential exists Long pants and closed-toe shoes <u>Additional considerations</u> <ul style="list-style-type: none"> Do not mix with ammonia-based cleaners or disinfectants Do not mix with acids, amines, or reducing agents. Perform a secondary water rinse to minimize surface damage 	<ul style="list-style-type: none"> Clorox Clean-Up Cleaner + Bleach, RTU Clorox Disinfecting Bleach2 Cavicide Bleach, RTU Sani-Cloth Bleach Germicidal Disposable Wipes

<p>Oxidizing Agents</p>	<p>Hydrogen peroxide Peroxyacetic Acid (or peracetic acid) Hydrogen peroxide+ Peracetic Acid</p>	<p>See EPA-approved products (List N) for application and contact times.</p>	<ul style="list-style-type: none"> • Concentrated peroxide solutions are reactive and explosive. • Irritants - may cause chemical burns of the skin and eyes when concentrated. • Hydrogen peroxide - material compatibility concerns (brass, zinc, copper, nickel/silver plating) both cosmetic and functional • Peracetic acid - potential material incompatibility (e.g. aluminum anodized coating becomes dull). • For hydrogen peroxide/peracetic acid mixtures - materials compatibility concerns (lead, brass, copper, zinc) both cosmetic and functional 	<p><u>Engineering/Facility</u></p> <ul style="list-style-type: none"> • Use in well-ventilated areas • Disposable nitrile gloves, lab coat, safety glasses • Safety goggles where splash potential exists • Long pants and closed-toe shoes <p><u>Additional considerations</u></p> <ul style="list-style-type: none"> • Peracetic acid used for immersible instruments only. Point-of use system – cannot be stored after use. 	<ul style="list-style-type: none"> • Ecolab Peroxide Multi-Surface Cleaner and Disinfectant • Clorox Commercial Solutions Hydrogen Peroxide Cleaner Disinfectant, RTU • Clorox Commercial Solutions Hydrogen Peroxide Cleaner Disinfectant Wipes • Diversey Oxivir Tb, RTU • Accel TB, RTU • Accel TB Wipes
<p>Quaternary Ammonium</p>	<p>Alkyl dimethyl benzyl ammonium chlorides</p>	<p>See EPA-approved products (List N) for application and contact times.</p>	<ul style="list-style-type: none"> • Causes contact dermatitis • May trigger asthma • Causes eye and mucous membrane injury • Oral and gastrointestinal injuries from swallowing solutions 	<p><u>Engineering/Facility</u></p> <ul style="list-style-type: none"> • Use in well-ventilated areas • Disposable nitrile gloves, lab coat, safety glasses • Safety goggles where splash potential exists • Long pants and closed-toe shoes <p><u>Additional considerations</u></p> <ul style="list-style-type: none"> • Do not mix with bleach-based cleaners or other chlorine solutions • Do not eat/drink without washing hands after use 	<ul style="list-style-type: none"> • Mikro-Quat • Virex II 256 • Lysol Disinfecting Wipes • Super Sani-Cloth Germicidal Disposable Wipe (w/ IPA) • Cavicide 1(w/ EtOH, IPA), RTU • Cavicide (w/ IPA), RTU
<p>Phenols</p>	<p>Phenolic Thymol</p>	<p>See EPA-approved products (List N) for application and contact times.</p>	<ul style="list-style-type: none"> • 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. 	<p><u>Engineering/Facility</u></p> <ul style="list-style-type: none"> • Use in well-ventilated areas • Disposable nitrile gloves, lab coat, safety glasses • Safety goggles where splash potential exists • Long pants and closed-toe shoes 	<ul style="list-style-type: none"> • Sporidicin Disinfectant Solution, RTU • Sporidicin Disinfectant Towelletes • Vespene Ilse • Benefect Botanical Daily Cleaner Disinfectant Spray, RTU • Thymox Disinfectant Spray, RTU

<p>Aldehydes (NOT RECOMMENDED)</p> <p>EH&S DOES NOT recommend use of glutaraldehyde- based products for disinfection</p>	<p>Glutaraldehyde</p>	<p><i>See EPA-approved products (List N) for application and contact times.</i></p>	<ul style="list-style-type: none"> ● Glutaraldehyde is irritating, toxic to humans upon contact or inhalation of high concentrations. ● Glutaraldehyde is a known sensitizing agent (may cause allergic reaction). 	<p><u>Engineering/Facility PPE and attire</u></p> <ul style="list-style-type: none"> ● Use in well-ventilated areas ● Disposable nitrile gloves for concentrations 10% or less ● Medium or heavyweight nitrile, neoprene, natural rubber, or PVC gloves for concentrated solutions ● Lab coat and safety glasses ● Safety goggles where splash potential exists ● Long pants and closed-toe shoes 	<ul style="list-style-type: none"> ● Synergize (w/ Quat.)
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REFERENCES:

EPA List N: Disinfectants for Use Against SARS-CoV-2: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

CDC Guidance Documents:

Guideline for Disinfection and Sterilization in Healthcare Facilities (2008): <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html>

Cleaning and Disinfecting Your Facility: <https://www.cdc.gov/coronavirus/2019-ncov/community/disinfecting-building-facility.html>

Lab Biosafety Guidelines (for labs handling clinical specimens or viral isolates/cultures): <https://www.cdc.gov/coronavirus/2019-nCoV/lab/index.html>

Lab Biosafety and COVID-19 FAQs (for labs handling clinical specimens or viral isolates/cultures):: <https://www.cdc.gov/coronavirus/2019-ncov/lab/biosafety-faqs.html>