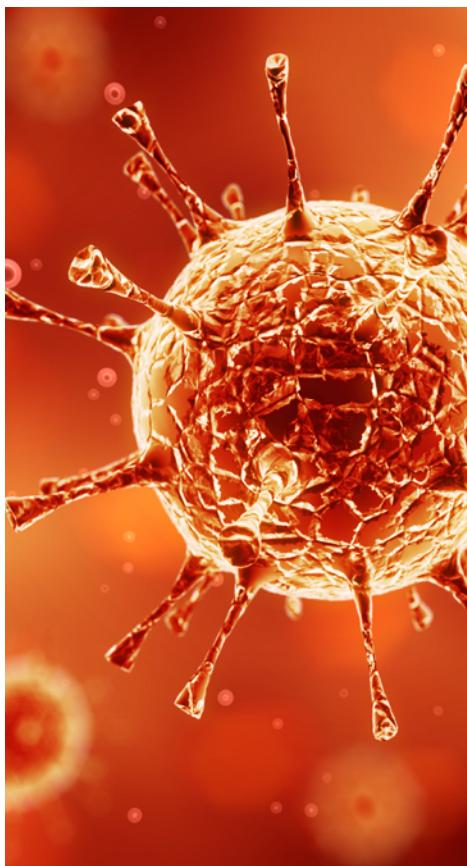


# COVID-19



## Evaluating disinfectants for use against the COVID-19 virus

When it comes to choosing a disinfectant to combat the COVID-19 virus, research and health authorities suggest not all disinfectants are equally effective. The difference is in their active ingredient(s).



### HEALTH CANADA AND U.S. EPA ASSESSMENTS

The work to evaluate disinfectants perhaps best starts with lists of approved disinfectants compiled by government health authorities.

Health Canada has compiled a list of 85 hard surface disinfectant products (as of March 20, 2020) that meet their requirements for disinfection of emerging pathogens, including the virus that causes COVID-19. It can be accessed [here](#). You can wade through the entire list. But if you locate the Drug Identification Number (DIN) on the disinfectant product label or the safety data sheet (SDS), then you can use the search function to quickly see if the product meets Health Canada requirements.

A second list, updated on March 19, 2020, provides 287 products that meet the U.S. Environmental Protection Agency's (EPA) criteria for use against SARS-CoV-2, the novel coronavirus that causes the disease COVID-19. This list can be found [here](#). Like the Health Canada list, you can wade through this one too. However, to best use this list, you should locate the U.S. EPA registration number on the product label or SDS, and use that number to search the list. The U.S. EPA registration number of a product consists of two sets of numbers separated by a hyphen. The first set of numbers refers to the company identification number, and the second set of numbers following the hyphen represents the product number.



## OTHER RESEARCH ASSESSMENTS

For both of the Canadian and U.S. list though, the absence of a disinfecting product does not necessarily constitute its lack of effectiveness. There may be additional disinfectants that meet the criteria for use against the virus that causes COVID-19 and which may be added in the future. This is an evolving situation and the list is unlikely to be complete.

For instance, published assessments of disinfection of surfaces contaminated with similar viruses are summarized in a review paper from two German universities.<sup>1</sup> This review paper concluded that in 22 studies human coronaviruses such as Severe Acute Respiratory Syndrome (SARS) coronavirus, Middle East Respiratory Syndrome (MERS) coronavirus, or endemic human coronaviruses (HCoV) can be efficiently inactivated by surface disinfection procedures with 62-71% ethanol, 0.5% hydrogen peroxide or 0.1% sodium hypochlorite (bleach) within one minute.

Other chemical agents such as 0.05-0.2% benzalkonium chloride (common ammonium based disinfectant) or 0.02% chlorhexidine digluconate (known antibacterial compound) were found to be less effective, but not ineffective. Specifically, while ethyl alcohol-and hydrogen peroxide-containing disinfectants appeared to inactivate coronaviruses in as short a time as 30 seconds, the benzalkonium chloride containing products required up to 10 minutes to generate similar levels of disinfection.

**Conclusion:** So although no specific testing had been done with the virus that causes COVID-19 at the time this review paper was published (January 2020), the researchers argue generalizations can be made. The viral structures appear chemically and structurally very similar. Thus, the researchers conclude, the tested disinfectants should have a “similar effect” against the virus that causes COVID-19.

In other words, if the product you are considering to disinfect your workplace is not on the Health Canada or U.S. EPA list, then look at the active ingredients. The most effective of these are 62-71% ethanol, 0.5% hydrogen peroxide or 0.1% sodium hypochlorite (bleach).

### PLEASE NOTE:

Never mix chlorine bleach with ammonia containing products. The combination of ammonia and bleach produces dangerous chlorine gas, which in small doses can cause irritation to the eyes, skin and respiratory tract. In large doses, it can kill.

### Need more help with this issue?

Send us an email at [contactus@whsc.on.ca](mailto:contactus@whsc.on.ca) or leave a message in our general telephone mailbox at **1-888-869-7950**.

We will get back as soon as possible.

<sup>1</sup> Kampf, G. et al. 2020 Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. Journal of Hospital Infection, Volume 104, Issue 3, 246 - 251