



## BEYOND PESTICIDES

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Q & A Factsheet

# Protecting Yourself from COVID-19 (coronavirus) without Toxic Sanitizers and Disinfectants

Answering questions about [Beyond Pesticides factsheet](#)

Updated 4/23/2020.

*Q: Your safer disinfectants list includes glycolic acid. While it can be synthesized, glycolic acid is often sugar cane derived and others have deemed it safe. It is a common ingredient in natural skincare products. Can you kindly be more specific with regards to glycolic acid?*

A: While glycolic acid is used in skin care preparations, it is a strong irritant. Given that COVID-19 attacks the respiratory system, a major concern in reviewing sanitizers is respiratory hazards. MSDSs (Material Safety Data Sheets; now called SDSs, Safety Data Sheets) for glycolic acid warn that it is harmful if inhaled. One SDS says, “Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.”<sup>1</sup>

*Q: Could you possibly explain why isopropyl is not ideal as opposed to ethanol?*

A: Both ethanol and isopropanol (isopropyl alcohol) can be used. Ethanol is slightly more effective. In normal times, isopropanol is less expensive unless the ethanol is denatured to prevent it from being consumed. One study says, in regard to the effectiveness of the alcohols, “The highest antimicrobial efficacy can be achieved with ethanol (60% to 85%), isopropanol (60% to 80%), and n-propanol (60% to 80%). The activity is broad and immediate. Ethanol, the most common alcohol ingredient, appears to be the most effective against viruses; whereas, the propanols have a better bactericidal activity than ethanol.”<sup>2</sup>

*Q: Force of Nature is EPA approved for this virus. They say it is non-toxic. I use it. Works really well for everything, even mirrors and floors.*

A: Force of Nature Activator Capsule is listed on EPA’s approved list for COVID-19. EPA lists the active ingredient as sodium chloride (table salt). However, sodium chloride is actually a minor ingredient. Capsules are used with a device (an “electrolyzer”) that runs an electric current through the solution, forming hypochlorous acid (HClO), a weak acid that forms when chlorine dissolves in water, and itself partially breaks down to form hypochlorite (ClO). HClO and ClO<sup>-</sup> facilitate a chemical reaction with oxygen (oxidization), and are the primary disinfection agents of chlorine solutions.<sup>3</sup> The product is also known as “electrolyzed water.” The MSDS says Force of Nature is an oxidizer that decomposes into chlorine. We consider this to be hazardous because hypochlorous acid is a respiratory irritant that can cause asthma.<sup>4</sup>

*Q: Upon contacting CleanWell about their active ingredient in their disinfectant product, thymol, they replied: "With the Coronavirus at the top of everyone's mind right now, we do want to make it clear that we have not performed any testing against this particular virus, and so currently cannot make any claims to support our efficacy against it." Do you know something about the use of thymol and the other natural-based substances you list in your factsheet?*

A: We originally listed thymol because Thymox Disinfectant Spray is on EPA's list of effective products, and our research indicates that it appears to be safe and effective against a number of pathogens, as well as having several therapeutic uses.<sup>5</sup> Since that time, two CleanWell products—wipes and a spray—have been added to EPA's list, as have other thymol products. Product manufacturers are understandably reluctant (as are we) to make claims that characterize disinfectant properties unless backed up by FDA or EPA. Even though we are also distrustful of the completeness of the oversight of these agencies, given a history of criticism by oversight agencies<sup>6</sup> and scientific reviews, we will rely on their judgment on this issue until/unless we have a better, more authoritative source.

*Q: Are all products containing an active ingredient on the Beyond Pesticides factsheet effective against the COVID-19 virus?*

A: No. The effectiveness of a product depends on the concentration of the ingredient and the way it is used. For hand sanitizers, look for a concentration of 60-95% alcohol.<sup>7</sup> For surface sanitizers, look to see whether the particular product is on EPA's "List N: Disinfectants for Use Against SARS-CoV-2"<sup>8</sup> and consult the lists "Disinfectants to Look For" and "Disinfectants to Avoid" on our website. These lists is continually updated. Sanitizers and disinfectants should be used according to label instructions.

Q: I am a biochemist, and based on my chemistry past experience and report from NIH, some of these won't work well, such as citric acid, lactic acid, thymol, and sulfides!! Please be careful. Peroxide only works when is left on the surface for >10 minutes. Best solutions are soap, detergents, alcohols (ethanol and propanol (lesser extent)) and at more than 90% weight per volume.

A: Thank you for this advice. Even though we are distrustful of the completeness of the oversight of these EPA, given a history of criticism by oversight agencies and scientific reviews, we have relied on their judgment. We do note that some products require more contact time with the contaminated surface and perhaps vigorous scrubbing than others. Please see the next question.

Q: How does EPA know that the products on List N work on SARS-CoV-2?

A: From EPA's website:<sup>9</sup>

While surface disinfectant products on List N<sup>10</sup> have not been tested specifically against SARS-CoV-2, the cause of COVID-19, EPA expects them to kill the virus because they:

- Demonstrate efficacy (e.g. effectiveness) against a harder-to-kill virus; or
- Demonstrate efficacy against another type of human coronavirus similar to SARS-CoV-2.

All surface disinfectants on List N can be used to kill viruses on surfaces such as counters and doorknobs.

Because SARS-CoV-2 is a new virus, this pathogen is not readily available for use in commercial laboratory testing to see if a certain disinfectant product is effective at killing the virus.

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<sup>1</sup> [https://www.labor-service-bb.de/pdf/312/147016\\_en.pdf](https://www.labor-service-bb.de/pdf/312/147016_en.pdf).

<sup>2</sup> Gold NA, Avva U. Alcohol Sanitizer. [Updated 2020 Feb 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK513254/>.

<sup>3</sup> <https://www.forceofnatureclean.com/natural-cleaner-and-disinfectant/> and [https://en.wikipedia.org/wiki/Hypochlorous\\_acid](https://en.wikipedia.org/wiki/Hypochlorous_acid).

<sup>4</sup> Bernard A, Carbonnelle S, Michel O, et al. Lung hyperpermeability and asthma prevalence in schoolchildren: unexpected associations with the attendance at indoor chlorinated swimming pools. *Occupational and Environmental Medicine* 2003;60:385-394.

<sup>5</sup> Salehi, B., Mishra, A.P., Shukla, I., Sharifi-Rad, M., Contreras, M.D.M., Segura-Carretero, A., Fathi, H., Nasrabadi, N.N., Kobarfard, F. and Sharifi-Rad, J., 2018. Thymol, thyme, and other plant sources: Health and potential uses. *Phytotherapy Research*, 32(9), pp.1688-1706.

[http://www.academia.edu/download/57951770/Thymol\\_thyme\\_and\\_other\\_plant\\_sources\\_Health\\_and\\_potential\\_uses.pdf](http://www.academia.edu/download/57951770/Thymol_thyme_and_other_plant_sources_Health_and_potential_uses.pdf).

<sup>6</sup> U.S. General Accounting Office, DISINFECTANTS: EPA Lacks Assurance They Work, RCED-90-139, Aug 30, 1990, <https://www.gao.gov/products/rced-90-139>; Song, Xinyu, Vossebein, Lutz, Zille, Andrea, Efficacy of disinfectant-impregnated wipes used for surface disinfection in hospitals: a review, *Antimicrobial Resistance and Infection Control*, (2019) 8:139, <https://doi.org/10.1186/s13756-019-0595-2>.

<sup>7</sup> <https://www.cdc.gov/handhygiene/science/index.html>.

<sup>8</sup> <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>.

<sup>9</sup> <https://www.epa.gov/coronavirus/how-does-epa-know-products-list-n-work-sars-cov-2>.

<sup>10</sup> <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>.