



## COVID-19: Hand Sanitizers Inactivate Novel Coronavirus, Study Finds

### **FDA NOTICE**

The Food and Drug Administration (FDA) has [announced](#) a nationwide recall of certain bottles of Saniderm Advanced Hand Sanitizer (1 liter) due to the potential presence of methanol.

[Methanol](#) is a toxic alcohol that can cause adverse effects, such as nausea, vomiting, or headache, when a significant amount is used on the skin. More serious effects, such as blindness, seizures, or damage to the nervous system, can occur if methanol is ingested. Drinking this hand sanitizer, either accidentally or purposely, can be fatal.

If you purchased this hand sanitizer, you should stop using it immediately. Return it to the store where you purchased it, if possible. Ask your healthcare provider any questions you may have about the safety of the hand sanitizer you use. If you experienced any adverse effects from using hand sanitizer, call your healthcare provider. If your symptoms are life threatening, call emergency medical services immediately. For more information on how to spot safe hand sanitizers, see [here](#).

*All data and statistics are based on publicly available data at the time of publication. Some information may be out of date. Visit our [coronavirus hub](#) and follow our [live updates page](#) for the most recent information on the COVID-19 outbreak.*

The results of the new tests have been published as a preprint in the journal [Emerging Infectious Diseases](#).

In the absence of a vaccine or effective antiviral drugs, hand hygiene is a mainstay of efforts to prevent the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19.

People who have the infection may show few, if any, symptoms, but still be able to transmit the virus. The virus spreads via droplets in the air or on commonly used surfaces, such as door handles.

[Washing the hands](#) thoroughly with soap and water for at least 20 seconds is a highly effective way to defend against harmful bacteria and viruses.

Handwashing isn't always practical, however, especially for healthcare workers. This is due to a lack of access to running water, and a lack of sufficient time to wash the hands thoroughly.

Meanwhile, this group may be exposed to infection from a variety of sources throughout the course of each day.

**Alcohol-based hand sanitizers provide a quick, simple alternative. However, there has been a lack of hard evidence that they are effective against SARS-CoV-2.**

Guidelines to date have stemmed from [research](#) showing that the sanitizers inactivate other coronaviruses.

## Two formulations

[The WHO](#) recommend two alcohol-based sanitizer formulations to prevent the spread of pathogens in general.

Now, scientists in Germany and Switzerland have tested the sanitizers' effectiveness against SARS-CoV-2.

The first sanitizer comprises:

- ethanol — 80% by volume (vol/vol)
- glycerine (also known as glycerol) — 1.45% vol/vol
- hydrogen peroxide — 0.125% vol/vol

The second sanitizer comprises:

- isopropanol (also known as 2-propanol or isopropyl alcohol) — 75% vol/vol
- glycerine — 1.45% vol/vol
- hydrogen peroxide — 0.125% vol/vol

The researchers exposed SARS-CoV-2 virus particles to each formulation for 30 seconds.

When they tested the subsequent ability of the virus to infect cells in lab cultures, they found that both formulations had inactivated the virus.

The team was led by Professor Stephanie Pfänder, of the Department for Molecular and Medical Virology at Ruhr-Universität Bochum, in Germany.

“We showed that both WHO-recommended formulations sufficiently inactivate the virus after 30 seconds,” says Prof. Pfänder.

## Stocks running low

The results of the present study are particularly relevant because supplies of hand sanitizers have been running low throughout the coronavirus pandemic.

**The new study gives community and hospital pharmacies the green light to make their own sanitizers quickly and easily using the WHO formulations, confident that they will be effective.**

The authors conclude:

However, the team cautions, their findings rely on the assumption that the sanitizer is in contact with the virus for at least 30 seconds.

This may not always be the case in practice.

In its advice to the public on hand hygiene, the Centers for Disease Control and Prevention (CDC) suggest that sanitizing the hands with gel should take about [20 seconds](#).

## Active ingredients

The scientists also tested ethanol and isopropanol — the active ingredients of each WHO-recommended formulation — in isolation and in varying concentrations.

Their results suggest that either ethanol or isopropanol at a concentration of at least 30% vol/vol is sufficient to inactivate SARS-CoV-2.

For comparison, the CDC recommend that hand sanitizers contain at least [60% alcohol](#).

Hand sanitizers sold in pharmacies and shops [typically](#) have an alcohol concentration of around 60%.

**Homemade hand sanitizers made without the necessary skills, equipment, and medical-grade ingredients, however, may not contain alcohol concentrations high enough to inactivate SARS-CoV-2.**

For example, pure [rubbing alcohol](#), or “surgical spirit” in the United Kingdom, and vodka have alcohol concentrations of around 70% and 40%, respectively.

But repeated use of rubbing alcohol on the hands can dehydrate the skin, causing inflammation and irritation.

And vodka is unsuitable for making hand sanitizer, according to [Food and Drug Administration \(FDA\)](#) guidelines, because it is not the right grade of alcohol.