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How to Make Hand Sanitizer: A Step-by-Step Guide

7-8 minutes

When it comes to preventing the spread of infectious diseases like COVID-19, nothing beats good old-fashioned handwashing.

But if water and soap aren't available, your next best option, according to the [Centers for Disease Control and Prevention (CDC)Trusted Source](), is to use an alcohol-based hand sanitizer that contains at least 60 percent alcohol.

Unless you have a stockpile of store-bought hand sanitizer, you'll likely have a hard time finding any at a store or online right now. Due to the rapid spread of the novel coronavirus, most retailers can't keep up with the demand for hand sanitizer.

The good news? All it takes is three ingredients to make your own hand sanitizer at home. Read on to find out how.

Making your own hand sanitizer is easy to do and only requires a few ingredients:

- isopropyl or rubbing alcohol (99 percent alcohol volume)

- aloe vera gel

- an essential oil, such as tea tree oil or lavender oil, or you can use lemon juice instead

The key to making an effective, germ-busting hand sanitizer is to stick to a 2:1 proportion of alcohol to aloe vera. This keeps the alcohol content around 60 percent. This is the minimum amount needed to kill most germs, [according to the CDCTrusted Source](#).

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[Dr. Rishi Desai,](#) chief medical officer of Osmosis, and a former epidemic intelligence service officer in the division of viral diseases at the CDC, says that the hand sanitizer recipe below will kill 99.9 percent of germs after 60 seconds.

[Jagdish Khubchandani,](#) PhD, associate professor of health science at Ball State University, shared a similar formula.

His hand sanitizer formula combines:

- two parts isopropyl alcohol or ethanol (91 percent to 99 percent alcohol)

- one part aloe vera

- a few drops of clove, eucalyptus, peppermint, or other essential oil.

If you are making hand sanitizer at home, Khubchandani says to adhere to these tips:

- Make the hand sanitizer in a clean space. Wipe down counter tops with a diluted bleach solution beforehand.

- Wash your hands thoroughly before making the hand sanitizer.

- To mix, use a clean spoon and whisk. Wash these items thoroughly before using them.

- Make sure the alcohol used for the hand sanitizer is not diluted.

- Mix all the ingredients thoroughly until they are well blended.

- Do not touch the mixture with your hands until it is ready for use.

  For a larger batch of hand sanitizer, the [World Health Organization (WHO)Trusted Source](#) has a formula for a hand sanitizer that uses:

- isopropyl alcohol or ethanol

- hydrogen peroxide

- glycerol

- sterile distilled or boiled cold water

  DIY hand sanitizer recipes are all over the internet these days — but are they safe?

  These recipes, including the ones above, are intended for use by professionals with both the expertise and resources to safely make homemade hand sanitizers. Homemade hand sanitizer is only recommended in extreme situations when you're unable to wash your hands for the foreseeable future.

  Improper ingredients or proportions can lead to:

- lack of efficacy, meaning that the sanitizer may not effectively eliminate risk of exposure to some or all microbes

- skin irritation, injury, or burns

- exposure to hazardous chemicals via inhalation

  Homemade hand sanitizer is also not recommended for use with children. Children may be more prone to improper hand sanitizer

usage, which could lead to greater risk for injury.

Two things to be aware of when using hand sanitizer is that you need to rub it into your skin until your hands are dry. And, if your hands are greasy or dirty, you should wash them first with soap and water.

With that in mind, here are some tips for using hand sanitizer effectively.

1. Spray or apply the sanitizer to the palm of one hand.

2. Thoroughly rub your hands together. Make sure you cover the entire surface of your hands and all your fingers.

3. Continue rubbing for 30 to 60 seconds or until your hands are dry. It can take at least 60 seconds, and sometimes longer, for hand sanitizer to kill most germs.

According to the CDCTrusted Source, an alcohol-based hand sanitizer that meets the alcohol volume requirement can quickly reduce the number of microbes on your hands. It can also help destroy a wide range of disease-causing agents or pathogens on your hands, including the novel coronavirus SARS-CoV-2.

However, even the best alcohol-based hand sanitizers have limitations and do not eliminate all types of germs.

According to the CDC, hand sanitizers won't get rid of potentially harmful chemicals. It's also not effective at killing the following germs:

- norovirus

- cryptosporidium (which causes cryptosporidiosis)

- clostridium difficile (also known as *C. diff*)

Also, a hand sanitizer may not work well if your hands are visibly dirty or greasy. This may happen after working with food, doing yard work, gardening, or playing a sport.

If your hands look dirty or slimy, opt for handwashing instead of a hand sanitizer.

Knowing when it's best to wash your hands, and when hand sanitizers can be helpful, is key to protecting yourself from the novel coronavirus as well as other illnesses, like the common cold and seasonal flu.

While both serve a purpose, washing your hands with soap and water should always be a priority, according to the CDC. Only use hand sanitizer if you soap and water isn't available in a given situation.

It's also important to always wash your hands:

- after going to the bathroom

- after blowing your nose, coughing, or sneezing

- before eating

- after touching surfaces that could be contaminated

  The CDC lists specific instructionsTrusted Source on the most effective way to wash your hands. This is what they recommend:

1. Always use clean, running water. (It can be warm or cold.)

2. Wet your hands first, then turn the water off, and lather your hands with soap.

3. Rub your hands together with the soap for at least 20 seconds. Make sure to scrub the back of your hands, between your fingers and under your nails.

4. Turn the water on and rinse your hands. Use a clean towel or air dry.

Hand sanitizer is a handy on-the-go way to help prevent the spread of germs when soap and water isn't available. Alcohol-based hand sanitizers can help keep you safe and reduce the spread of the novel coronavirus.

If you are having a hard time finding hand sanitizer at your local stores and handwashing isn't available, you can take steps to make your own. You only need a few ingredients, such as rubbing alcohol, aloe vera gel, and an essential oil or lemon juice.

Although hand sanitizers can be an effective way of getting rid of germs, health authorities still recommend handwashing whenever possible to keep your hands free of disease-causing viruses and other germs.