

# Does Hand Sanitizer Undergo a Physical or Chemical Change?

**Physical and Chemical Changes are Different:**

## What's needed:

Hand sanitizer  
Clear glass container with a lid  
Thermometer  
Paper towel

## What to do:

1. Pour a small amount of hand sanitizer into the clear glass container.
2. Place the thermometer into the container and record the initial temperature.
3. Cover the container with the lid and shake it gently for about 30 seconds.
4. Remove the lid and observe the inside of the container. Do you see any changes?
5. Take the temperature of the hand sanitizer again and record it.
6. Apply a small amount of the hand sanitizer onto your hands and rub it in for about 15 seconds.
7. Hold your hands over the container and observe what happens.
8. Take the temperature of the hand sanitizer again and record it.
9. Clean your hands with a paper towel and dispose of it properly.



# Does Hand Sanitizer Undergo a Physical or Chemical Change?

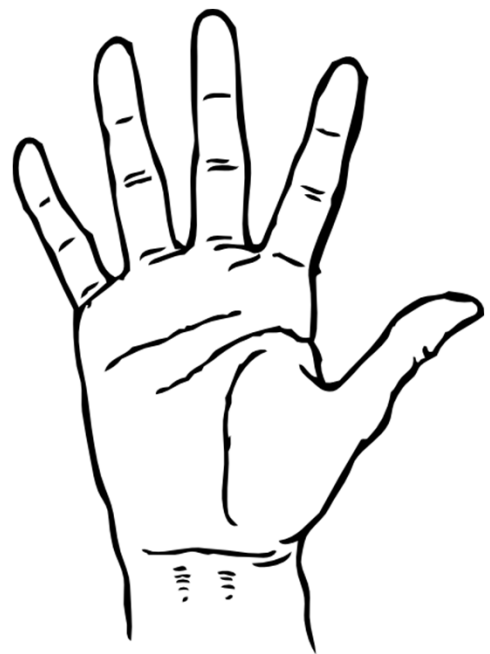
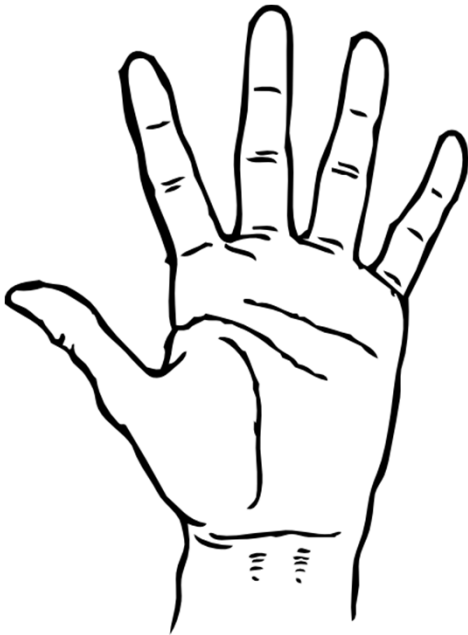
The temperature before shaking the sanitizer \_\_\_\_\_

The temperature after shaking the sanitizer: \_\_\_\_\_

What did the sanitizer look like after shaking it? \_\_\_\_\_

**Hands when sanitizer applied:**

**Hands 15-20 seconds after:**



What change of state occurred?

Is the change of state chemical or physical \_\_\_\_\_

Explain why you think so:

**Teacher Notes:**

**Observations:**

Before shaking the container, the hand sanitizer was a clear liquid. After shaking, it appeared to have tiny bubbles inside it. When applying the hand sanitizer to the hands, it quickly evaporated and disappeared, leaving the hands feeling dry.

**Results:**

The temperature of the hand sanitizer before shaking was \_\_\_\_\_. After shaking, the temperature was \_\_\_\_\_. When holding the hands over the container, the hand sanitizer appeared to change from a liquid to a gas, which is called evaporation. The temperature of the hand sanitizer after applying it to the hands was \_\_\_\_\_.

**Conclusion:**

When hand sanitizer is applied, it changes from a liquid to a gas through evaporation. This is a physical change because the hand sanitizer is still the same substance, just in a different state. The temperature change observed is due to the evaporation process, which requires energy and cools the remaining liquid. Therefore, it can be concluded that the change in state when applying hand sanitizer is also a physical change.

**Note to the teacher:** This lab can be adapted to include more data collection and analysis, such as measuring the mass of the hand sanitizer before and after applying it to the hands, or comparing the evaporation rates of different types of hand sanitizer.