

Gütersloh, 18.03.2020

## Hand cleaning with soap (surfactants) and alcohol-based disinfectants

Many experts worldwide agree that washing hands with soap - if carried out correctly - is just as good, if not better, for infection prevention than hand disinfection with alcohol-based hand cleaning gels or similar. (See Sources 1-4).

### How does the right hand wash work?



Fig. 1 the right hand wash

### Why does it work?

The Sars-CoV-2 virus is an enveloped virus, i.e. it is surrounded by a lipid (fat) membrane. Because of their chemical properties, soap and the surfactants contained therein are able to dock onto both fat and water as amphiphilic molecules. Therefore surfactants can dissolve fat in water, e.g. also the case with detergent. This also works with the fat from the virus envelope roughly as shown in Fig. 2.

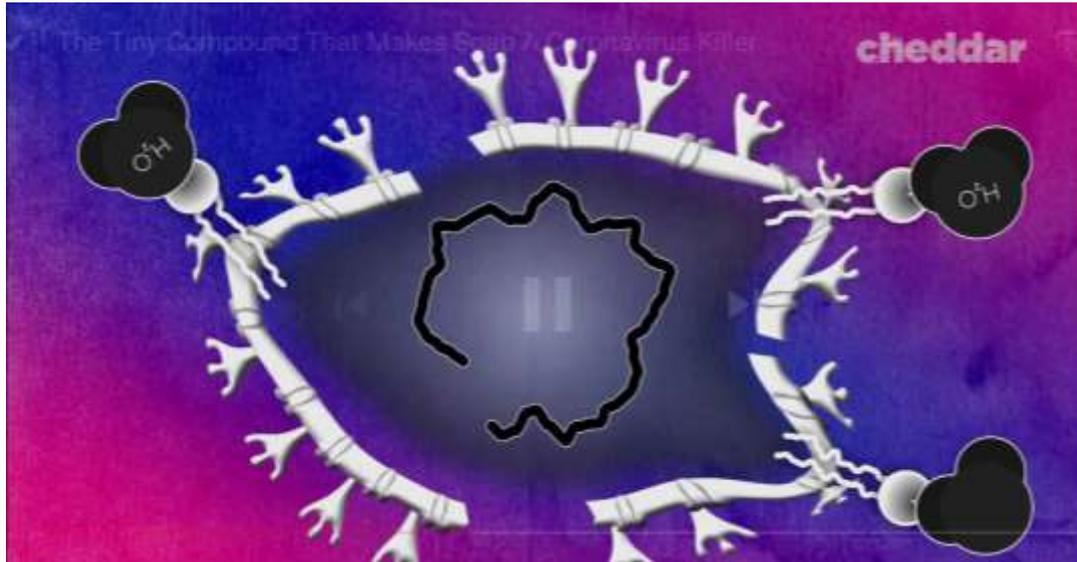


Fig. 2 Surfactants on the broken virus envelope (Quelle: <https://www.youtube.com/watch?v=fRqJaZO5yW8>)

The surfactant molecules bind to the virus membrane. The virus envelope is a very unstable construct because it is only held together by weak bonds. These bonds are pulled apart very easily by the docking of the surfactant molecules, so that the resulting push-pull effect destroys the virus envelope and consequently inactivates the Virus. Therefore, the duration of the hand washing process should be at least 20-30 seconds to destroy the virus envelope by the surfactants.

But not only hands need to be cleaned. Many surfaces, especially those that are touched frequently, e.g. Door handles should be cleaned regularly. The effect of surfactants should also be used in these everyday areas of surface cleaning. The use of surfactant-based cleaners also eliminates the virus from surfaces. The right cleaner should be selected depending on the material and field of application. Also when cleaning surfaces, a certain exposure time should be observed. The duration recommended for hand washing should in any case not be undercut and, if necessary, the surfaces should be rinsed with water or wiped with a damp cloth in order to remove unwanted detergent residues. This offers the possibility of hygienically cleaning door handles or other frequently used surfaces, even without alcohol or disinfectant gels, and avoiding transmission. Such cleaning also takes the breeding ground for other microorganisms such as Bacteria or fungi.

Bio-Circle Surface Technology GmbH has a large product portfolio of surfactant-containing cleaners such as: UNO family, For Clean family, CB 100 family, etc.

List of Sources:

1. [https://www.who.int/qpsc/clean\\_hands\\_protection/en/](https://www.who.int/qpsc/clean_hands_protection/en/) - Clean hands protect against infection (WHO)
2. <https://www.uni-kiel.de/de/coronavirus/ansteckungsrisiko> - Ansteckungsrisiko reduzieren (warum hilft Seife gegen das Coronavirus?)
3. <https://www.youtube.com/watch?v=fRqJaZO5yW8> - The Tiny Compound That Makes Soap A Coronavirus Killer
4. <https://www.vox.com/science-and-health/2020/3/11/21173187/coronavirus-covid-19-hand-washing-sanitizer-compared-soap-is-dope> - How soap absolutely annihilates the coronavirus