



Simmonds & Bristow Pty Ltd

The Regional and Remote Water Specialist



Hygiene Practices for Wastewater System Operators



Adopting good hygiene practices as a wastewater treatment or network operator will protect your health, as well as the health of the public



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What are the hazards?

The main microbial hazards that may impact your health or the health of the public in wastewater operations include:

- Viruses: e.g. *Rotavirus*, *Norovirus*, *Coronavirus*
- Bacteria: e.g. *Campylobacter*, *Staphylococcus*
- Protozoa: e.g. *Cryptosporidium*, *Giardia*.

These pathogenic organisms are present in high concentrations in wastewater collection and treatment systems, and without proper hygiene practices pose a problem to all involved.

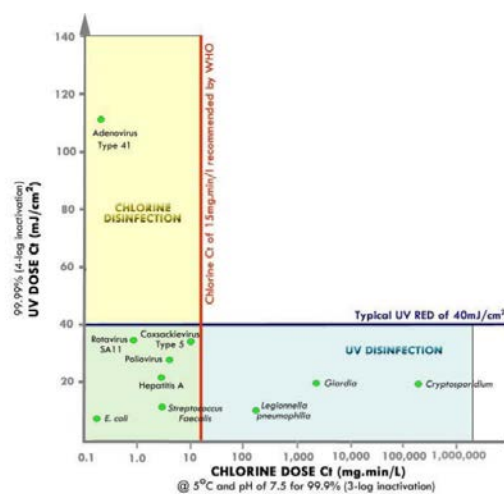
What are the preventative measures?

Washing hands often is the best way to control pathogens. Hand-washing should include:

- Washing hands with soap under running water for at least 20 seconds.
- Antibacterial soap is not necessarily better. Any germs on your hands are attached to the layer of acidic fats, oils and cellular debris on the surface of the skin, and soap dissolves this layer dislodging the microbes from your skin;
- Running water is best. Although hot water can kill microbes, the temperature needed (>80°C) would cause burns. Warm water may help in producing a better soap lather;
- Rinse your hands with water once the soap and friction have lifted the dirt and germs from your skin.

Having clean (and disinfected if necessary) clothing, workspaces, equipment, tools, pipes and fittings is also an important factor in controlling microbial infection, especially if operators are required to undertake tasks on both sewage and drinking water systems.

Disinfection is an effective control against virus and bacterial pathogens (including *Coronavirus*), just so long as adequate Chlorine Contact Time (c.t.) is maintained (>15 mg.min/L). Although some disinfection is undertaken at many wastewater treatment plants, it is important to keep in mind that there are still high levels of pathogens present throughout the wastewater treatment and reticulation networks.



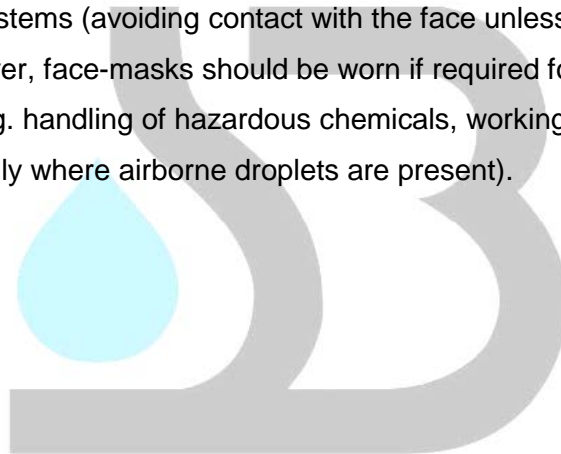
Coxsackievirus, Poliovirus and Rotavirus are examples of non-enveloped viruses. It can be seen that these are inactivated at chlorine Ct of less than 15mg.min/litre, therefore an enveloped virus such as the COVID-19 virus will be inactivated at even lower Ct values.

Hygiene Do's

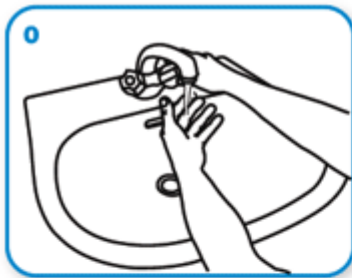
- Always wash your hands with soap and clean running water for at least 20 seconds:
 - After you use the bathroom;
 - After you cough or sneeze;
 - After taking public transport;
 - Before eating or preparing food;
 - When dealing with somebody who is sick;
 - When carrying out work involving the wastewater system;
- If soap is unavailable, use hand sanitiser or gel that contains at least 60 % alcohol. Be aware that hand sanitiser will not work if the hands are already dirty, or for certain microbial contaminants if contact time is not adequate (leave for >20 seconds);
- Cough into your elbow or into a clean tissue, throw the tissue in the bin, and then wash the infected area;
- Let your supervisor and/or coordinator know if you are unwell. Seek medical attention if you are feeling sick;
- Clean up and disinfect any sewage spills (e.g. spray chlorine solution and apply lime);
- Report any potential actual or potential microbial contamination as soon as it happens;
- Wear gloves whenever working on wastewater system;
- Ensure you are wearing the appropriate PPE, and are following appropriate WHS and organisational policies and procedures. Ensure that any visitors to site and contractors are also practicing good hygiene habits;
- Disinfect tools and equipment using dilute chlorine solution, disinfectant spray (such as Glen 20) or alcohol wipes;
- Wash any clothes that may have come into contact with sewage separate to other clothing, and if possible dry in direct sun light (for UV);
- Make sure your phone is disinfected with alcohol wipes throughout the day;
- If you come across somebody who has a viral infection, gargle some antibacterial and antiviral mouthwash.
- Avoid physical contact with other personnel. Do not shake hands, if a greeting is required, consider performing a “PNG fist-bump”.

Hygiene Don'ts

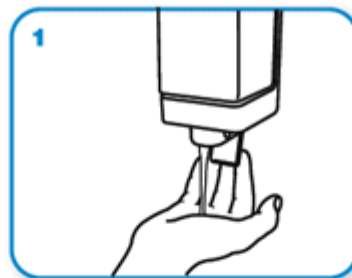
- Don't come to work when you are sick. This is both a Simmonds & Bristow policy, as well as a socially astute practice to reduce the likelihood of illnesses spreading;
- Don't allow other people who are sick to infect you. Maintain >1.5 m distance if possible;
- Don't use the same tools or equipment that are potentially contaminated without first cleaning and/or disinfecting;
- Don't operate your computer, HMI or other equipment without first washing your hands;
- Do not share your phone with others, unless it is disinfected between uses;
- Avoid touching your eyes, nose or mouth, unless you have previously washed your hands (and make sure you wash your hands after you touch these areas as well);
- Face-masks are not necessary for the control of microbial contaminants in all aspects of wastewater systems (avoiding contact with the face unless hands are washed is effective). However, face-masks should be worn if required for other WHS requirements (e.g. handling of hazardous chemicals, working in vicinity of raw sewage, especially where airborne droplets are present).



Correct hand-washing procedure



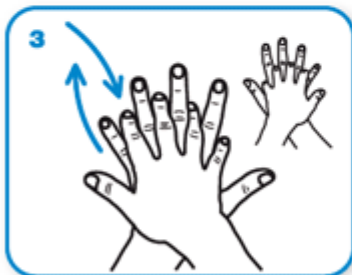
Wet hands with water



apply enough soap to cover all hand surfaces.



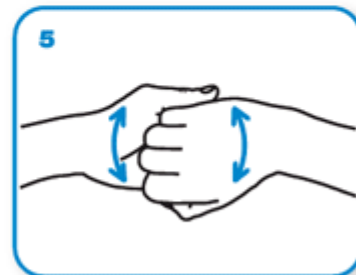
Rub hands palm to palm



right palm over left dorsum with interlaced fingers and vice versa



palm to palm with fingers interlaced



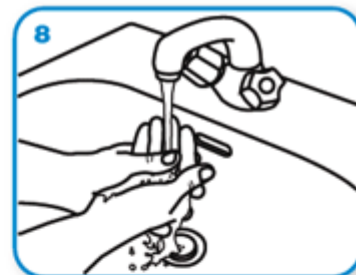
backs of fingers to opposing palms with fingers interlocked



rotational rubbing of left thumb clasped in right palm and vice versa



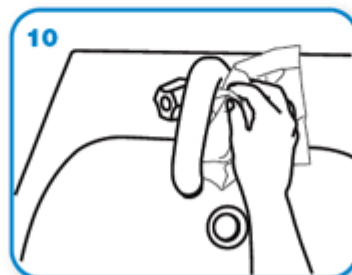
rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.



Rinse hands with water



dry thoroughly with a single use towel



use towel to turn off faucet



...and your hands are safe.

Source: World Health Organisation Website: https://www.who.int/gpsc/clean_hands_protection/en/