

Environmental Cleaning

Organic matter can inactivate many disinfectants. Cleaning with detergents and water should therefore occur prior to a disinfection step of any public or communal areas which different people use for example available tables, chairs etc.

It is good practice to routinely clean surfaces as follows:

- Clean frequently touched surfaces with detergent solution (see diagram below).
- Clean general surfaces and fittings when visibly soiled and immediately after any spillage.

Disinfection to control Corona Virus

- Disinfectants that have virucidal claims need to be listed on the Australian Register of Therapeutic Goods.
- The disinfectant used should be one for which the manufacturer claims antiviral activity, meaning it can control COVID-19virus (such as chlorine-based disinfectants, which are commonly used - see below).
- If available, ready-made (pre-diluted) disinfection products can be used.
Note that pre-diluted bleach solutions lose potency over time and on exposure to sunlight.
- **Regardless of what product you use, it is vital that sufficient contact time is allowed.**
- Look for the following words or descriptions when selecting disinfection products:
 - Alcohol wipes with 70-90% alcohol (ethyl alcohol or isopropyl alcohol)
 - Chlorine and chlorine compounds - i.e. sodium hypochlorite (household bleach), sodium dichloroisocyanurate (NaDCC) and calcium hypochlorite (bleaching powder)
 - Hydrogen peroxide
 - Quaternary ammonium compounds (alkyl dimethyl benzyl ammonium chlorides)
 - Phenolic disinfectants. If using a chlorine product, look for products that give you a 1000 ppm (0.1%) chlorine solution when prepared and used as per the instructions.

Many over the counter brands of cleaning products contain the above ingredients and will be suitable for cleaning and/or disinfection of non-healthcare areas

- If you make a bleach solution from concentrate, read manufacturer's labels to determine the dilution factors you need to create a mix (see below for dilution information).
- Household bleach is typically manufactured with 4% available chlorine and should be diluted to 0.1% for COVID-19 disinfection. For example to make a 0.1% solution from 4% available bleach you would add 250 mL of the bleach into a 10 litre bucket and fill the bucket with tap water.

Always check the label of your bleach bottle to determine it's strength

- Do the following when your disinfectant is ready to use (and after cleaning with detergent if surfaces are soiled/ dirty)
 1. Wipe the area with bleach solution using a disposable paper towel or a disposable cloth.
 2. Wash hands well using soap and water and dry with disposable paper or single-use towel.
 3. If water is unavailable, clean hands with alcohol-based hand rub.
 4. Where possible isolate the surfaces from further use for 10 minutes to allow the disinfectant to be effective.

Hand hygiene

- Soap and water can be used for hand hygiene at any time and **should** be used when hands are visibly soiled.
- Alcohol-based hand rub (sanitiser) can be used if soap and water are not readily accessible, except when hands are visibly soiled.
- Cleaning hands regularly also helps to reduce environmental contamination.

Online resources

NSW HEALTH <https://www.health.nsw.gov.au/Infectious/covid-19/Pages/default.aspx>

SAFework NSW <https://www.safework.nsw.gov.au/>

Preparation of chlorine-based disinfectant solution

- Chlorine (bleach) can effectively kill viruses but handling concentrated solutions can be hazardous for humans.
- Pre-mixed solutions will reduce risks of exposure to those making diluted solutions.
- Know when and how to dilute it correctly. Always pour concentrate into the water, never the other way around.
- Work in a well ventilated area and wear personal protective equipment (see below).
- DO NOT use with any other products (e.g. toilet bowl cleaners, acids - including vinegar - or anything containing ammonia).

Household bleach is typically manufactured with 4% available chlorine and should be diluted to 0.1% for COVID-19 disinfection. For example, to make 0.1% strength bleach from 4% available bleach you would add 250 mL of the bleach into a 10 litre bucket and fill the bucket with tap water.

When preparing bleach solutions, the following needs to be used:

- Gloves should be worn when handling and preparing bleach solutions.
- Appropriate protective eye wear needs to be worn in case of splashing.
- Fresh bleach solutions should be made up regularly (daily or each other day at least).
- Sufficient contact time is required to kill viruses; follow manufacturer's instructions.
 - Several minutes of contact time will be required at a concentration of 0.1%.

Household bleach comes in a variety of strengths. The concentration of the active ingredient — hypochlorous acid² — should be written on the product label.

Table 1. 5 recipes to achieve a 1000 ppm (0.1%) bleach solution based on original strength

Original strength of bleach		Disinfectant recipe		Volume in standard 10L bucket
%	Parts per million	Parts of bleach	Parts of water	
1	10,000	1	9	1000 mL
2	20,000	1	19	500 mL
3	30,000	1	29	333 mL
4	40,000	1	39	250 mL
5	50,000	1	49	200 mL

² Hypochlorous acid (HOCl) is a weak acid formed when chlorine (Cl) dissolves in water and dissociated to hypochlorite (ClO⁻) which is the oxidising disinfectant in bleach.

Bleach solutions should be generally used on hard, non-porous surfaces as it can damage textiles and metals.