Caribbean Public Health Agency Technical Guidance: COVID-19 Series No 33

Chemical Disinfectant and Cleaning Agent Safety – Frequently Asked Questions


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Why are we concerned about cleaning agents and disinfectants?
Selecting the correct chemical agent for cleaning and disinfecting and safely handling and using that agent is essential to health and wellbeing. Recently, with the increased focus on cleaning to reduce the risk of exposure to coronavirus disease, there have been an associated increase in media stories warning the public of the dangerous chemicals used for disinfectants. All chemical cleaning agents can be harmful to the health of the person using the product if it is not used as directed on the label by the manufacturer. Chemical agents can cause burns, breathing difficulties or damage to the lungs, or possibly result in poisoning. Persons should carefully read instructions for use, safety data sheets, and any health warnings to ensure they have selected the correct chemical agents, have the appropriate personal protection, and use and store the chemicals in a safe way.

What are the properties of effective chemical cleaning agents and disinfectants?
A wide variety of chemical agents can be used for cleaning, sanitising, and disinfecting. There are 4 categories of cleaners: detergents, degreasers, abrasives, and acids. Each is effective for cleaning different surfaces depending on the type of soiling. Different chemical agents are effective for killing different bacteria and viruses. Molds and fungus will require a sporicidal agent. Bleach or alcohol-based products may be sufficient for frequently touched surfaces. Bodily fluids like vomit or blood require disinfection after cleaning.

What is the difference between cleaning, sanitisation, and disinfection?
Cleaning removes the soil, dirt and debris from a surface or area. Cleaning involves the use of cleaning agents in water and applied to surfaces with cloths or paper. During the cleaning process, the chemical agent and water loosen and remove soil and some of the microorganisms like bacteria or viruses. Sanitisation reduces the number and growth of microorganisms to an acceptable level. Sanitisation is best for surfaces that are not suited for contact with toxic and dangerous chemicals. Sanitisation is used on food handling and preparation surfaces, toys that children come into close contact with (or even put into their mouths). It can be accomplished by heat (steam, hot water, or hot air) or non-toxic chemicals.

References:
Disinfection is the process of destroying microorganisms on a surface. Disinfection can be done through the application of high temperatures or a chemical and requires a certain amount of contact time. By killing germs on a surface after cleaning, this process reduces or eliminates the risk of spreading infection.

What should be considered when choosing the correct chemical cleaning agent?

- Match your cleaning activities to the types of germs you want to remove or kill, the surface to be cleaned and the type of premises.
- Eating utensils, medical treatment products, counter tops, and floors all require different levels of cleaning and tolerate different types of chemicals differently. Certain chemicals will clean and sanitize in one step.
- Some chemicals may destroy an item for which it was not made, because of its ingredients. The label or safety data sheet of the chemical agent should indicate the types of organisms that can be killed, how the product is to be applied, and on what surfaces it can be safely used.

What are the safety considerations when choosing chemical cleaning agents and disinfectants?

There are two main safety concerns to be considered when choosing chemical cleaning agents and disinfectants:

1. The first consideration is for the safety of those who will come in contact with the item or surface to be cleaned. Items and surfaces used by infants and children or that come in contact with exposed skin require agents that are safe and will not cause irritation. Additionally, fumes from the agents can cause irritation to eyes, nose, and throat. Those with conditions that affect their breathing (asthma, chronic obstructive pulmonary disease) may be sensitive to fumes and odours from chemicals.

2. The second consideration is for the safety of the person that will use the cleaning agent. They should be trained in how to safely use the agent and what Personal Protective Equipment (PPE) is required for each instance.

What is the correct way to safely handle and use chemical cleaning agents and disinfectants?

- Always follow label directions on cleaning products and disinfectants. The manufacturer should provide directions for safe usage. These directions should include how to dilute the agent before application, how to use it safely (personal protection), safe handling and storage, and what to do in case of exposure (first-aid measures). This information is usually outlined in a Safety Data Sheet (SDS) and should be available upon purchase of bulk chemicals.

- Be aware of the hazard symbols displayed on the labels and the signal words they convey (e.g. danger, warning), health hazards statements with words (such as fatal, toxic, harmful, irritant) related to the exposure routes (oral, dermal, inhalation), hazard statements for physical hazards (such as flammable, explosive) and environmental hazardous statements (such as toxic/harmful to aquatic life).

- Do not mix chemical agents unless the labels indicate it is safe to do so. Combining certain products (such as chlorine bleach and ammonia) can result in serious injury or death. Mixing and diluting chemicals requires adequate ventilation and should never be done in an enclosed room.

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• Diluted chemical products should always be clearly labelled and stored in the correct type of container that is intact and shows no signs of deterioration.
• Chemicals should be carefully stored where there is adequate ventilation, as some may generate fumes that can cause serious harm even to adults.
• Ensure that custodial staff, teachers, workers, and others who use cleaners and disinfectants read and understand all instruction labels and understand safe and appropriate use. Staff should have access to the SDS for each chemical in use. This might require that instructional materials and training be provided in other languages.
• Chemical agents for disinfection and sterilization require contact with the surface for a certain amount of time. If that time is not completed, the surface should not be considered sterilized/disinfected.

Why is it important to use Personal Protective Equipment (PPE)?

As all chemicals can be harmful if not handled safely, it is important that the user wear proper PPE to prevent injury or death. At a minimum the user should wear gloves and some type of eye protection suited to the kind of chemicals being used. Handling more dangerous or concentrated chemicals requires more protection. There may be a need for heavy rubber gloves suitable for handling acid, aprons, and N-95 respirators. Follow instructions on the label and on the Safety Data Sheet. If the Safety Data Sheet is not included or the label cannot be clearly read, then consult the website of the manufacturer.

For Further information

For more in-depth information about specific chemical agents, safe usage, and requirements for PPE check:

• Local Ministry of Health, Ministry of Environment, and Ministry of Labour, Bureau of Standards, Poisons Bureau, or similar organisations.
• US CDC: https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html
• US Environmental Protection Agency: https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants
• Sanitising with bleach: https://www.cdc.gov/healthywater/emergency/cleaning-sanitizing/household-cleaning-sanitizing.html

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Decision Process for Cleaning and Disinfecting with Chemicals

Clean to remove dirt or other substances. Rinse to remove residue and cleaning agents

Soft Surfaces
- Examples: Sheets, Stuffed Animals, Clothes
  - Close contact with sensitive areas
  - Sterilise with heat or disinfect with diluted bleach

Hard Surfaces
- Not in close contact with sensitive areas
- Not in close contact with sensitive areas

Furniture
- Disinfect with chemical designed for this use

Floors, Chairs, Tables
- Examples: Toys, Electronics
- Sterilise with alcohol or disinfect with diluted bleach solution, hydrogen peroxide

Food preparation surfaces and eating and serving utensils
- Close contact with sensitive areas
- Disinfect with diluted bleach solution*, food grade cleaners and sanitizers; steam (at 140°C)

* In 1 gallon of water mix:
  - 1 Tablespoon bleach (strength 2.75%) OR
  - 2 Teaspoons bleach (strength 5.25-6.26%) OR
  - 1 teaspoon bleach (strength 8.25%)