

# Disinfection

## CHOOSE A PRODUCT

### What you need to know

#### Sources of infection

There are four main potential sources of infection. Each of these types of organisms has biological characteristics that affect their ability to resist or not the presence of disinfectants.

1. mushrooms (yeasts and moulds)
2. mycobacteria (TB agents)
3. viruses (wrapped or naked)
4. bacteria (Gram, Gram and spores)

Reference <https://securimed.ca/wp-content/uploads/2020/04/D%C3%A9sinfectants-et-d%C3%A9sinfection-en-hygi%C3%A8ne-et-salubrit%C3%A9-principes-fondamentaux.pdf>

#### Introducing the active ingredients of COVID-19 cleaning products recommended by INRS

- Chlorine base (ex: benzalkonium chloride, alkyl chloride dimethyl ethylbenzyl ammonium, etc.)
- Potassium peroxymonosulfate (powder)
- Hydrogen peroxide
- Alcohol based (ex: Anhydrous Alcohol, Isopropyl Alcohol)
- Silver hydrogen citrate (it is used in combination)
- Acid ingredients (ex: citric acid /lemon, acetic acid)
- Thymol
- Sodium Hypochlorite, Sodium Dichloroisocyanurate

Reference <https://www.canada.ca/fr/sante-canada/services/medicaments-produits-sante/desinfectants/covid-19/liste.html>

#### Information on the 2 most commonly used active ingredients

Chlorine-based halogens	<p>Its disinfectant power comes from <b>its oxidizing</b> properties.</p> <p><b>Benefits</b> Chlorinated products have a wide range of activities against microbes. They are effective at low temperatures and generally leave no residue on surfaces.</p> <p><b>Disadvantages</b> It can produce irritating odours and cause irritation of the airways, asthma attacks, choking depending on the degree of exposure and sensitivity of the person exposed. <b>It is an oxidizer and corrosive that can attack many types of surfaces. Rust formation is accelerated in the presence of water-soluble salts, especially when they contain chloride ions.</b></p> <p>It is recommended to avoid inhaling and properly ventilate the room when lukewarm water is used. If there is a risk of splashing, appropriate gloves and protective glasses should be worn.</p> <p>Reference <a href="https://securimed.ca/wp-content/uploads/2020/04/D%C3%A9sinfectants-et-d%C3%A9sinfection-en-hygi%C3%A8ne-et-salubrit%C3%A9-principes-fondamentaux.pdf">https://securimed.ca/wp-content/uploads/2020/04/D%C3%A9sinfectants-et-d%C3%A9sinfection-en-hygi%C3%A8ne-et-salubrit%C3%A9-principes-fondamentaux.pdf</a></p>
Hydrogen peroxide	<p>In <b>Quebec's health care community, hydrogen peroxide products</b> are used because they <b>react very quickly with matter and cause little damage to surfaces</b>. They do not generate toxic residues or gases unless they are mixed with other products such as acetic acid (vinegar).</p> <p><b>Disadvantages</b> There are a variety of factors that can affect efficiency, such as pH, temperature, peroxide concentration and contact time. The presence of oxygen can cause corrosion of oxidable metal surfaces such as iron (rust). The <b>amount of iron in a solution</b> and the pH significantly influence the corrosive power of peroxide plus its concentration in itself. <b>Iron water can therefore influence the effectiveness of the disinfectant power of peroxide.</b></p>

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### How to choose

#### Determine:

1. Determine the type of source of infection (**virus/COVID-19**, fungi, bacteria, mycobacteria) to choose the type of product. In the case of COVID-19, the INRS website lists products that have an active agent against the virus. <https://www.canada.ca/fr/sante-canada/services/medicaments-produits-sante/desinfectants/covid-19/liste.html>  
The products listed on the INRS website do not need to be supplemented with other products or ingredients, they meet the need.

2. Determine the type of surface to disinfect and validate whether active ingredients can damage your surfaces. In a disinfection, it is possible to use more than one product or a different concentration of the same product on different surfaces.

Chlorine-based products can damage some surfaces, but are of choice for others. Many hospitals use hydrogen peroxide to disinfect a room following COVID-19. It is important to know that some products are more corrosive than others.

*For regulatory purposes, including WHMIS, it is established that a substance is considered corrosive if its pH is equal to or less than 2 or equal to or greater than 11.5. However, animal tests showing that the substance is not corrosive predominate over the pH value.*

3. The size of the surfaces to be disinfected

Some environments are bulky to disinfect, machine-spraying solutions can be used. Several products in the list of active ingredients of INRS COVID-19 are offered in the form of concentrate that allow a quick application of the product. It should be noted that in some environments spraying will have to be combined with manual washing.

It should be noted that the use of steam that is efficient and affects the surfaces little is also a solution to consider, but it must be ensured that the premises facilitate the transport of the machine.