



澳門特別行政區政府
Governo da Região Administrativa Especial de
Macau
衛生局
Serviços de Saúde

疾病預防控制中心
技術指引
CDC (Macao SS)
Technical Guidelines

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Page : 1/6

Prevention of Novel Coronavirus – Guidelines on Cleaning and Disinfection of Environment and Articles for Hotels and Other Accommodation Facilities

Wuhan novel coronavirus pneumonia is caused by a new type of coronavirus to which experts only have a preliminary understanding, and definitive disinfection protocol is not available at this moment.

Taking into account the general physicochemical properties of human coronavirus (i.e. low resistance to acid and alkali and sensitivity to organic solvents and disinfectants), the Health Bureau recommends cleaning and disinfection by the general methods of environmental disinfection, which means using household bleach solutions containing 5.25% available chlorine, as what is normally done to prevent communicable diseases.

I. Preparation and Precautions

Use of bleach:

- Bleach is a strong and effective household disinfectant. Its active ingredient, sodium hypochlorite, denatures protein in micro-organisms and is therefore effective in killing bacteria, fungus and viruses.
- Care should be taken when using bleach, as it irritates mucous membranes, the skin and the airway, decomposes under heat or light and reacts readily with other chemicals. Improper use of bleach may reduce its effectiveness in disinfection and even lead to accidents which can be harmful to health. Overuse of bleach or using a bleach solution that is too concentrated results in the production of toxic substances that pollute the environment and disturb ecological balance.

Preparation:

- When diluting and using bleach solution or common disinfectants, wear a mask, gloves, and a disposable apron. Prepare the solution carefully in a well-ventilated area. Avoid direct contact with eyes and skin; should this happen, rinse with a lot of water. Bleach solution should not be used with other cleaning agents;



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- When carrying out disinfection, a mask, gloves and a disposable apron should be donned.

Tools and equipment:

Before cleaning, get all necessary tools and equipment ready, such as cleaning tools, cleansers/disinfectants, measuring tools and protective gear:

- Cleaning tools: brush, mop, towel, spray can and bucket;
- Cleaners/disinfectants: bleach and water;
- Measuring tools: tablespoons and measuring cup;
- Protective gear: mask, rubber gloves, plastic apron and goggles (recommended).

Methods and steps of preparing/using diluted bleach:

1. Keep windows open when diluting or using bleach to ensure good ventilation.
2. Put on protective gear when diluting or using bleach as it irritates mucous membranes, the skin and the airway.
3. Cold water should be used for dilution as hot water decomposes the active ingredient of bleach and renders it ineffective.
4. Bleach containing 5.25% sodium hypochlorite should be diluted as follows:
 - 1:100 diluted household bleach (mixing 10ml of bleach with 990ml of water) can be used for general household cleaning.
 - 1:10 diluted household bleach (mixing 10ml of bleach with 90ml of water) is used to disinfect surfaces or articles contaminated with vomitus, excreta or secretions.
5. Make adjustments to the amount of bleach added if the concentration of sodium hypochlorite in the bleach is above or below 5.25%.
 - Calculation: Multiplier of the amount of bleach added = $5.25 \div$ concentration of sodium hypochlorite in bleach.
 - For example, when diluting a bleach containing only 5% sodium hypochlorite, the



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multiplier is $5.25 \div 5 = 1.05$. That means $10 \times 1.05 = 10.5$ ml of bleach should be used when preparing a bleach solution.

6. For accurate measurement of the amount of bleach added, a tablespoon or measuring cup can be used.
7. Rinse disinfected articles with water and wipe dry.
8. After cleaning, soak cleaning tools in diluted bleach for 30 minutes and then rinse them thoroughly before reuse.
9. Finally, wash hands with liquid soap, then dry hands with a clean towel or disposable towel.

Precautions for using diluted bleach:

1. Avoid using bleach on metals, wool, nylon, silk, dyed fabric and painted surfaces.
2. Avoid contact with the eyes. If bleach gets into the eyes, immediately rinse with water for at least 15 minutes and consult a doctor immediately.
3. Bleach should not be used together or mixed with other household detergents as this reduces its effectiveness in disinfection and causes chemical reactions. When bleach is mixed with acidic detergents (such as toilet bowl cleaners), a toxic gas is produced, which could result in accidents and injuries. If necessary, use detergents first and rinse thoroughly with water before using bleach for disinfection.
4. As undiluted bleach liberates a toxic gas when exposed to sunlight, it should be stored in a cool and shaded place out of reach of children.
5. Sodium hypochlorite decomposes with time. To ensure its effectiveness, it is advised to purchase recently produced bleach and avoid over-stocking.
6. For effective disinfection, diluted bleach should be used within 24 hours after preparation as decomposition increases with time if left unused.



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II. Scope of Cleaning and Disinfection

Environmental surfaces:

➤ **Scope:**

1. Spaces for people, including walls and floors of indoor spaces, corridors, stairs, elevators, etc;
2. Main doors and furniture surface;
3. Floors, walls below 1.5 metres high and furniture in the room of the isolated case;
4. Attention should be paid to doorknobs, window handles, handrails, keypads (electronic locks, intercoms, elevators, electrical appliances, telephones and computers) etc.

➤ **Steps:**

1. Sweep away trashes and dust;
2. Wipe with 1: 100 diluted bleach solution;
3. Leave for 5-10 minutes to allow disinfection;
4. Rinse with water;
5. If necessary, use a mop or dry cloth to clean the residue water in order to keep dry.

➤ **Frequency:**

1. Several times a day for frequently touched equipment. Adjust according to practical needs and contamination level (e.g. elevator buttons and door handle of entrance gate should be disinfected once an hour during peak periods);
2. Adjust according to contamination level; effectuate cleaning and disinfection should there be obvious contamination.
3. At least once a day for less frequently touched equipment.

➤ **Handling of sputum, vomitus, excreta, blood or similar contaminants**

1. Firstly remove the contaminant with the disposable, strong absorbent material/towel;
2. Disinfect the contaminated surfaces and surrounding area with 1:10 diluted bleach solution; leave the bleach solution on the surface for 30 minutes; rinse with water and



Prevention of Novel Coronavirus – Guidelines on Cleaning and Disinfection of Environment and Articles for Hotels and Other Accommodation Facilities

wipe dry;

3. Sweep the towel away together with the contaminants, dump carefully into a plastic bag, and dispose of it into a lidded rubbish bin;
4. Workers should wear gloves to prevent hands or bodies from being contaminated, and wash hands thoroughly with liquid soap immediately after cleansing.

Sanitary facilities:

1. Disinfection of toilets and bathrooms should be done at least once per day; disinfection frequency can be adjusted according to practical needs and contamination level.
2. Floors, walls, bath tubs, sinks, water tank handles, taps, etc. should be wiped with 1:100 diluted bleach solution using mops, brushes, wiping towels, etc. Leave for 5-10 minutes (for complete disinfection), then rinse with water or wipe dry.
3. Toilets: Lower the lid and flush the toilet; brush it with 1:100 diluted bleach solution; cover the lid and flush again; wipe the toilet seat with 1:100 diluted bleach solution; pour a tablespoon of non-diluted household bleach into the toilet bowl, leave for 10 minutes and flush with water. Add water to U-shaped traps from time to time to make sure that they contain water.
4. Disinfect floor drains inlets (if any) at least once a week, and add water to U-shaped traps regularly to ensure that they are not dry. Pour one tablespoon of 1:100 diluted bleach into the drains, and then pour half a litre of water into the drains 5 minutes later.
5. Litter bins and garbage rooms should be cleaned with 1:100 diluted bleach solution daily.

Special facilities and equipment:

1. For the cleaning and disinfection of ventilation systems, please refer to relevant guideline.
2. For facilities and equipment (e.g. metallic surfaces) not suitable to be cleaned with bleach solution, 70% alcohol can be used instead.



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Reusable articles:

1. Disinfection of kitchenware and tableware: boil tableware for 30 minutes or above; for those suitable to be heated or boiled, soak in 1:100 diluted household bleach for 30 minutes, then rinse with boiled water and allow air dry.
2. Toys, tools and other articles: wipe them with 1:100 diluted household bleach solution, leave for 5-10 minutes (to allow for disinfection), then rinse with water or wipe them dry.
3. For articles not suitable to be cleaned by bleach solution, 70% alcohol can be used for disinfection.

Bed sheets, beddings, clothings, towels, etc:

1. Always wear apron, mask and gloves when handling clothings and beddings;
2. Do not shake the clothes with strength when handling or taking them out;
3. Soak clothes in 1:100 diluted household bleach solution for 30 minutes;
4. Then soak them in soapy water;
5. Wash them as usual and let them air-dry.