

# INSTRUCTIONS FOR MAKING A 10% BLEACH SOLUTION

**(RSD FIELDWORK)**

## Introduction

Bleach is a strong and effective disinfectant. Its active ingredient, sodium hypochlorite, denatures protein in micro-organisms and is therefore effective in killing bacteria, fungus and viruses. Equipment used in the collection of RSD samples should be soaked in diluted bleach for 10 minutes.

Understanding the concentration of your bleach solution is important for achieving effective disinfection. Bleach (usually 5.25% or 6.00%–6.15% sodium hypochlorite depending upon manufacturer) is usually diluted in water at 1:10.

The following protective gear should be worn: Mask, rubber gloves, plastic apron and goggles.

## Procedures of Preparing/Using Diluted Bleach

1. Check the concentration on your bleach bottle.
2. Keep windows open when diluting or using bleach to ensure good ventilation.
3. Put on protective gear when diluting or using bleach as it irritates mucous membranes, the skin and the airway.
4. Cold water should be used for dilution as hot water decomposes the active ingredient of bleach and renders it ineffective.
5. Use plastic containers for mixing and storing bleach solutions as metal containers are corroded rapidly and also affect the bleach.
6. Chlorine solutions gradually lose strength, and freshly diluted solutions using 5.25% must therefore be prepared daily. See page 2 for instructions for preparing disinfectant bleach solutions
7. Bleach decomposes in heat, store out of direct sunlight.
8. Bleach containing 5.25% sodium hypochlorite should be diluted as follows:

## Precautions

- For accurate measurement of the amount of bleach added, a measuring cup can be used.
- Follow safety instructions on bottle.
- 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.
- Sodium hypochlorite decomposes with time. To ensure its effectiveness, it is advised to purchase recently produced bleach and avoid over-stocking.
- Clean water or ethanol should be used to clean away the bleach solution after disinfecting equipment.
- Finally, wash hands with liquid soap, then dry hands with a clean towel or disposable towel.

## To prepare disinfectant bleach solutions



### SEE FORMULA BELOW\*

Make adjustments to the amount of bleach added if its concentration of sodium hypochlorite is below 5.25%.



### 1:10 DILUTION

(one part bleach and nine parts water) yields 5,250 ppm or a 0.53% hypochlorite solution, for use within 24 hours.



### 1:20 DILUTION

(one part bleach and nineteen parts water) yields 6,250 ppm or a 0.625% hypochlorite solution, for use within 24 hours.

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## \*Calculation formula



Volume percent (% v / v) [(volume of solute)/(volume of solution)] x 100

Note: 5.25 in this formula is a constant.

e.g., Your Sodium Hypochlorite concentration is 4.0%

$$(5.25 / 4.0) \times 100 = 131.25$$

So, you would use 131.25 mL of bleach and 868.75mL water to make 1L of solution