



# ***TB BIOSAFETY***

Worksheet (W3:M1)

## EXERCISE 1: PREPARATION OF DISINFECTANTS

### Instructions:

Review the example below and then answer the question listed in the Exercise

Example: Calculate the correct volume of bleach required to make a 1% final concentration of bleach

- Bleach initial stock concentration = 4%
- Bleach working solution required = 1%
- Bleach working solution volume desired= 250 ml

**Concentration 1 × volume 1 = Concentration 2 × volume 2 (C1V1=C2V2)**

Bleach initial stock concentration = 4% is the initial concentration C1

Bleach working solution = 1% is the final concentration C2

Bleach working solution volume = 250 ml is the final volume V2

The volume V1 is unknown

Therefore:

$$4\% \times V1 = 1\% \times 250\text{ml}$$

$$V1 = (1\% \times 250\text{ml}) / 4\%$$

$$V1 = 250 \text{ ml} / 4\%$$

$$V1 = 62.5\text{ml}$$

### Answer:

The volume of 4% bleach required to make final concentration of 1% bleach in 250ml is 62.5ml. To make the solution, pour 62.5ml of stock bleach into a measuring cylinder and top up to 250ml (187.5ml) of water.

### Exercise:

Time: 5 minutes

Instructions: Calculate the correct volume of bleach required to make a final concentration of bleach for cleaning the GeneXpert instrument

- Bleach initial stock concentration = 4%
- Bleach working solution required = 0.1%
- Bleach working solution volume desired= 500 ml

What volume of bleach stock is required (show your calculation)?

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