

Microscale Gas Chemistry:

Preparing Bromine Water

Two methods are described here. The first one requires the use of liquid bromine and a working fume hood.

Method I. Bromine water from Liquid Bromine

In order to make 50-mL bromine water, you will need:

- Glass bottle with screw cap, label the bottle $\text{Br}_2(\text{aq})$ This bottle must have a capacity of about 100-mL
- 50-mL water (preferably distilled water)
- a bottle of liquid bromine

Transfer the water to the bottle. Working in a fume hood, decant the vapors only from a bottle of liquid bromine to the bottle with the water. The vapors are red in color and heavier than air. After the airspace above the water in the bottle is filled with red bromine vapors, cap both bottles. Swirl or gently shake the bottle containing the water in order to mix the contents. The bromine will readily dissolve and the solution will become yellow in color. The process should be repeated at least once more. Typically bromine water should be orange in color so that it can be seen when diluted.



Method II. Bromine water from Chlorine-based household bleach and Sodium Bromide.

Flinn Scientific has developed a convenient method for the preparation of bromine water from sodium bromide, household bleach and 1 M hydrochloric acid. Their method does not require the use of liquid bromine.

In order to make 50-mL bromine water, you will need:

- Glass bottle with screw cap, label the bottle $\text{Br}_2(\text{aq})$
- 1.1 g sodium bromide, NaBr
- 10.7 mL 1 M HCl
- 7.6 mL sodium hypochlorite (household laundry bleach)
- 32 mL water (preferably distilled water)

Dissolve the NaBr in the HCl and transfer to the labeled bottle. Add the sodium hypochlorite to the bottle and swirl to mix the reagents. Keep the bottle capped when not in use.

Disposal.

Excess bromine water can be **neutralized** to harmless bromide by reacting it with a few drops of 1 M sodium bisulfite solution or 1 M sodium thiosulfate solution. Add either of these solutions with stirring until the red color of the bromine water becomes colorless.

Use the BACK button to return.