

## 実験 炭酸ナトリウムの中和と指示薬

### Experiment: Neutralization of Sodium Carbonate and Indicators

年 組 番 名前

班員

班

#### 目的

指示薬の色変化を体験し、色変化から液性を推定できる。

#### Purpose

Experience the color change of indicators and estimate the nature of the solution (acidic or basic) from the color change.

#### 準備物

試験管セット、洗浄ビン、ガラス棒、色鉛筆、薬さじ、駒込ピペット

#### Materials

Test tube set Wash bottle Glass rod Colored pencils Spatula Komagome pipette

#### 試薬

炭酸ナトリウム、フェノールフタレイン溶液、BTB 溶液、メチルオレンジ溶液、

#### Reagents

Sodium carbonate Phenolphthalein solution BTB solution Methyl orange solution

#### 実験 1

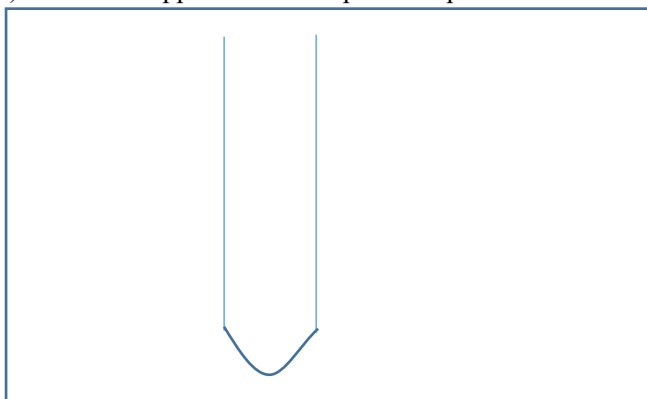
##### Experiment 1

1. Add about 3 small scoops of sodium carbonate to a graduated test tube.
2. Add about 10 mL of ion-exchanged water from the wash bottle to the graduated test tube.
3. Add 4 drops of BTB solution to the test tube from step 2.
4. Insert a glass rod into the test tube from step 2 and stir lightly (do not overmix).
5. Add 1 drop of PP and 1 drop of MO to the test tube from step 2.
6. Using a Komagome pipette, add about 10 mL of 0.1 mol/L HCl drop by drop to the test tube from step 2.
7. Carefully insert a glass rod into the test tube from step 2 and gently stir to create a rainbow.

#### 結果

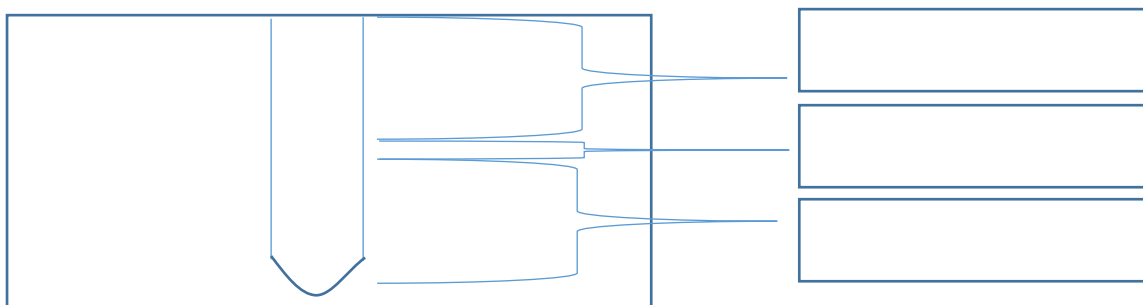
(1) Describe the color change in step 4 of Experiment 1.

(2) Sketch the appearance in step 7 of Experiment 1.



## Discussion

(1) Answer the acidity or basicity of each layer based on the color change.



(2) What is the gas forming near the top? Answer with its chemical formula. (It becomes easier to observe if the glass rod is left in the test tube.)

(3) Write the chemical reaction equation between sodium carbonate and hydrochloric acid.

## Self-Evaluation

(1) Did you understand the content of the experiment? 5 4 3 2 1

(2) Were you able to cooperate with your group members? 5 4 3 2 1

## Reflection