

## Experiment no.1

Name of Experiment: Refining Crude Table salt (NaCl)

### Theory:

Crude table salt contain impurities that make the salt hygroscopic and sometimes bitter, and these impurities include  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$  ion and  $\text{SO}_4^{2-}$ .

This experiment describe necessary steps to get pure table salt.

### Procedure:

1-Dissolve 0.8g crude table salt in 15mL distilled water in beaker, add drops of  $\text{BaCl}_2$  solution (2%), notice precipitate formation then add other drops.

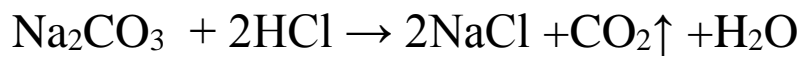
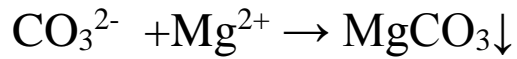
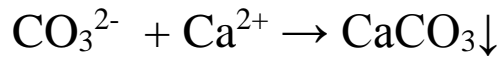
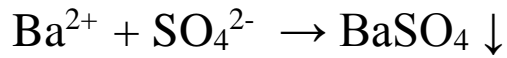
2-Filter the precipitate and collect filtrate in small beaker then add 2drop(2%) $\text{BaCl}_2$  if the precipitate formed again then filter again, repeat this step till the ppt. is no longer formed when  $\text{BaCl}_2$  solution added.

3-Add(5%  $\text{Na}_2\text{CO}_3$  solution), notice ppt. formation , then filter the solution , add to filtrate other drops  $\text{Na}_2\text{CO}_3$  solution, continue this step till the ppt. is no longer formed when  $\text{Na}_2\text{CO}_3$  solution added to the filtrate.

4-Add to the filtrate drops of diluted  $\text{HCl}$  solution (0.2M)till the solution neutralized using pH paper as indicator.

5-Evaporate the solution in beaker weighed before on heater till pure crystals appear from table salt.

6-Weigh product then find the percentage of impurities.



Calculations:

$$\text{Pure salt}\% = \frac{\text{weight of pure salt}}{\text{weight of sample}} * 100 = X$$

$$\text{Impurity \%} = 100 - X$$