Research On Dissolving Calcium Ions

Kurashiki Amaki High School Nagayama Takahiro

Introduction

I was interested in the term hardness of water.

⇒related to the concentrations of calcium and magnesium ions.

Theory

Calcium carbonate can be dissolved less into the water.

Calcium carbonate can be dissolved more into the water when it is saturated with carbon dioxide.

Chemical Reaction Formula

$$CaCO_3 + CO_2 + H_2O \rightarrow Ca(HCO_3)_2$$

Hypothesis

The more carbon dioxide is dissolved , the more calcium carbonate is dissolved

Measurement

Chelate Titration

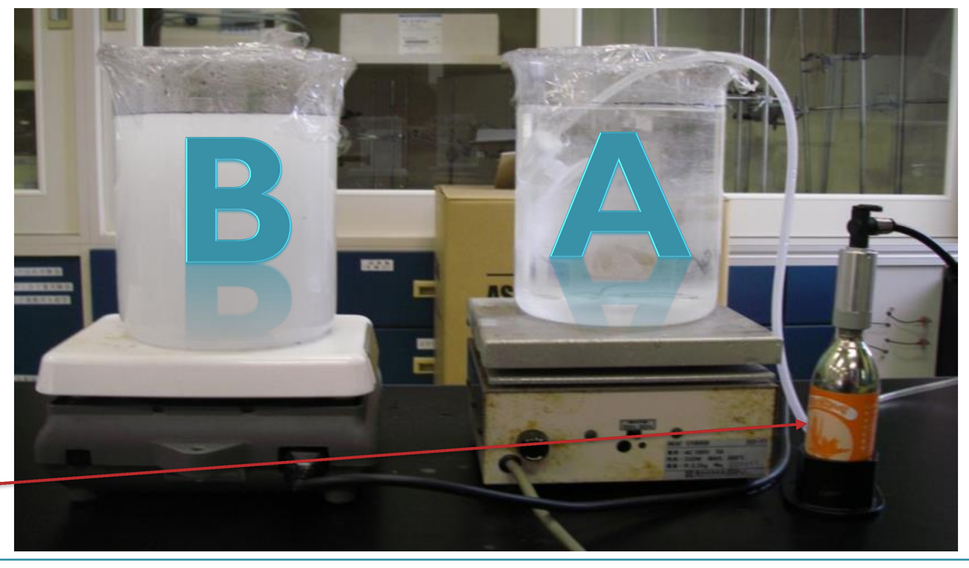
Experiment

equipment set-up(beakerAandB)

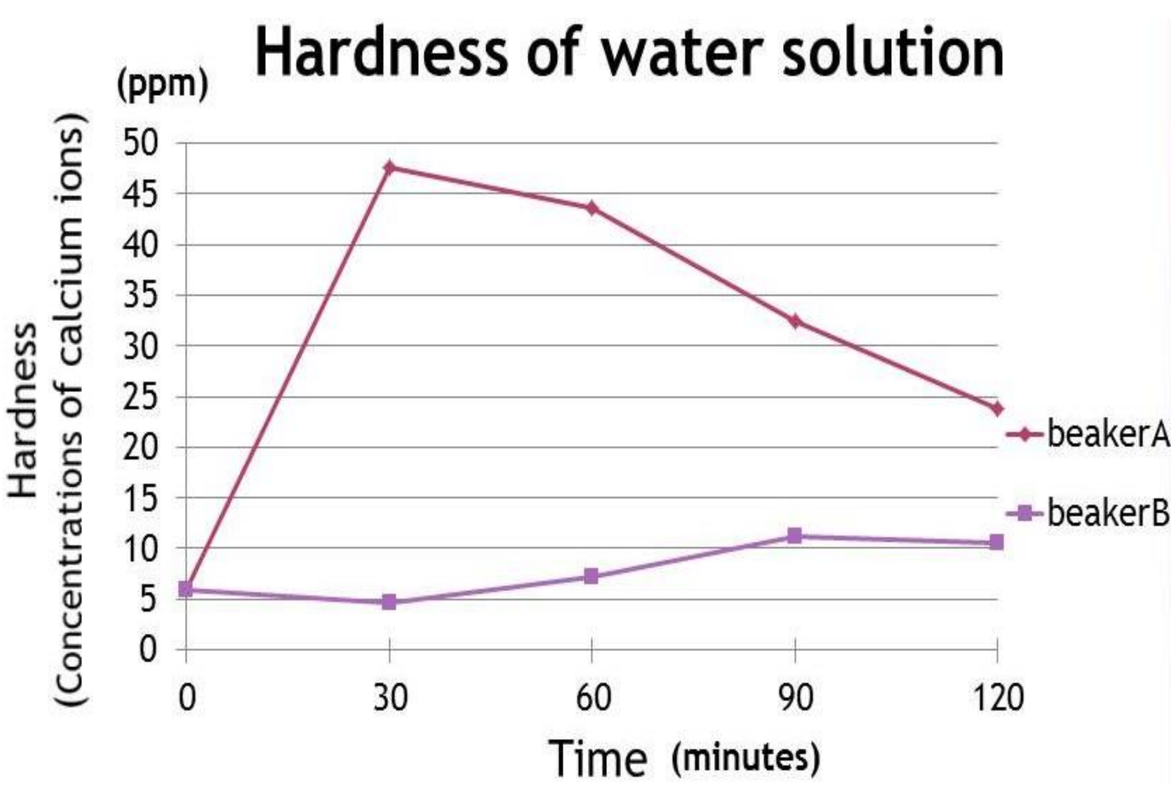
Beaker A:water,calcium carbonate

CO_2

Beaker B:water,calcium carbonate



CO_2 tank



Conclusion

Calcium carbonate is saturated with water in beakerA within thirty minutes.

Concentrations of calcium ions in beaker B are almost constant.

Recommendation

Maintain the water temperature.

Do more experiments to get more accurate results.

References

高校農業　農業実験　岐阜県教育委員会

http://weba6.gifunet.ed.jp/~contents/kou_nougyou/jikken/SubShokuhin/05/index.html2005

水の分析　塩田博幸(Hiroyuki Shiota)日本分析化学学会北海道支部　1993 Jan 10