Required Training

UC Lab Safety Fundamentals

Required PPE

Lab coat, safety glasses/goggles, nitrile gloves

Equipment

400 mL Beaker

Chemicals

100 mL Milk of Magnesia

Stir Rod

100 mL 6N HCl

100 mL 6N NaOH

Procedure:

1. Pour 100 mL of Milk of Magnesia into the beaker
2. Add 6N HCl with stirring until suspension dissolves
3. Add 6N NaOH until suspension returns
4. Can be repeated multiple times

Discussion:

Milk of Magnesia is a milky white suspension of magnesium hydroxide, Mg(OH)$_2$, used as an antacid and laxative. Mg(OH)$_2$ is sparingly soluble in water.

\[
\text{Mg(OH)}_2 = \text{Mg}^{2+} + 2 \text{OH}^- \quad \text{K}_{sp} = 1.5 \times 10^{-11}
\]

Adding 6N HCl to the solution removes some of the OH$^-$ ions in the solution shifting the equilibrium to the right allowing more Mg(OH)$_2$ to dissolve. Adding 6N NaOH adds OH$^-$ and shifts the equilibrium to the left and causing Mg(OH)$_2$ to precipitate back out of solution.

Hazards:

6N HCl and 6N NaOH can cause serious burns if contact is made with skin or eyes. If contact occurs, rinse the affected area with water for at least 15 minutes.

SOP:
Corrosive – Hydrochloric Acid, Sodium Hydroxide

Disposal (by Storeroom)

The solutions should be neutralized and flushed down the drain with copious water.