Combustion Analysis

Purpose

To qualitatively observe the formation of CO_2 and water product for a classic combustion reaction

Materials

Candle	Calcium Hydroxide (0.1 M 50 mL)
Jar and lid (2)	Cobalt Chloride (0.1 M 50 mL)
Matches	Small Filter Paper

Preparation

1. Presoak small filter paper in 50 mL of 0.1 M Cobalt Chloride solution for at least one minute. Remove with tweezers and flame dry the paper at least 6 inches above a Bunsen burner flame until the paper is uniformly blue. *Be careful not to burn the filter paper or your hand.*

Procedure

1. Invert an open jar 1 inch above the lit candle with the candle burning directly into the jar. This allows for an increased amount of product collection from the atmosphere outside of the jar. Allow the candle to burn for 30 seconds to 1 minute.
2. Smother the flame by placing the jar over the candle until the flame goes out. Immediately place the dry blue $CoCl_2$ filter paper into the jar and secure the lid onto the jar after.
3. Perform the same procedure for product collection in a separate jar, but instead pour 50 mL of 0.1 M $Ca(OH)_2$ into the jar and then secure the lid.

Additional Information

1. The blue filter paper will slowly become pink when the water product of combustion hydrates the $CoCl_2$.
2. The $Ca(OH)_2$ will immediately go from a clear solution to a cloudy white solution in the presence of CO_2. The solid precipitate that forms is $CaCO_3$.

Disposal

The $CoCl_2$ paper can be flame dried and reused. Everything else can go down the drain with plenty of water.