



Curiosity Guide #605

Acids and Bases

Accompanies Curious Crew, Season 6, Episode 5 (#605)

Colorful Carnations

Investigation #3

Description

How about doing some "magic" with a friend and some flowers?

Materials

- White carnations
- Vase
- Phenolphthalein
- Ammonia and water solution, 1 part to 1 part. Ammonia should always be used with adult supervision.
- Spray bottle
- Safety goggles, one pair for each participant
- A friend
- An adult to supervise

Procedure

- 1) Put on safety goggles.
- 2) Before the experiment, and out of view of your friend, spray one of the carnations with Phenolphthalein so that the petals are lightly coated.
- 3) Place the flower in the vase.
- 4) Both you and your friend put on safety goggles.
- 5) Hand your friend the spray bottle with ammonia solution.
- 6) Ask your friend to "water" the flower by gently misting its petals.
- 7) What do you notice?

My Results

Explanation

Phenolphthalein is an acid-base indicator. When phenolphthalein reacts with the ammonia, the mixture turns pink. The reaction indicates that the spray bottle did not have just water in it, but also a base, in this case ammonia. Phenolphthalein is a clear liquid so isn't noticeable on the petals of the flower at first. When phenolphthalein is exposed to an acid, the phenolphthalein turns clear again. In time, the color of the flower will change back because the carbon dioxide in the air mixes with water vapor and makes carbonic acid. Carbonic acid is a weak acid that will neutralize the ammonia and make ammonium carbonate.

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