

## Disappearing Ink

### Purpose

To demonstrate an example of neutralization between an acid and base.

### Materials

125 mL Erlenmeyer Flask	0.1 M sodium hydroxide
Rubber stopper	Dropper
50 mL ethyl alcohol	White cotton shirt
Thymolphthalein indicator	

### Procedure

1. Pour 50 mL of the ethyl alcohol in the 125 mL flask
2. Add 2-3 droppers full (2-3 mL) of Thymolphthalein indicator to the ethyl alcohol
3. Add about 2 drops sodium hydroxide, or just enough so the solution turns a dark blue color.
4. Place the rubber stopper in the flask while solution is being stored – the solution will neutralize in the presence of carbon dioxide in the air
5. Splash some of the solution onto the white cotton shirt
6. Wait a few seconds – the blue stain will disappear (the residue will come off in the wash)

### Additional Information

1. The solution can be used on paper, however it may be necessary to spray with ammonia or vinegar to cause the color to disappear.
2. The sodium hydroxide causes the blue color. When on the shirt, the carbon dioxide in the air reacts with water to form carbonic acid, which in turn reacts with the sodium hydroxide to neutralize.
3. Thymolphthalein is colorless in acid, blue in base.

### Disposal

Extra solution can be stored, or poured down the drain with excess water. The cotton t-shirt can be washed causing the residue to be cleaned off.