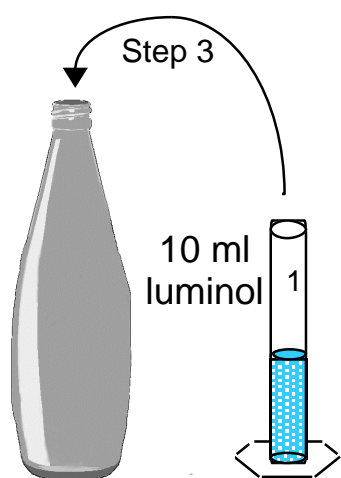


See the Light

Procedure.



1. Always wear safety goggles.
2. Rinse the beaker, the two graduated cylinders, and the bottle in the sink.
3. Using graduated cylinder 1, measure 10 ml luminol solution. Carefully pour it into the dark bottle. Look into the bottle:

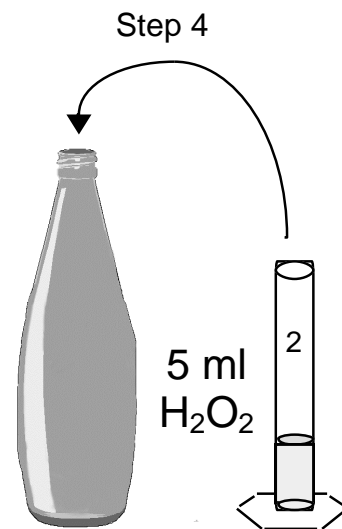
Does the luminol glow in the bottle?

4. Using graduated cylinder 2, measure 5 ml hydrogen peroxide (H_2O_2) solution. Carefully pour it into the dark bottle. Look into the bottle:

Is there light in the bottle? What color is it?

5. Carefully pour the contents of the bottle into the beaker.

Is the solution the same color as the glow in the bottle?



6. Empty the beaker into the sink. Rinse the beaker, the two cylinders, and the bottle in the sink.



How do you make light without electricity or fire?

A Closer Look:

Energy may be stored (for example, in food) in the chemical bonds that hold molecules together. When bonds form, energy may be released as heat or light.

When energy is added to a chemical, electrons (tiny charged particles) can become "excited" (move to a higher energy level). Light is given off when the electrons return to their natural "unexcited" level. This light is called chemical light, or chemiluminescence (KEM-ee-loom-in-ess-sense).



The reaction of luminol with hydrogen peroxide (H_2O_2) releases energy in the form of chemiluminescence.

Examples in nature include the night glow of sea animals or the yellow-green glow of a firefly. You also see chemiluminescence in commercial "light" sticks. All are "cool" (heatless) sources of light.