



# Chemiluminescence (Luminol)

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### MATERIALS

- **Solution 1(in a 1L vol. flask):**
  - Dissolve 4.0g sodium carbonate
  - Dissolve 0.2g of luminol
  - Dissolve 24.0g sodium bicarbonate
  - Dissolve 0.4g copper II sulfate pentahydrate
  - Dissolve 0.5g ammonium carbonate monohydrate
- **Solution 2: 1L 3% (V/V) hydrogen peroxide**
  - Funnel with spiral column attached (one glass piece or funnel with Tygon tubing attached)
  - 3L or 4L beaker to collect waste
  - Ring stand
  - Sufficient clamps to support the funnel and column
  - Goggles
  - Gloves

### PRESENTATION

1. - Clamp the funnel and column to the ring stand so that the end of the column can feed into the 4L beaker
2. - Dim or turn off the lights in the room
3. - Pour solution 1 and 2 simultaneously into the funnel (you may need a step stool)
4. - Once the solutions begin to mix as they travel down the column, they will glow a bright blue
5. - Depending on the temperature of the solutions, the glow will last up to a couple of minutes

## DISCUSSION

- Please inquire about the many different mechanisms

## HAZARDS (MSDS Links)

Luminol: <http://www.sciencelab.com/msds.php?msdsId=9927563> [1]

Sodium Carbonate: <http://www.sciencelab.com/msds.php?msdsId=9927263> [2]

Sodium Bicarbonate: <http://www.sciencelab.com/msds.php?msdsId=9927258> [3]

Ammonium Carbonate: <http://www.sciencelab.com/msds.php?msdsId=9927072> [4]

Copper II Sulfate: <https://www.sciencelab.com/msds.php?msdsId=9923597> [5]

3% hydrogen peroxide: <http://www.sciencelab.com/msds.php?msdsId=9924298> [6]

## REFERENCES

Shakhashiri, B. Z., et al. (1983). Oxidations of Luminol. Chemical Demonstrations Volume 1. (pp. 156-67). Madison, WI: University of Wisconsin Press.

[Undergraduate](#) [7]

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**Source URL (retrieved on 01/12/2013 - 5:55am):** [http://www.chem.arizona.edu/lecture\\_demos/9-volt\\_battery](http://www.chem.arizona.edu/lecture_demos/9-volt_battery)

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[1] <http://www.sciencelab.com/msds.php?msdsId=9927563>

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[6] <http://www.sciencelab.com/msds.php?msdsId=9924298>

[7] <http://www.chem.arizona.edu/taxonomy/term/11>