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## Chemiluminescence

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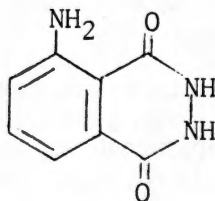
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# CHEMILUMINESCENCE

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A dramatic chemiluminescence is described by Huntress, *et al.*,<sup>1</sup> which is based on the basic oxidation of luminol.<sup>2</sup> Luminol is 3-amino-phthalhydrazide or more correctly 5-amino-2,3-dihydro-1,4-phthalazinedione. Its structure is



The materials necessary for performance of the demonstration are:

- 0.1% luminol (w/v)
- 5% NaOH (w/v)
- 2.5% potassium ferricyanide (w/v)
- 3% H<sub>2</sub>O<sub>2</sub>

From the above the following reacting solutions are prepared.

## Solution 1

100 ml of 0.1% luminol plus 5 ml of 5% NaOH with enough water to make 1 liter total volume.

## Solution 2

10 ml of 3% H<sub>2</sub>O<sub>2</sub> plus 10 ml of 2.5% potassium ferricyanide with enough water to make 1 liter total volume.

The demonstration is most effective when performed in a darkened room. Pour solutions 1 and 2 simultaneously through a funnel into a third vessel. Color brilliance can be enhanced by adding some potassium ferricyanide crystals to the mixture.

To show that the light is cold light, solutions 1 and 2 can be poured over a block of ice. Sufficient light results in the reaction so that one may read a newspaper by it.

## References:

<sup>1</sup>Huntress, E.H., *et al.*, *J. Chem Ed.*, 11, 143 (1934).

<sup>2</sup>Luminol may be purchased from Eastman.