

# **ILLUMINATING LATENT BLOOD**

*Application methods, fixatives, alternatives and  
new formulas for luminol*

*Morgan Cheyne*

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However, the ease of tablet based methods may also be a disadvantage. With tablet based methods, modification of the solution to suit different situations is not possible. This is an advantage of the Grodsky formula. One example of this is if faced with a very high background chemiluminescence, it may be desired to reduce the concentration of luminol to reduce this effect (113).

#### 5.1.5.4 Shelf Life

The lengths of time that each of the reagent remains viable in both the unactivated and activated forms are displayed in table 5.1. As seen in this chart Hemascein and Grodsky have the longest unactivated shelf life of all the reagents. This is probably due to the dry powders preserving better than the liquid solutions of the other reagents. The Hemascein formulation vial is stable for 7 years at room temperature. The stock solution can be used for 30 days when stored at room temp under ordinary lighting conditions, 45 days when covered with aluminium foil and 15 months in a refrigerator. The working solution is stable for 28 days at room temp under normal lighting conditions, 64 days at room temp when covered with aluminium foil and 7 months if stored in a refrigerator. Bluestar Magnum, Lumiscene and Lumiscene Ultra all have a shelf live of three years in the unactivated form.

In the activated form, the shelf life of the luminol based reagents is significantly shorter than the shelf life of the Hemascein working solution. Grodsky, Lumiscene and Lumiscene Ultra had the lowest shelf life at four hours after the working solution was made. Blue star Magnum had a longer shelf life of 24 hours. However, the working solution of hemascein provided was by far the longest stability, being stable for up to seven months.

#### 5.1.5.4 Hydrogen Peroxide Content

The H<sub>2</sub>O<sub>2</sub> content for each of the reagents was calculated and added to the table 5.1 along with the source of the hydrogen peroxide. The source of hydrogen peroxide for Lumiscene, Lumiscene Ultra and Bluestar Magnum were activation tablets. The amount of H<sub>2</sub>O<sub>2</sub> in the Bluestar Magnum tablets was unspecified by the manufacturer. The Lumiscene and Lumiscene Ultra working solutions claimed to have a final H<sub>2</sub>O<sub>2</sub> concentration >12%. The source of hydrogen peroxide for the Hemascien samples is an individually sprayed solution of 1-3% hydrogen peroxide.