

ILLUMINATING LATENT BLOOD

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

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The total amount of hydrogen peroxide applied to a bloodstain depends on the amount of reagent sprayed because this would dilute the amount of hydrogen peroxide. The source of H_2O_2 for Grodsky luminol is sodium perborate. In aqueous solutions, sodium perborate breaks down into borate and H_2O_2 . The amount of H_2O_2 produced is approximately half the original amount of sodium perborate.

5.1.5.5 Practicality

The practicality of utilising each reagent in casework was then assessed.

Firstly, while Bluestar Magnum, Lumiscene and Lumiscene Ultra are the easiest reagents to prepare due to activation tablet/s added to a ready made solution, this is not without some practical disadvantages. The shelf life of these reagents once the working solution has been prepared is displayed in table 5.1. This means that once the reagent has been prepared, then all of the solution must be used within the shelf life times or the solution is wasted. However, Bluestar Magnum contains three activation tablets so therefore a third of the solution can be used with one activation tablet making a total volume of 42ml each time. Lumiscene contains two activation tablets. Therefore half the amount solution may be used with one activation tablet making 250ml of the working solution. Lumiscene Ultra however contains one activation tablet so therefore all of the solution must be used making 250ml of the working solution. Grodsky luminol and Hemascein limit this potential wastage of solution because the user can prepare any volume depending on how much of the reagent is needed for a particular case.

In terms of applying the different reagent to a crime scene, Bluestar Magnum, Lumiscene, Lumiscene Ultra and Grodsky are all luminol based reagents. Therefore, they need darkness to view the reaction. Increasing the ambient light levels decreases the ability to see the chemiluminescence. A Hemascein reaction with blood, on the other hand, can be viewed when ambient light levels are not entirely dark. This makes movement around the crime scene easier. Also, photographing the scene is easier because the reaction can be viewed in relation to the crime scene without overlaying images as done in luminol photography (section 1.4.7). Also, because of the long reaction time of the Hemascein reaction, repeat