

BLUESTAR

Use of BLUESTAR
to detect latent bloodstains

Sommaire

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- Luminol Chemistry
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- Detergents and Surface effects
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Standard Operating Procedure

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- Use and sampling
- Documentation
- Vertical surfaces
- Ident-HEM

Real Cases

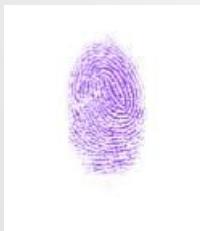
CONCLUSION

Chemicals used for Blood detection

Reaction with proteins and amino acids

Non-covalent Bond

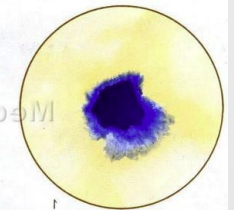
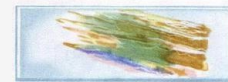
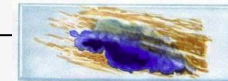
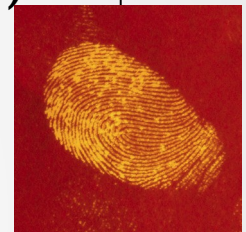
- Hungarian Red (Fuchsin acid)
- Black amido
- Leuco-Crystal-Violet
- Coomassie Brilliant Blue R250
- DFO (1,8 diazafluoren-9-one)
- Ninhydrin
- Crowles' Double Stain
- Fluorescamin



Reaction with hemoglobins

Redox with heme iron (Fe²⁺)

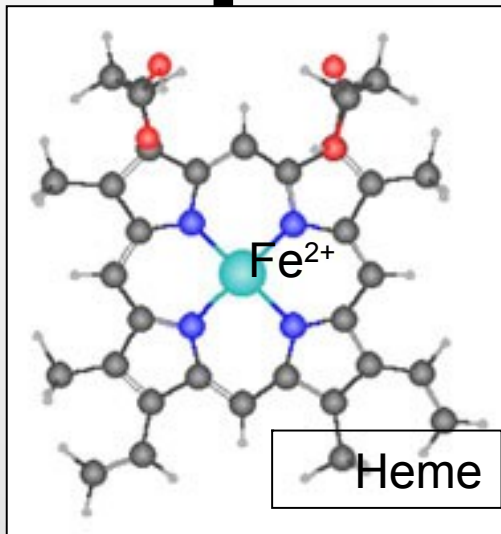
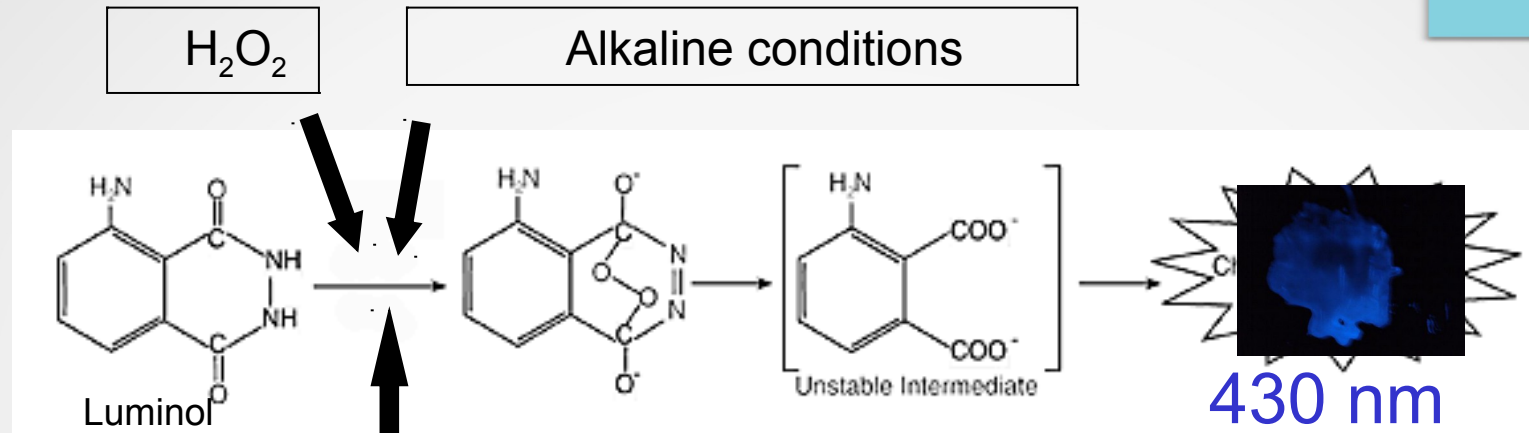
- Leucomalachite Green
- Fluorescein
- Merbromine
- Phenolphthalein
- Benzidine
- o-Tolidine
- TMB (tetramethylbenzidine)
- Luminol



- Effect on DNA
- Effect on User
- Easy storage
- Implementation facility
- Reactivity length

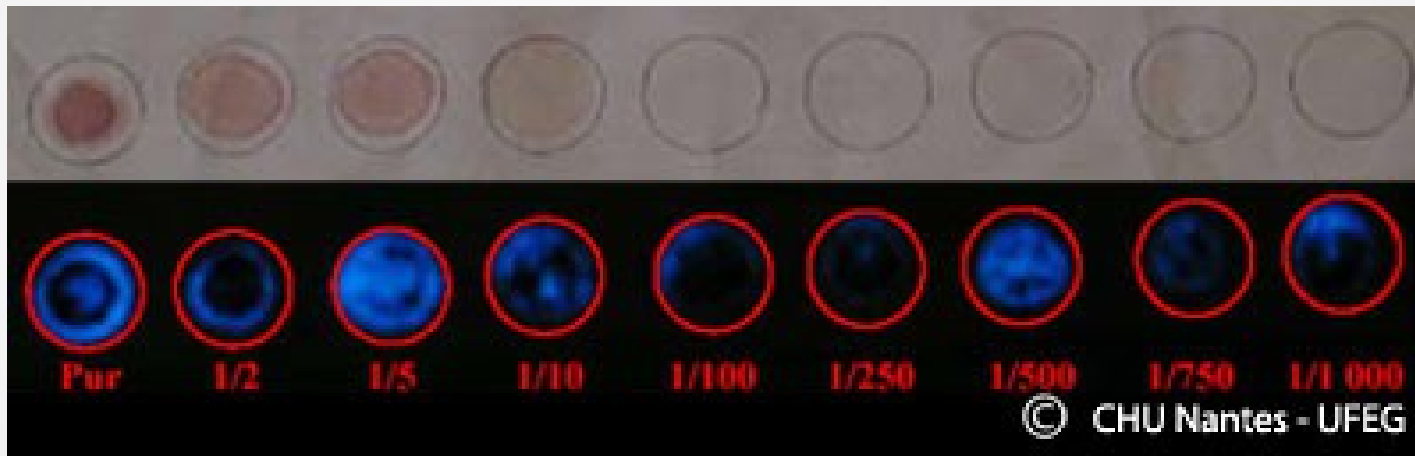


Luminol



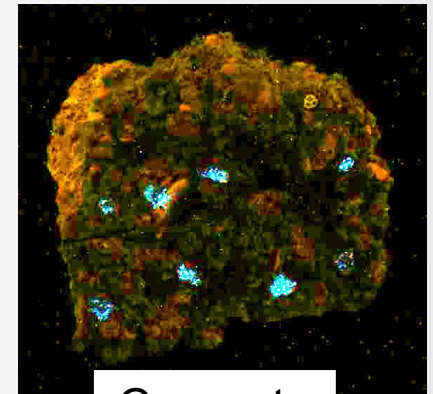
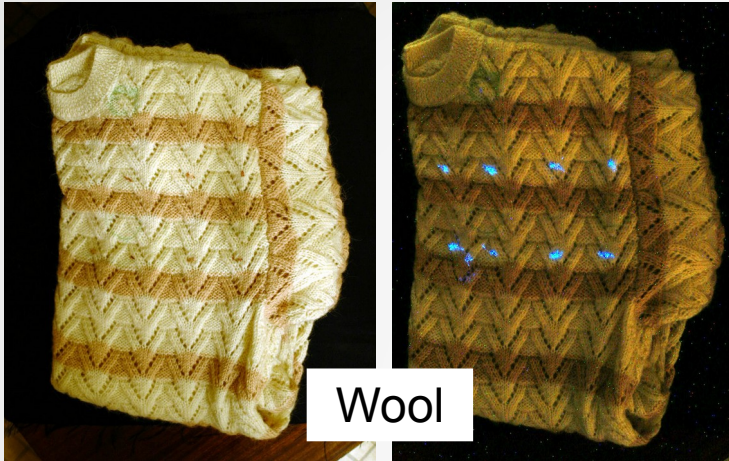
- Need of Darkness
- No latency
- Réaction max
- Fleeting reaction (< 2min)
- Several false positives (métaux)

Blood Dilution

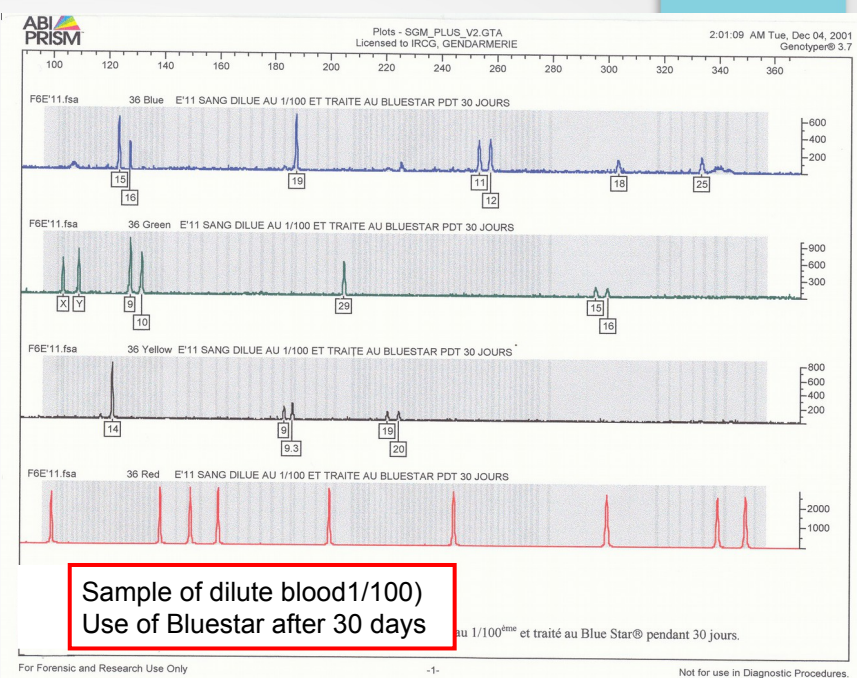
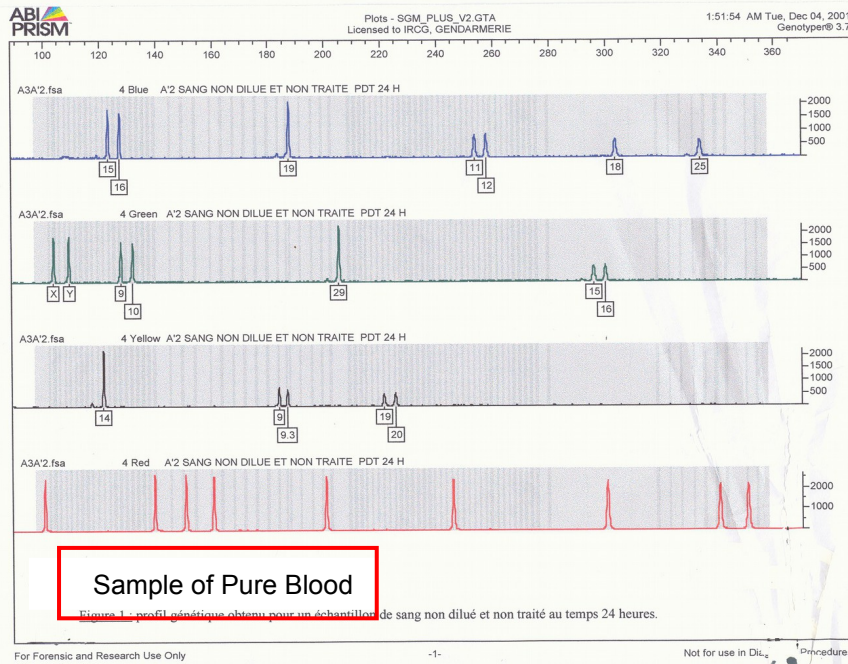


Blood at dilutions from 1 to 1:1,000 before (in daylight) and after spraying Bluestar (photos shot in darkness)

Surfaces/Detergents effect



Effect on DNA



- pH (BS) ~ 11,5 (no DNA effect)
- Lim extraction ADN : dilution ~200
- Lim BS reaction : dilution > 1000

Use of Blustar Ident-HEM tests

Safety data sheet

BLUESTAR®
LATENT BLOOD
REAGENT
Technical Application
Note
Safety Data Sheet
User's Manual
Version 4.2 –
04/11th/2012

Hazardous substances present on their own. (present in the preparation at a sufficient concentration to give it the toxicological characteristics it would have in a 100% pure state).

This preparation contains no hazardous substance in this category.

This product is **not classed as flammable**. Refer to the recommendations regarding the other products present on the site. **Possibility of corrosive effects.**

Particular provisions:

Extreme pH (12.40) is the basis for corrosive classification (*pH final=11.5*).

Hand protection.

Protective creams may be used for exposed skin, but they should not be applied after contact with the product. Where there is a risk of contact with the hands, **suitable gloves must be used.**

Eye and face protection.

Avoid contact with the skin and eyes.

Provide personnel with gloves, **face masks and safety goggles.**

Provide eye washes in workshops where the product is constantly handled.

Skin protection.

Wear suitable protective clothing, in particular an apron and boots. These items must be kept in good condition and cleaned after use.

Quality Insurance

- **Crime Scene**

There is no special SOP's.

Bluestar[®] is a liquid and its use could prohibit the search of micro evidences as fibers. Its use could destroy the fingerprints. **So the fingerprint research have to be before the Bluestar[®] use.**

Bluestar reaction on visible blood is poor. So, **its use can't cover the research of visible blood.**

- **Results**

Bluestar is a **presumptive test**. So you must not deduce that we are in front of blood after a positive reaction. It is a Bluestar positive reaction or a luminescente reaction, you can't use Bloodstains.

The area of the positive reaction does not show a volume of blood.

The areas of strongest reaction does not show location of blood.

BLUESTAR® products



BLUESTAR® forensic tablets



BLUESTAR® forensic tablets & applications



BLUESTAR® forensic mini kit

Normal storage conditions
Less ambient darkness
Stronger luminescence intensity
Longer reaction times
Largest life



BLUESTAR® forensic kit



BLUESTAR® Magnum

Work preparation



Add the 3 tablets to the solution and wait for a total mixture

Positive control before using

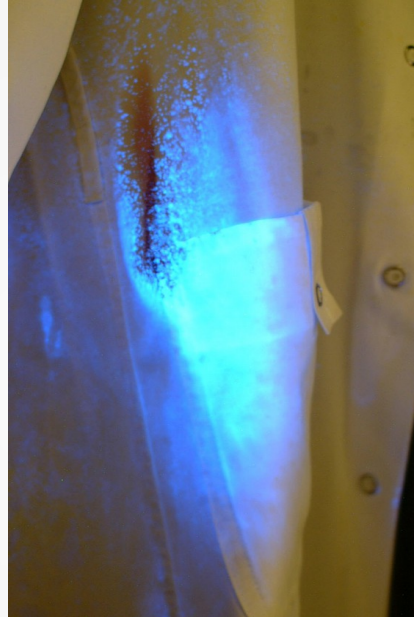


Darken all the area

Spray and sampling



Spray BLUESTAR® FORENSIC on the suspected surface from a distance of at least 50 cm. A bluish luminescence indicates a positive result.



A bluish luminescence indicates a positive result. This luminescence begins to fade after one minute.

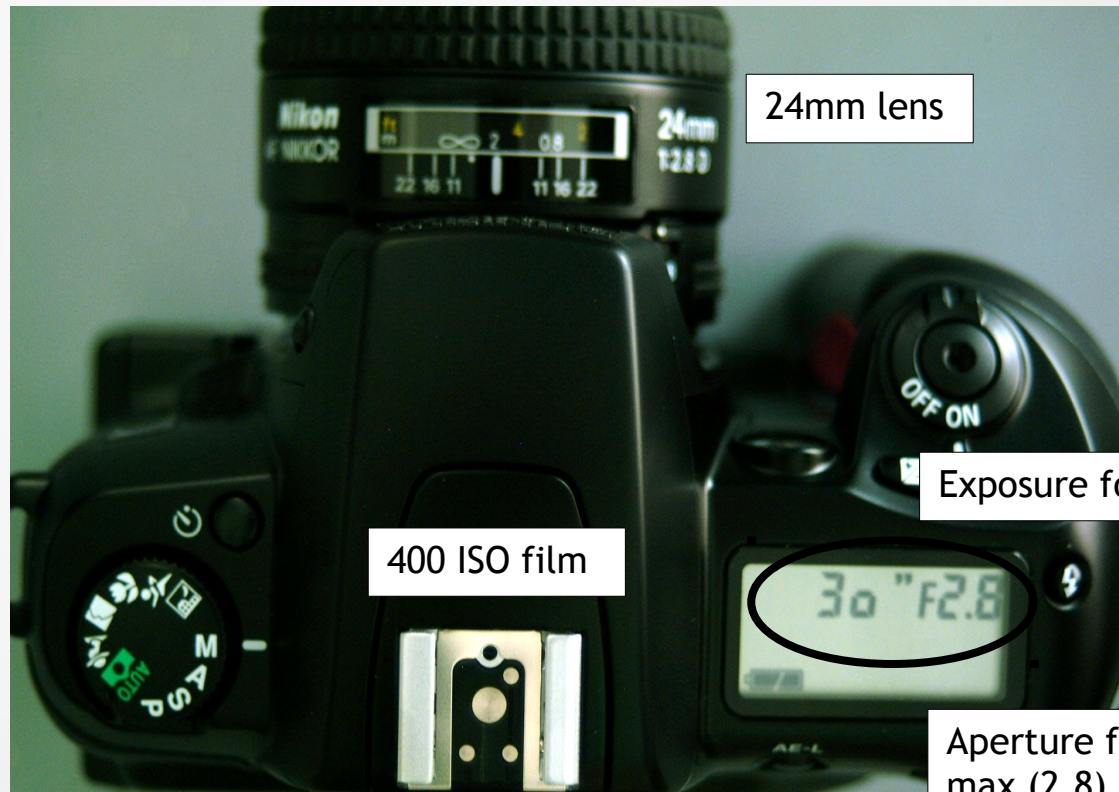
Confirmatory testing is to be performed directly on site, using HEXAGON OBTI. Collect samples of the materials that showed a luminescence for further analysis.



Documentation



CAMERA ON A TRIPOD



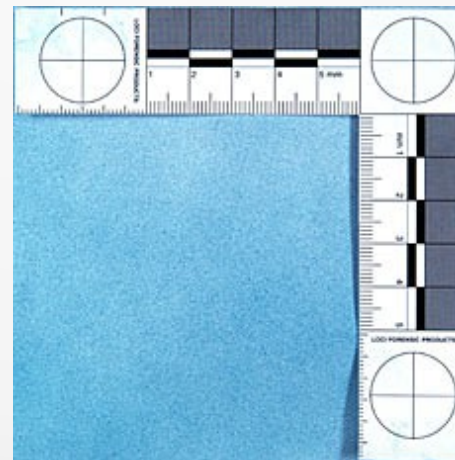
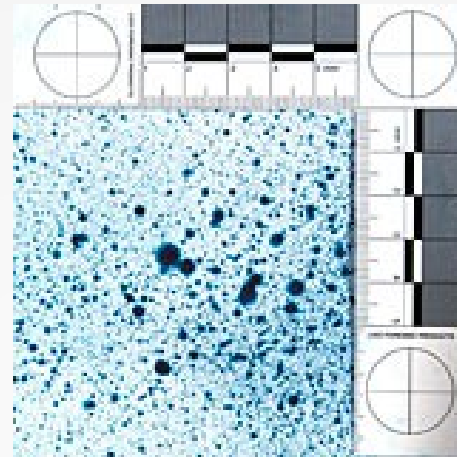
24mm lens

400 ISO film

Exposure for 30"

Aperture f-stop max (2.8)

Surfaces verticales



Ident-HEM



+



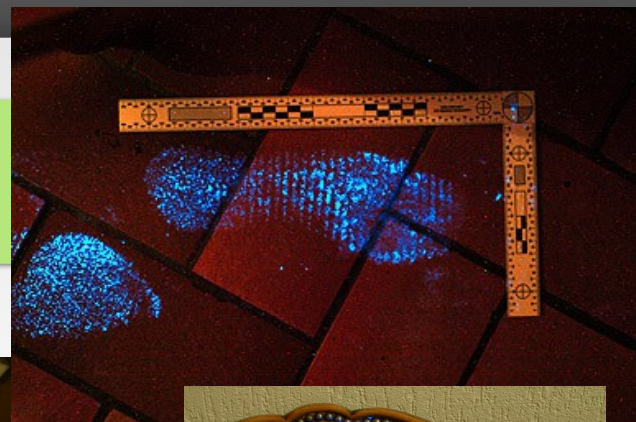
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C : Control
T : Human blood

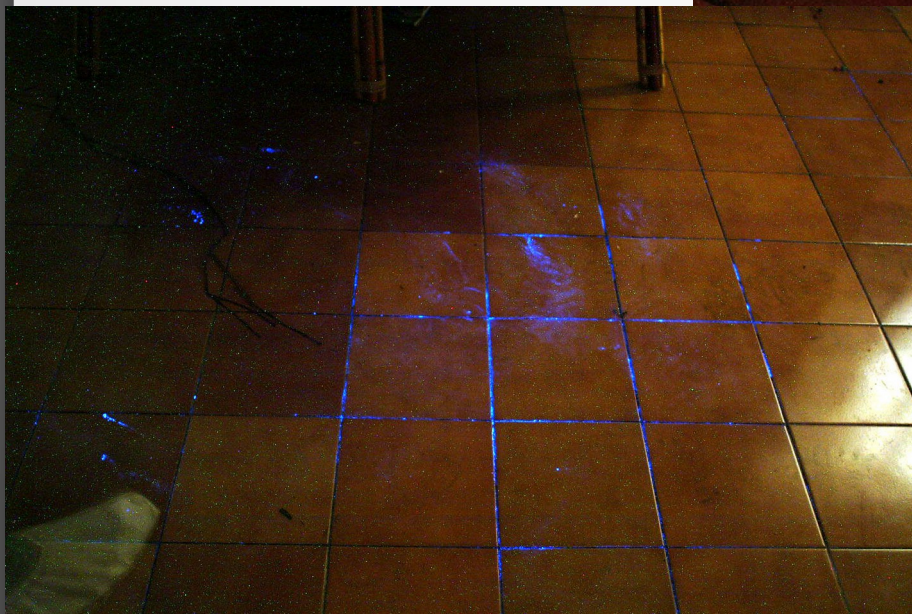
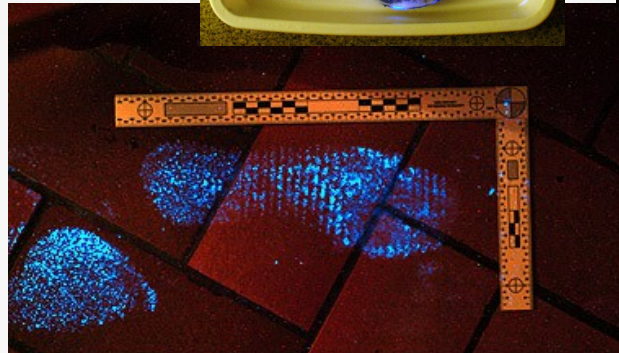
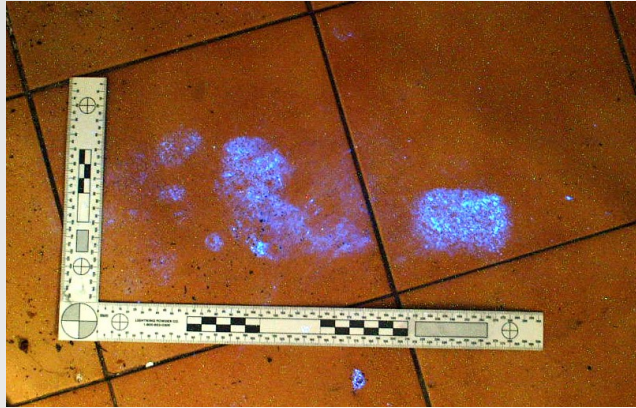


Real cases

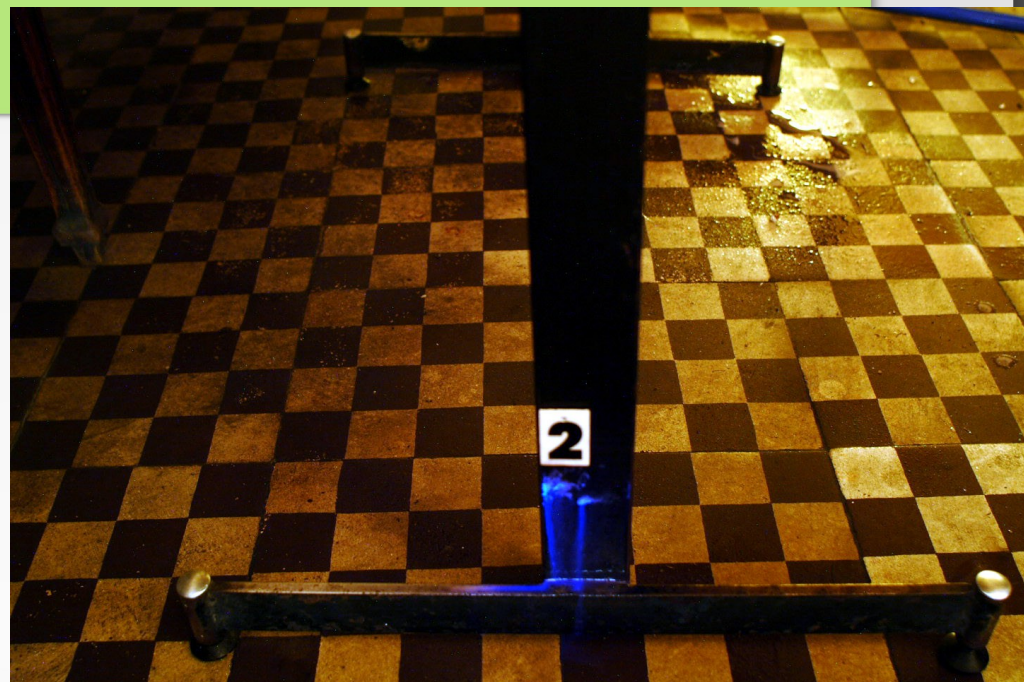


BLUESTAR
FORENSIC
Latent bloodstains reagent

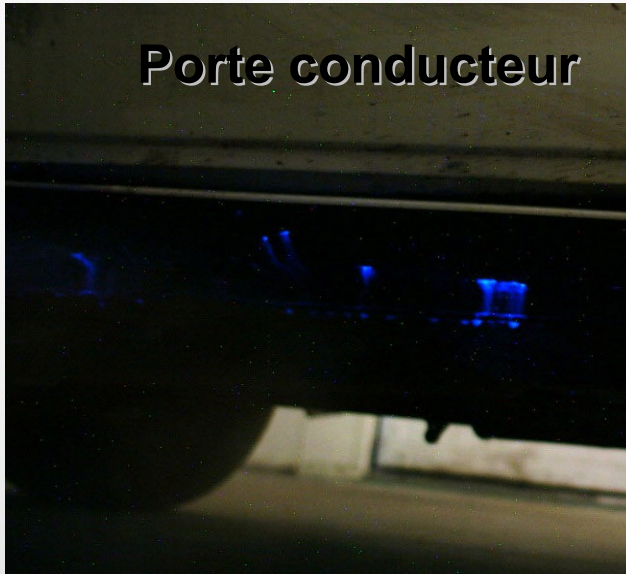
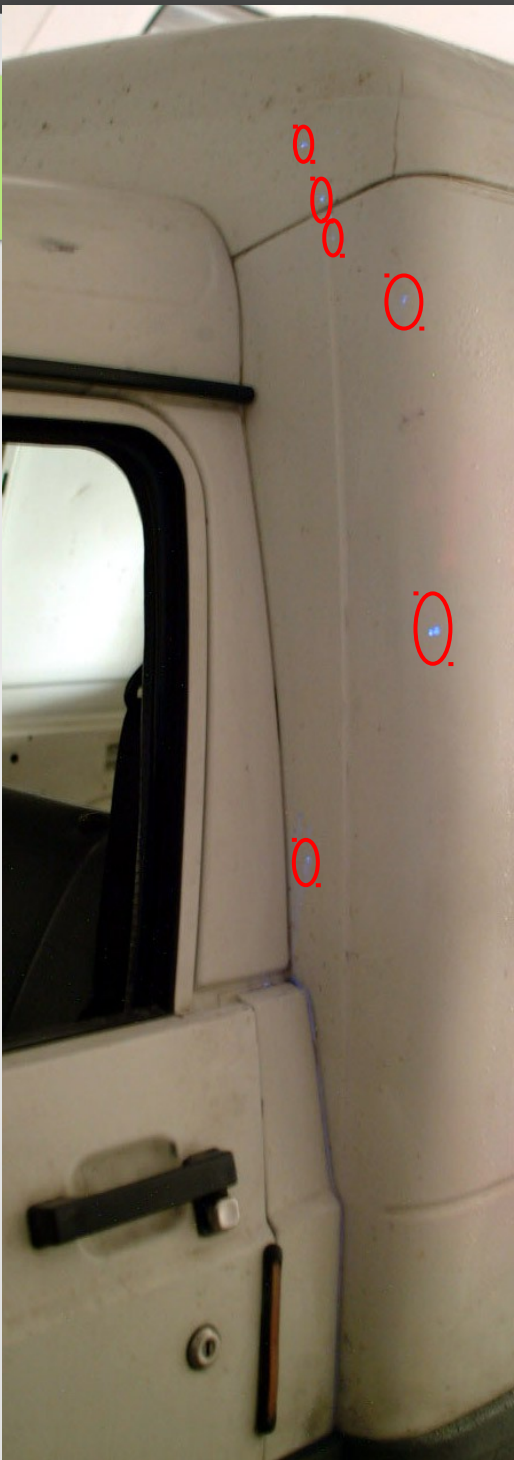
Cleaned areas



Blood samples



Outside

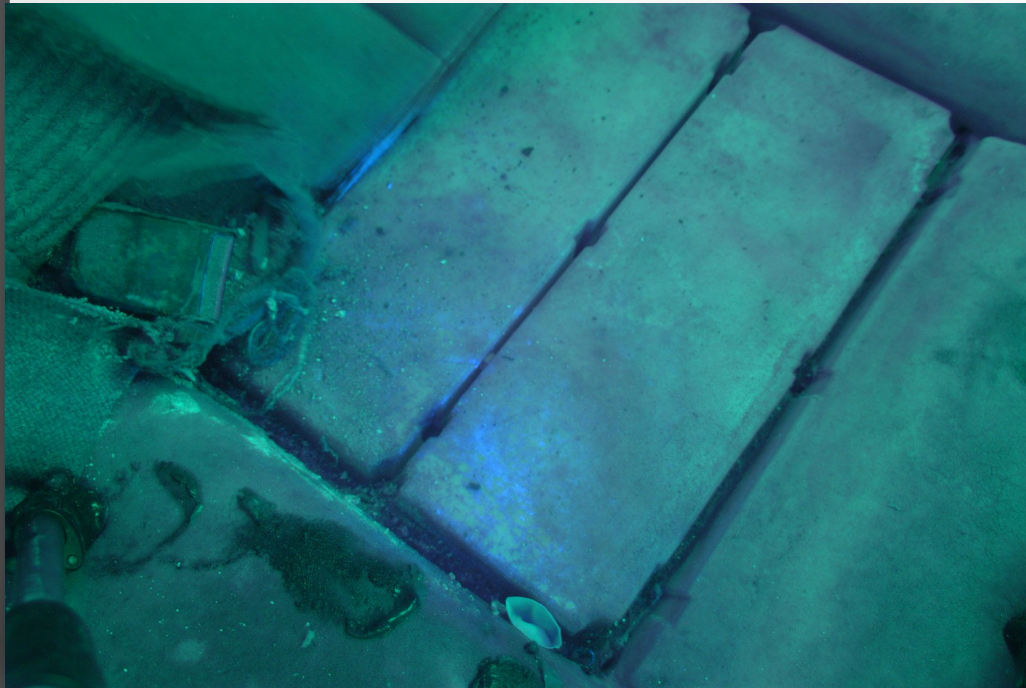
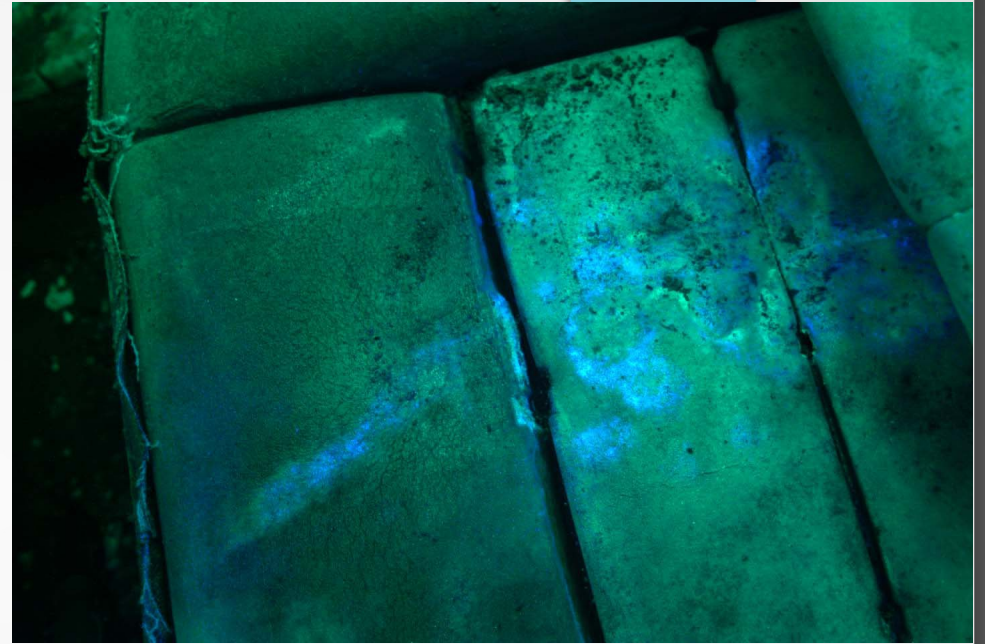


Porte conducteur

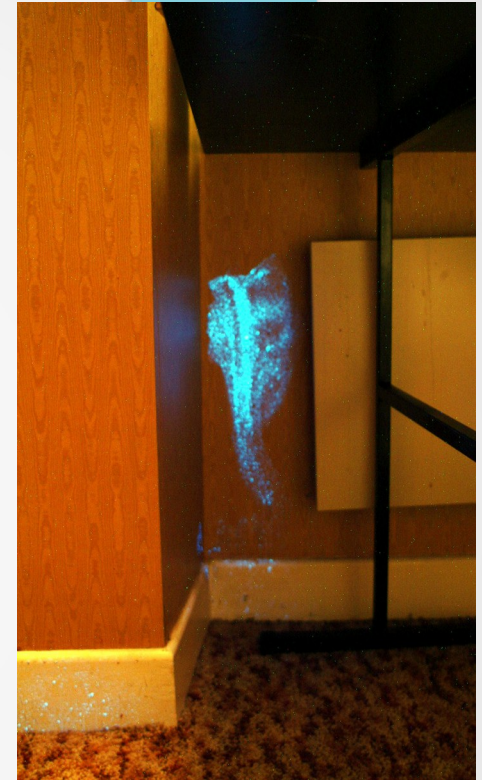
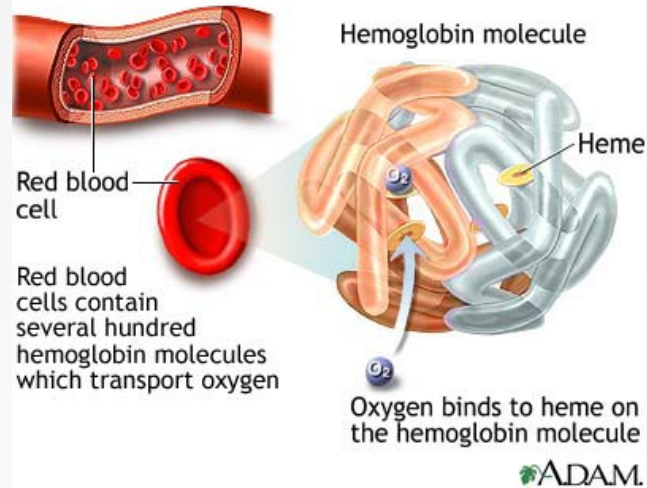


Porte
conducteur

On water



Conclusion



Extreme performance
(sensitivity, luminescence)

Easier to use and to photograph

No toxic for DNA and for the user

Single use kit

Easier storage

