

## Non-invasive detection and chemical mapping of trace metal residues on the skin

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Supplemental information.

### Experimental conditions.

Gelatine "lifts" were purchased from two sources (*BVDA International*, Haarlem, Holland and *Crime Scene Investigation Equipment Ltd*, Woburn Sands, UK), both proving equally capable of generating the same results.

Rubeanic acid was used as received (*Sigma-Aldrich*).

Rubeanic acid solutions were prepared by prolonged stirring of the solid suspended in absolute ethanol at c.a. 0.1% w/v (e.g. 50 mg of solid rubeanic acid in 50 ml of ethanol). Once all solid had dissolved the resulting orange solutions were stored in air-tight amber bottles to reduce the rate of any decomposition. Development of the gels was undertaken either by dipping into this solution in a standard forensic dip-tray or by application of the solution via an *ECOSPRAY* forensic atomizer. Copper signatures appeared almost immediately; evidence of the presence of lead required longer development time, which could be shortened by exposure to a UV light source.

Original digital images (Samsung Digimax V800 camera) from the developed gel-lifts for Figs. 1 and 2 were processed using the "Autolevels" feature of Photoshop Elements 2.0. By way of illustration, the original image for Fig.2 is shown below. In the case of Fig.3 the highlighting colour on the metal surface was manually added *via* Photoshop.

