FORENSIC SCIENCE
IV SEMESTER
UNIT -IV

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EXAMINATION OF PAINT

Paint is an important evidence material, commonly encountered in cases like motor vehicle accident, theft, burglary or house breaking offences etc. Intact paints on houses or machine are also required to be examined at crime scene. Evidentiary value of paint increases, whenever it is recovered from a suspect vehicle of a hit and run cases, shoe or clothing of an accused person or from suspected house breaking implements.

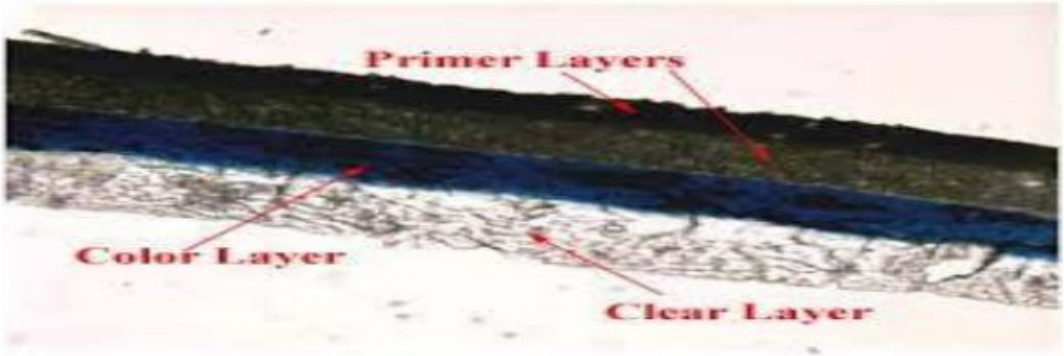
Paints are usually received in the form of flakes, chips, powder or smears. Forensic examination of paint can reveal the possibilities and situation under which paint transfer has taken place from one surface to another. Comparative study of two or more samples by various techniques can identify whether the samples have originated from a common source.

Microscopic Examination

Physical matching

- Microscopic examination is the most effective method for identification of paint.
- Samples received are first examined under a good stereoscopic microscope and their overall similarities or otherwise are noted.

- Bigger chips are separated from the sample and any possible physical matching of broken edges of the chips in the exhibit and control may be tried.
- Occasional physical match between two such samples prove beyond doubt that both the samples have a common origin.



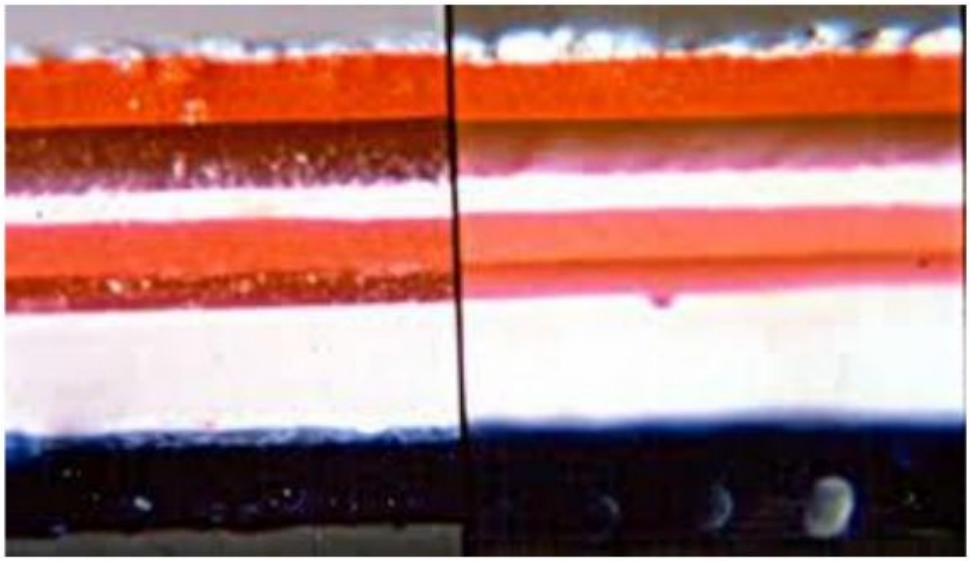
Matching of layers –

- Automobile paint chips mostly contain several layers, which are highly important for identification purpose.
- The edge of a chip may be cut with razor blade or in a microtome and mounted vertically with the cut edge upside in a plasticine or similar mount.
- Sequence of color and thickness of different layers present are observed and noted.
- Brittle paint chips may be mounted on paraffin block and then sectioned with a microtome for comparison.
- Layers from two paint chips may be compared in a Comparison Microscope.
- Exact matching of layers in multilayered chips established their identity.

Notes:

1. In very small paint chips, cutting of the edge may not be possible. In such case, paint chips may be mounted directly and layers should be studied.

2.The old repainted vehicles may have difference in layers in different parts of the same vehicle. Therefore, non matching of layers, does not always eliminate the possibility of two paint chips being originated from the same vehicle, if they are found to be similar in all other confirmatory tests.



Examination of surface markings

- Paints chips are mounted flat with top coat up and are examined first under stereoscopic microscope.
- Any scratch mark, peculiar adhering material and surface texture of the paint are examined under comparison Microscope.
- Details of a particular mark or adhering material found on the surface may also be examined under incident light microscope at a higher magnification (100 X to 500 X).
- Any continuous marking between two paint chips is highly useful to establish identity.

Pigment distribution-

- Chips or powdered paint samples may be pulverized and dispersed in a microscope slide and pigment distribution may be studied both under incident and transmitted light microscope. Such sample may be observed under U-V Light to study their fluorescence.

Work sheet for microscopic examination

Case No. ----------

Sample No.----------

(a) Nature - flake, chip, powder, smear, any other form.

Colour ----------

Physical matching- Present/Absent.

(b) Numbers of layers observed.----------

Sequence of colour of different layers ----------

Thickness of each layer ----------

(c) Surface markings- Present/Absent/Details
and adhering materials

(d) Texture - Similar/Not similar

(e) Fluorescence- Present/Absent/Colour

(f) Pigment distribution- Similar/Different.