



GUIDELINE for the initial inspection, search and recovery of forensic paint evidence

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2 GENERAL REMARK

3 This guideline assumes prior knowledge in the forensic discipline. It is based on consensus
4 among the relevant forensic experts and reflects the accepted practices at the time of writing.
5 The requirements of the judicial systems are addressed in general terms only.
6

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1. AIMS

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2. SCOPE

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26 **3. DEFINITIONS AND TERMS**

27 For the purposes of this guideline, the relevant terms and definitions are given in ENFSI
28 documents, in ILAC G19 [1], in ISO/IEC 9000 [2], ISO/IEC 17020 [3] and ISO/IEC 17025 [4]
29 standards, in ASTM E1610-18 [5] and in ASTM E1459-13 [6] are applied.
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31
32 **4. INTRODUCTION**

33 This guideline provides a procedure for the receipt, handling, protection, storage, retention
34 and disposal or return of exhibits, including all provisions necessary to protect their integrity.
35

36 It does not cover crime scene sampling, handling and management.
37

38 Handling shall consider other evidence types that might be present on the exhibit and, if
39 needed, additional information should be requested from the submitter in order to avoid
40 contaminating or destroying evidence other than paint.
41

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43 **5. HANDLING OF EXHIBITS**

44 Exhibits submitted to the laboratory shall be suitably packaged and be treated in order to avoid
45 contamination. Due care is taken to protect other traces potentially present on the item.
46

47 **5.1 Packaging**

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49 Correct packaging of exhibits should ensure their physical and chemical integrity, and provide
50 a documented chain of custody.
51

52 Paint flakes can be suitably packaged in self-sealing or zip-lock plastic bags or in screwcap
53 sealed plastic containers.
54

55 Paint samples on gelatine foil can be packaged in suitably sealed paper envelopes.
56

57 Larger items shall be packaged in security tape sealed plastic bag(s) if possible. When the
58 item (e.g. a car bumper) does not allow this type of packaging, pertinent zones should be
59 protected by plastic or paper wrapping.
60

61 Clothing items shall be packaged individually in paper bags sealed in such a way that all gaps
62 are covered and secure.

63 *Example: folded bags should be sealed with adhesive tape along all open edges and*
64 *not by stapling. If bags with stitched ends are used they too should be covered in tape.*
65

66 **5.2 Contamination prevention**

67
68 Consideration of the anti-contamination precautions that are appropriate should be based not
69 only on those for paint examinations but for all evidence types that may be potentially available
70 (e.g. DNA, fingerprints, textile fibres).

71 The items shall be checked on receipt at the laboratory and before commencement of any
72 examination to ensure that their integrity has not been compromised. Any deficiency in the
73 packaging that may compromise the value of a laboratory examination can be grounds for
74 refusal to carry out the laboratory examination.
75

76 Laboratory manipulation shall be undertaken one exhibit at a time, on rigorously cleaned
77 surfaces and considering other kinds of trace materials potentially present according to the
78 context of the case and the scope of the request. Other items should at this point still be
79 carefully packaged.

80
81 Laboratory examiners shall take care to avoid paint transfer between items and between the
82 items and the examiner (secondary transfer risk).

83
84 Laboratory tools (e.g. scalpel and forceps) should also be rigorously cleaned between different
85 items. When using additional equipment (e.g. photo camera, stereomicroscope, forensic light
86 sources) the risk of secondary transfer should be considered.

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89 **6. SEARCH AND RECOVERY**

90 It is usually preferable to start by searching at the location on the items where the finding of
91 paint may have the most evidential significance.

92 *Example: in a hit and run case the finding of paint smears on the victim's clothes at the*
93 *location of impact may be of more evidential significance than minute loose paint*
94 *particles found in the seams of the clothing.*

95
96 Paint fragments for examination are typically small and require the use of a stereo
97 microscope and forceps or other instruments to locate, recover and manipulate them. Low
98 power microscopy can be used to observe the location and morphology of minute paint
99 particles or smears *in situ*.

100
101 Paint may be recovered in the laboratory by sampling with a scalpel and/or using a pair of
102 forceps. This is the preferred way to collect and document paint fragments if knowledge of
103 their position on the exhibit is important for the interpretation of the results.

104
105 Paint fragments may also be collected by taping the exhibit with gelatine foil. Other
106 adhesive tapes are less suitable because their higher sticking power causes larger or brittle
107 paint fragments to break down during retrieval, and because of the interference of the
108 adhesive (mostly acrylic) during the paint characterisation process.

109
110 Combing, brushing, shaking, vacuuming or scraping may also sometimes be used for paint
111 recovery.

112
113 Brushing may sometimes be a useful alternative for collecting paint from areas that are
114 heavily contaminated with dirt and debris (e.g. uncarpeted floors, commercial vehicles, etc.).

115
116 Paint particles on clothing items can be dislodged using a spatula, then the clothes are
117 shaken to release any paint fragments embedded in the textile structure. This method is
118 effective but does not permit locating the fragments on the exhibit. It can be used after
119 microscopic examination and retrieval of locatable fragments.

120
121 Vacuuming is a recovery technique in which huge amounts of background material are
122 collected. This can mask and coat the trace material of interest with dirt. The amount of
123 debris collected makes it difficult to search the recovered material efficiently. No detailed
124 information about the exact point of recovery of the trace material is provided.

125

126 Scraping with a knife or scalpel is to be avoided when collecting paint samples from large
127 coated areas (e.g. collecting original paint from a car panel). Cutting through the paint and
128 prising off flakes of paint is preferable.

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130

131 **7. MAINTAINING THE CHAIN OF CUSTODY**

132 In order to maintain the chain of custody, it is essential to be able to prove who has handled
133 which item and what he/she did with it.

134 Each item submitted and all samples recovered from it shall be unambiguously labelled and
135 logged appropriately, from the submission to the laboratory until their return to the
136 customer/client.

137 Items or samples that have been consumed during analysis should be explicitly mentioned in
138 the case file and reported to the customer/client.

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141 **8. REFERENCES**

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- [1] ILAC G19:08/2014, Modules in a Forensic Science Process
- [2] ISO/IEC 9000:2015, Quality management systems – Fundamentals and vocabulary.
- [3] ISO/IEC 17020:2012, Conformity assessment – Requirements for the operation of various types of bodies performing inspection
- [4] ISO/IEC 17025:2017, General requirements for the competence of testing and calibration laboratories
- [5] ASTM E1492-11 (2017), Standard Practice for receiving, documenting, storing and retrieving evidence in a forensic science laboratory
- [6] ASTM E1459-13 (2018) Standard Guide for Physical Evidence Labelling and Related Documentation

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145 **9. AMENDMENTS AGAINST PREVIOUS VERSION**

146

147 New document

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