



EXPERT TRACE DETECTION
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Recommendations for Handling Exhibits for Trace Analysis

General

Be Aware

Locard's Principle states that "every contact leaves a trace", and therefore every time an exhibit is handled there is the possibility that two-way transfer (cross contamination) may occur. It is not possible to identify how any particular trace may have arisen, or how long it has been present.

Minimise Handling – and Wear Clean Gloves

The safest way to ensure the forensic integrity of an exhibit is not to touch it. If it is necessary to touch an exhibit, consider wearing clean gloves, use clean surfaces & PPE (personal protective equipment) etc.

Such precautions need to be taken to minimise the possibility of transferring material. This is a two way process; it is important to minimise the contamination of the exhibit from the officer involved, and it is also important to minimise the contamination of the officer from the exhibit.

Remember that the purpose of wearing gloves is to isolate a particular item from the person. The same gloves should therefore not be used to handle another item.

Retain Controls & Exhibit Them

It is one thing to say that gloves were worn; but another to prove it. Retaining gloves (or oversuits etc.) as exhibits helps. These would then be available for analysis if required (it is not possible to say whether the items were contaminated to start with, it can be a useful indicator of extent of contamination). Another way of helping to ensure that particular individuals were not a source of contamination is to ask them to handle a clean piece of paper prior to handling the exhibit. This paper can then be submitted as an exhibit to demonstrate cleanliness.

Do Not Mix Bulk and Trace Exhibits

If both bulk drug (any visible quantity of drug) and trace exhibits (where no drug is visible) are involved, we recommend that the bulk drugs are handled last, to minimise the risk of cross-

contamination. If at all possible, bulk drugs and exhibits to be analysed for traces should be handled by different individuals.

Double Bag and Seal Correctly

Exhibits should be packaged inside bags with tamper evident seals. Ideally, these are tamper evident bags, but other types of bag/container may be used as long as they can be sealed completely (preferably air-tight).

Where possible, we recommend that exhibits are double-bagged, with both bags sealed completely. The use of two bags further distances an exhibit from potential sources of contamination or damage.

Note: The use of plastic bags is not the preferred choice for certain other types of forensic analysis. If in doubt consult a Forensic Officer.

Note: It may be of use to retain the controls or gloves worn etc. within the space between the inner and outer tamper evident bag of the exhibit with which they relate.

Preserve Chain of Evidence

This is crucially important, as for any other type of exhibit. For obvious reasons, cash exhibits have additional security implications associated with them. Our policy is that cash exhibits are either under seal or under CCTV surveillance at all times.

Supply Background Information

Inform the laboratory of any other information which may assist in interpretation. This may include circumstances of seizure and other background intelligence. Since MSA perform “target compound analysis” it is imperative that we are informed if less common drugs are suspected, so that we can target these specific compounds. Information such as the size of the total seizure, or any special requests (drugs, fingerprints, DNA, intact wrappings) would be beneficial.

We routinely analyse a carefully selected proportion of the banknotes in an exhibit. The size and manner in which the sample is selected depends on the size and description of the exhibit. Any disruption of the exhibit prior to submission at our laboratory could affect the sampling strategy we employ, and, ultimately, the value of the evidence obtained. We therefore ask that the entire exhibit is submitted to MSA. If in doubt, consult one of our scientists!

Time

Exhibits for trace analysis should be submitted to the laboratory without delay wherever possible. This is because drugs traces, in particular heroin and cannabis, can degrade rapidly over time (this degradation is exacerbated by sunlight and increased temperatures). Pending submission, storage should ideally be in a cool, dark and secure location, away from other sources of drug contamination.

Banknotes

When making cash seizures, it is important to follow procedures to reduce cross contamination, which would reduce the evidential value. In order to minimise handling, it is preferable for the cash to remain uncounted (although we realise that this is not always possible).

If exhibits need to be handled, a clean covering, such as foil or a bench coat, should be placed on all surfaces with which the money will come into contact, to prevent it from touching surfaces that may be contaminated. Examples of surfaces that might carry drugs (including invisible traces) include the custody desk at a Police Station, or the boot of a police car used previously to transport drugs. Once the exhibit has been examined, the protective covering should be sealed inside a tamper evident bag and submitted to the laboratory along with the exhibit itself. If possible the surface of the protective covering that was in direct contact with the banknotes should be identifiable. This control exhibit will then be analysed free of charge.

Weighing rather than counting can help give some indication as to whether part of an exhibit has been removed, but if counting is necessary, there are a number of steps to reduce cross contamination:

- i. If counting by hand, gloves should be worn and a paper swab of the gloves taken before any handling takes place. If this is done, remember to provide a second, unused control piece of blank paper from the same supply, in order to show the paper is clean. Both of these samples should be placed in bags and submitted for analysis. The gloves should also be bagged and submitted for analysis after counting.
- ii. MSA does not advise that counting machines are used since cross contamination between exhibits is possible using this mechanism. If in doubt, contact us.

Banknotes after Analysis

If banknotes from an exhibit have been reported as unusually contaminated with an illicit substance, we respectfully ask that you do not pay this into a bank. Instead, the money should be destroyed and a cheque sought in lieu.

Please be aware that following routine analysis at MSA, cash exhibits are safe to handle and appear unchanged. Nevertheless, if a cash exhibit is to be opened (e.g. to be counted), after analysis, we recommend you consider the potential for a reanalysis to be requested and take due precautions to minimise cross contamination.

Other Paper Documentation

Any paper (other than banknotes) can be analysed for traces of drugs in the same way as banknotes. Examples include diaries, cheques, alleged price lists, and other documentation suspected to have come into contact with drugs.

Paper exhibits should be handled treated in the same way as banknotes.

Counting Machines

Counting machines can be analysed for traces of drugs. The counting machines should be disturbed as little as possible in order to minimise redistribution of drugs particles.

Mobile Telephones

Many of the above points also apply to mobile telephones. Gloves should be worn when handling mobile telephones, and care should be taken not to disturb any traces that may be present in or on the telephone.

In addition to electronic evidence from the analysis of SIM cards and text messages etc., traces of controlled drugs on a phone may provide evidence of involvement in drug-related activities.

MSA take steps to ensure that the analysis of the drug contamination on mobile phone exhibits does not compromise subsequent data retrieval. If mobile phones are examined for their data prior to submission at MSA, the trace evidence may have been disturbed. It is therefore advisable to consider the trace evidence first. For your convenience, we can normally analyse a mobile phone on the day, so that you can take the analysed phone away for data retrieval.

Other items

Drug traces can be detected on nearly any item conceivable. Items should be handled minimally, and submitted inside properly sealed bags/containers. Sometimes, it may be more appropriate for the item to be swabbed, and only the swabs submitted to MSA for analysis. In order to facilitate this, MSA can supply pre-tested 'clean' swabs singly or in kits (see the 'Car Kits' described in Motor Vehicles, below).

Most items are amenable to swabbing, and may include remote controls, televisions, computers, keyboards, carpets, weighing scales, and a wide range of common household items. If, for some reason, an item is not amenable to swabbing in this manner, MSA scientists can be consulted.

Clothing

Clothing exhibits to be submitted for trace analysis should be handled as little as possible, in order to minimise cross contamination. Bear in mind that any folding of a garment may bring contaminated areas of it into contact with uncontaminated areas. This could result in the spread of contamination. For this reason, care should be taken to minimise such disturbances so that localised contamination remains apparent (e.g. in pockets, or turn-ups).

One way to minimise transfer within a clothing exhibit is to place the garment onto a clean covering, such as foil or grease-proof paper, and place a second piece on top of the garment. With the garment sandwiched between these layers, it can be rolled up or folded to fit inside a tamper evident bag or brown paper evidence sack.

Remote Swabs

Premises

When attending premises to take samples for trace analysis, gloves and an oversuit (if possible) should be worn. This is to minimise cross contamination from the clothing of individuals. The oversuit should be sampled prior to entering the premises, as should the gloves (using a clean paper swab or a pre tested brush – see vehicles section below). Once inside the premises, samples should be taken from relevant areas.

It is essential that detailed notes are kept of the areas sampled and in which order the samples are taken. Diagrams and photographs can be invaluable aids here!

It is also worth removing items from the premises for trace analysis, for example, remote controls, ashtrays, mirrors, as well as swabs from the TV screen, surfaces or microwave etc.

Once the sampling is finished, the gloves and oversuits should be bagged up, and made available for analysis if required.

Motor Vehicles

A similar approach to that described for premises is used for the sampling of motor vehicles. The areas of the vehicle to take samples from are: the seats, boot, dashboard, steering wheel, gear stick and glove compartment.

Car kits supplied by MSA include instructions detailing how we would suggest the swabs included in the kit (previously tested and shown to be clean) are best used for sampling. We supply pre-tested lint brushes (for the seats and the boot) and paper swabs (for the other areas) in sealed bags for this purpose.

Vacuum Cleaners

The dust in vacuum cleaner bags can be analysed for traces of drugs, and this can be useful to help identify a link with drugs to a premises.

Hand Swabs

Hand swabs or fingernail scrapings should be taken from a suspect as soon as possible to try and minimise the loss of drugs traces from the hands by abrasion. The swabs can be either dry swabs or moist swabs.

Untouched swabs, and swabs with just water on them (in the case of moist swabs) should be submitted for analysis in order to show that the swabs themselves and the water used are free from contamination.