

Controlled Substances

Forensic Scientists in the Controlled Substances Unit detect and analyze controlled substances and other drugs in plant materials, powders, liquids, capsules, tablets, cigarettes (joints), cigars (blunts) and many types of paraphernalia such as scales, spoons, straws and smoking devices. They also assist agents from the Division of Criminal Investigation (DCI) in assessing, processing and collecting evidence at clandestine drug laboratories.

I. Submission of Drug Evidence

Proper collection, packaging, storage and submission of drug evidence help ensure the integrity of the evidence for forensic analysis. Each type of evidence requires specific handling precautions that need to be followed when submitting drug evidence to the laboratory for analysis.

There are different types of drugs in many forms. Some of the commonly seen types are listed below.

Marijuana

The most common plant material submitted to the Laboratory for analysis is marijuana. Marijuana contains the controlled substance tetrahydrocannabinol, commonly known as THC. Upon seizing the evidence, the officer should perform a Duquenois-Levine color test on the suspected plant material. A positive color test should be sufficient for probable cause at a preliminary hearing.

For simple possession cases, the dried plant material should not be submitted to the Laboratory for a chemical analysis **until a trial date has been set**. Associated paraphernalia such as pipes, cigarette papers and roaches often found with suspected plant material should only be submitted to the Laboratory if they are essential to the case. Seeds do not contain THC and thus are recommended against being submitted.



Fig. 32-1 Marijuana in PVC Pipes



Fig. 32-2 Marijuana Bes



Fig. 32-3 Brick of Hash

Fresh plant material such as recently harvested marijuana plants needs to be dried prior to packaging or packaged in breathable containers such as brown paper bags to allow the material to dry safely. If fresh or wet plant material is packaged in airtight containers such as plastic bags, it will rot fairly rapidly like wet silage, forming a soft, watery mass with a foul pungent odor. In addition, the material can become moldy. Moldy plant material is a **potential health risk**. The time to **dry plant material is immediately upon confiscation**. If your agency confiscates fresh plant material, the following should be done:

1. Air dry the material in a well-ventilated, secure area until thoroughly dry.
2. After obtaining the weight of the evidence, take representative samples of the **dried** plant material from each batch (container, package, etc.) and seal them for transmittal to the Laboratory (see Section V. Drug Packaging below). A few grams of material from each item are sufficient for analysis.
3. Package the dried plant material in a sealed paper bag or envelope to further reduce the possibility of spoilage.
4. In order to be counted as a plant, there must be intact leaves, stems, and roots. If the plant count and analysis is important to the case, plants must be packaged separately.

Khat



Fig. 32-4 Bundles of Khat

Khat is plant material that is native to eastern countries of Northern Africa. Khat is usually seen as tied bundles which consist of plant shoots with green leaves wrapped in a large plant leaf. Khat contains two controlled substances, cathinone and cathine. Without the proper preservation, cathinone (Schedule I) will break down into cathine (Schedule IV). **To help prevent this breakdown and preserve the material, khat should be frozen soon after confiscation.**

Other Plant Material

Other plant materials containing controlled substances may also be encountered. Common examples are peyote cactus that contains mescaline, psilocybin mushrooms and opium poppies. Plant material of this nature may be submitted to the Laboratory for analysis anytime after the plant material has been thoroughly dried. Additionally, synthetic cannabinoids sold in a variety of herbal products such as “K2”, “Kush”, and “Mr. Smiley” have become prevalent. Due to the continually changing components in these products, they should be submitted to the Laboratory for analysis. As of April 25, 2014, many of these synthetic cannabinoids were added to Wisconsin Statute 961 by specific listing or structural classification.



Fig. 32-5 Peyote Buttons
(Mescaline)



Fig. 32-6 Psilocybin
Mushrooms



Fig. 32-7 Opium
Poppies

Powders and Chunky Material

Cocaine, cocaine base (crack) and heroin are controlled substances usually seen in a powdered or chunky form. These drugs are commonly encountered in colors ranging from white to off-white, tan to brown. Cocaine is sometimes seen as compressed bricks of white to off-white powder (kilo bricks), with logo marking and multiple layers of tape and plastic packaging.

Other substances that may be seen as powders, chunks, or crystalline material include controlled substances such as methamphetamine, methylone, and alpha-PVP. In recent years, there has been an emergence of synthetic cathinones commonly referred to as “bath salts”. These synthetic cathinones may be marketed in a variety of products such as “Ivory Wave”, “Vanilla Sky” and “Cloud Nine” and are often sold as bath salts, plant food, or jewelry cleaner with labeling including “not for human consumption”. Due to the continually changing components in these products, they should be submitted to the Laboratory for analysis. As of April 25, 2014, many of these synthetic cathinones were added to Wisconsin Statute 961 by specific listing or structural classification.

Recently fentanyl and fentanyl analogs have also be seen in a powdered or chunky form. These compounds are very potent opioids and readily absorbed through the skin. Special precautions should be taken when handling cases suspected to contain fentanyl including proper protective equipment such as gloves and masks. It is also recommended that your agency have a safety plan in place for accidental exposure to fentanyl.

Upon seizing the evidence, the officer should perform the appropriate color test(s) for the suspected material (see Section II. Color Testing below). If the confiscated evidence is in trace or residual amounts, avoid conducting any color tests; submit the items directly to the Laboratory if analysis is necessary.

Liquids

Phencyclidine (PCP), Gamma-Hydroxybutyric Acid (GHB), Gamma-Butyrolactone (GBL), 1,4-Butanediol and anabolic steroids are controlled substances usually seen in liquid form. Steroids usually are available in pharmaceutical preparations with labels often in a foreign language. As liquids are usually transported in glass containers, care while packaging and shipping must be exercised to prevent the container from breaking.



Fig. 32-8 Steroids

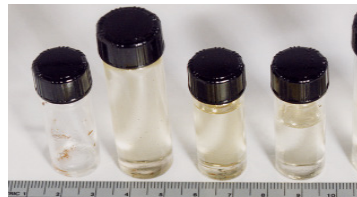


Fig. 32-9 Liquid PCP

Pharmaceuticals

Pharmaceutical tablets, capsules and patches which are seized can frequently be identified through their markings (imprint codes). These tablets are well defined and marked. An officer should consult references such as the *Physicians Desk Reference*, *Drug Identification Bible*, *Pharmer.org*, *Drugs.com*, or *Identadrug online* to determine if the evidence is a controlled pharmaceutical preparation. The markings on the suspected pharmaceutical tablets must compare thoroughly to reference picture or description before conclusion. Alternate sources of information about marked tablets, capsules and patches are area pharmacists, local or regional poison control centers or the Laboratory. Non-controlled pharmaceuticals should not be submitted to the laboratory.

Illicit Tablets



Fig. 32-10 Illicit Tablets Submitted as “Ecstasy”

Illicit tablets often contain many types of controlled substances and these appear in many colors and logos. Illicit tablets have traditionally contained MDMA. However, laboratory analysis of these tablets have found other controlled substances such as MDA, BZP, methamphetamine, ketamine, MDPV and GHB, often in combination with MDMA and other adulterants. It is recommended that officers submit illicit tablets to the Laboratory for analysis to determine the specific controlled substance(s) present.

Syringes and Other Sharps

Because of the dangers for contracting bloodborne diseases through an exposure to a contaminated needle or syringe which has been used for injecting drugs, extreme caution needs to be exercised when handling, packaging, storing and submitting these items as evidence (see [Appendix A - Bloodborne Pathogens](#)). **DO NOT SUBMIT** syringes or needles to the Crime Laboratory for analysis **unless absolutely necessary**. If syringes, needles, razor blades or any other sharp items are to be submitted to the Crime Laboratory, be sure to handle them with **extreme care** and to package them in sealed **puncture proof and biohazard labeled** containers.

II. Color Testing

Color test pouches are available from commercial suppliers that provide drug investigators with preliminary information regarding the nature of a suspected controlled substance. The tests results are presumptive. Although the test results, when performed by an officer in the field, are not sufficient to serve

at trial as definitive identification of a controlled substance, they often will suffice for probable cause at the preliminary hearing. In many instances, the color testing results can be used to obtain search and arrest warrants. Therefore, it is crucial that these tests always be performed according to the manufacturer's instructions.

In cases where only small amounts of material are present, **never use more than $\frac{1}{10}$ of the material for the test.** If there is not enough material to run the test, skip the color test and submit the item to the Laboratory for analysis.

DO NOT send the used plastic pouches containing the results of color tests to the Laboratory with the evidence. These pouches contain chemicals that may leak and contaminate your evidence. Used pouches should be disposed of according to the manufacturer's instructions.

III. Pseudo Drugs

The State Crime Laboratory in Milwaukee supplies pseudo-cocaine and pseudo-heroin used in narcotic canine training. The pseudo drugs are available in pound and half-pound sizes only. Agencies interested in obtaining pseudo drugs need to request in writing on official letterhead the following:

1. The type and quantity of the pseudo drug needed.
2. The date by which the material is needed. (If possible, no less than ten working days).
3. The name and phone number of the contact person and the billing address of the agency making the request.
4. The shipping address, if the items are to be sent via FedEx or UPS.

Send the request to the following address:

WI State Crime Laboratory
Attn: Chemistry Supervisor
1578 S. 11th Street
Milwaukee, WI 53204

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The requesting agency will be billed with an invoice, the total amount to be remitted within thirty days.

IV. Latent Prints/DNA on Drug Packaging Materials

When it is anticipated that latent print examination or DNA testing will be needed on drug packaging materials, **the drug item should be separated from the original packaging when it is reasonable to do so.** The drug item (powders, plant material, etc.) and the packaging should be sealed in separate containers prior to submitting to the Laboratory for analysis. (See Section V for repackaging guidelines.) Notify the Laboratory that latent print and/or DNA analysis is requested in addition to drug analysis **at the time the evidence is submitted.**

The contents of each evidence container should be itemized on the transmittal form for proper receipting of the evidence. **Nonspecific terms such as “drug packaging” and “paraphernalia” should be avoided.** Transmittal information should include item by item notation as to what analyses are being requested. For example, the transmittal should read as illustrated in Figure 32-11

Exhibit #	Qty	Item Description and Source
1	5	smoking pipes (Drugs & Prints)
2	10	zip top plastic bags (DNA & Prints)
3	2	drug packages consisting of duct tape, heat-sealed plastic and plastic wrap (Prints)

Fig. 32-11 Example of transmittal item descriptions

NOTE: All persons handling these items should wear gloves as a safety precaution and to prevent their own prints or DNA from being deposited onto the evidence.

V. Drug Packaging

If items of drug evidence require repackaging [i.e., separation of original packaging for latent print or DNA analysis (see Section

IV) or submission of representative samples to the Laboratory], use the following packaging guidelines.

- Powders and plant material should be repackaged in paper packets, envelopes or paper bags. Ensure that the drug evidence does not leak from any seams or seals. **Do not** place small amounts of powder or plant material in heat-sealed plastic sleeves or large plastic bags. The static electricity generated by the plastic makes recovery of the material difficult.
- Liquids can be left in their original container if the container is leak proof and can sufficiently contain the liquid. These original containers should be placed in a secondary leak proof container. Liquids in metallic containers should be transferred to a glass container. **Never place a liquid directly into a metal container.** If a large quantity of liquid is encountered, submit only a representative sample (approximately 20 milliliters) for analysis. Liquids requiring repackaging should be placed in a glass vial which is then placed in a Nalgene bottle (see Fig. 1-4 in [Chapter 1 - Evidence Integrity](#)).
- Items for DNA examination should always be packaged in paper envelopes or bags or cardboard boxes. All who handle the materials should wear gloves and take proper precautions to prevent depositing their own fingerprints or contaminating with their own DNA.

Please contact the Laboratory if you have any questions regarding the repackaging of evidence.

VI. Clandestine Drug Laboratories

Domestic clandestine drug laboratories range from crude makeshift operations to highly sophisticated and technologically

advanced facilities, some of which are mobile. They can be set up anywhere and are often found in private residences, motel and hotel rooms, house trailers, houseboats, campgrounds and commercial establishments. Often these laboratories are hidden in nondescript houses or barns in remote rural areas. Some of these facilities contain sophisticated surveillance equipment and may be booby-trapped. This may be done to prevent intruders and law enforcement personnel from entering or to destroy any evidence if the facility is discovered.

In recent years, “One Pot” or Shake ‘N Bake” methamphetamine labs have become more prevalent. These types of labs are generally seen as plastic drink bottles (figure 32-12) containing all the necessary components in one reaction mixture. Due to the hazardous and reactive nature of the components involved, these labs create a serious health and safety risk.

Any law enforcement agency that believes there is a possible clandestine drug laboratory of any type in their vicinity should first contact their regional DCI office for assistance in the investigation.

Extreme care and caution should be used whenever investigating or processing a clandestine lab site. Every precaution should be taken as the substances used in the production of controlled substances may be **caustic, corrosive, carcinogenic, poisonous, irritating, explosive or flammable.** Law enforcement personnel engaged in clandestine drug laboratory investigations and seizures should have specialized training in the investigation of such laboratories, the appropriate health and safety procedures and the use of personal protective equipment.

Clandestine drug laboratories may also involve the removal and proper destruction of large quantities of hazardous toxic chemicals. The disposal of these chemicals is strictly regulated by state and federal environmental protection agencies. The liability for the removal and disposal of these chemical

hazards is often the single largest cost-producing portion of any clandestine lab investigation.



Fig. 32-12 “One Pot” or “Shake ‘N Bake” methamphetamine lab



Fig. 32-13 Placards demonstrating hazards of the One Pot method.

Notes