



## **MAINE ADULT USE CANNABIS PROGRAM**

### **Best Practice Guide for Sample Collection**

**September 2022**

**Version 4**

# Table of Contents

<b>1.0 Purpose</b>	3
<b>2.0 Definitions</b>	3
<b>3.0 Planning</b>	5
Sample Collection Records	5
General Guidelines for Sample Collection	7
Equipment and Supplies	8
When Sample Collection is Required	9
Sample Amount	9
Requirements for Self-Samplers, Sample Collectors or Employees of Cannabis Testing Facilities	
Collecting Samples for Mandatory Testing	10
Sample Collection Data / Chain of Custody Record	11
Records and Documentation	11
<b>4.0 Sample Collection</b>	11
Equipment Preparation	11
Sample Collection	12
Representative Sample	12
Random Sampling	12
<b>5.0 Post Sample Collection procedure</b>	13
Sample Collection Review	13
Equipment and Sample Collection Area Decontamination	13
Sample Storage and Retention	13
Transportation	13
Sample Rejection	14
<b>6.0 Quality Assurance</b>	14
Field Quality Control	15
Field Audits	15
<b>Appendices</b>	16
Appendix A. Minimum representative sample size for each analyte	16
Appendix B. Sampling techniques based upon matrix and matrix-container type	17
Appendix C. Sample Collection Equipment and Containers	22

## 1.0 Purpose

The purpose of this guide is to provide additional clarity and guidance regarding proper sample collection techniques for the collection of samples by sample collectors, self-samplers, and cannabis testing facilities for mandatory testing. All licensees must collect samples for mandatory testing in accordance with the Department's *Sample Collection SOP for Mandatory Testing* included as Appendix A of the *Adult Use Cannabis Program Rule*. Proper records must be kept for every sample collected for mandatory testing. Copies of this guide, the SOP and the form can be found on the Department's website at: <https://www.maine.gov/dafs/ocp/>.

## 2.0 Definitions

1. **Aliquot** is a portion of a sample that is used in an analysis performed by a testing facility.
2. **Analytical method** is a technique used qualitatively or quantitatively to determine the composition of a sample or a microbial contamination of a sample.
3. **CDC** means the Maine Center for Disease Control and Prevention, Cannabis Testing Facility Certification Program.
4. **Chain of custody form** means a record, either paper-based or electronic, that documents the possession of the samples at the time of receipt by the cannabis testing facility, in accordance with chain of custody protocol prescribed by the cannabis testing facility. This record, at a minimum, must include the sample location, the number and types of containers, the mode of collection, the authorized individual who collected the sample, the date and time of collection, preservation and requested analyses.
5. **Chain of custody protocols** means the procedures developed and employed by the cannabis testing facility to record the possession of samples from the time of sampling through the retention time specified by the client or program. These procedures are performed at the special request of the client and include the use of a chain of custody form that documents the collection, transport and receipt of compliance samples by the cannabis testing facility. In addition, these protocols document all handling of the samples within the cannabis testing facility and, if applicable, by the sample collector or self-sampler.
6. **Chain of custody record** means the chain of custody form and the transport manifest or other inventory tracking manifest generated by the Department-required inventory tracking system for the purposes of tracking in that system all samples collected for mandatory or other testing and for the purposes of transporting samples of cannabis, cannabis concentrate or cannabis products from the sample collection site to the cannabis testing facility conducting mandatory testing.
7. **Client** means the adult use cannabis establishment requesting mandatory testing from the cannabis testing facility.
8. **Contaminant** or **contamination** means any analyte of interest, dirt, filth and any other material that may be reasonably expected to interfere with the integrity of mandatory test results.
9. **Cultivar** means a specific variety of cannabis produced by selective breeding. Also commonly referred to as a "strain" of cannabis.
10. **Decontaminate** or **decontamination** means cleaning tools, equipment, sample preparation areas and any other required areas or surfaces to neutralize or otherwise remove any analyte of interest, filth and any other material that may be reasonably expected to interfere with the integrity of mandatory test results.
11. **Department** means Department of Administrative and Financial Services, Office of Cannabis Policy.

12. **Harvest batch** means a specific quantity of adult use cannabis harvested from adult use cannabis plants of the same cultivar, grown under the same conditions, and harvested during a specified period of time from a specified cultivation area within a cultivation facility.
13. **Homogeneity** means the amount of cannabis or cannabis concentrate and cannabinoids within the product being consistent and reasonably equally dispersed throughout the product or each portion of the product or concentrate, or a representative sample.
14. **Increment or sample increment** means a smaller sample that, together with other increments, makes up the primary sample.
15. **Licensee** means a natural person or business entity licensed pursuant to 28-B MRS, Chapter 1, subchapters 2 and 5 to operate an adult use cannabis establishment.
16. **Cannabis** means the leaves, stems, flowers and seeds of a cannabis plant, whether growing or not. “cannabis” includes cannabis concentrate, except where context indicates otherwise, but does not include hemp as defined in 7 MRS §2231, or a Cannabis product.
17. **Cannabis concentrate** means the resin extracted from any part of a cannabis plant and every compound, manufacture, salt, derivative, mixture or preparation from such resin, including, but not limited to, hashish. In determining the weight of cannabis concentrate in a cannabis product, the weight of any other ingredient combined with cannabis or cannabis concentrate to prepare the cannabis product may not be included.
18. **Cannabis product** means a product composed of Cannabis or cannabis concentrate and other ingredients that is intended for use or consumption. “cannabis product” includes, but is not limited to, an edible cannabis product, a cannabis ointment and a cannabis tincture. “cannabis product” does not include cannabis concentrate.
19. **Primary sample** means a portion of cannabis or cannabis products collected from a harvest or production batch for testing.
20. **Production batch** means a specific quantity of cannabis concentrate or a cannabis product that is produced during a specified period of time using the same extraction and/or manufacturing method, formulation and/or recipe and standard operating procedure.
21. **Random sampling** is a procedure in which the selection of sample increments from a batch of cannabis product is based on chance, and every element of the batch has a probability of being selected. Random sampling helps produce representative cannabis samples by eliminating certain types of biases.
22. **Representative sample** is a sample that accurately reflects the characteristics of the larger batch of cannabis product.
23. **Sample** means, as applicable, an amount of:
  - a. Cannabis, cannabis concentrate or cannabis product collected from an adult use cannabis establishment for mandatory testing:
    - i. By an employee of a testing facility in accordance with 28-B MRS § 604 and *Adult Use Cannabis Program Rule*, 18-691 CMR, ch. 1;
    - ii. By a sample collector, in accordance with 28-B MRS § 604 and 18-691 CMR, ch. 1; or
    - iii. By a self-sampler in accordance with 28-B MRS § 604-A and 18-691 CMR, ch.1;
  - b. Cannabis, cannabis concentrate or cannabis product provided to a testing facility by a cannabis establishment or other person for mandatory testing or testing for research and development purposes in accordance with 28-B MRS, chapter 1;

- c. Adult use Cannabis or adult use Cannabis product collected from a licensee by the Department for the purposes of testing the cannabis or cannabis product for quality control purposes pursuant to 28-B MRS §512(2).
24. **Sample collection SOP** means a standard operating procedure for the collection of samples of cannabis, cannabis concentrate and cannabis products for mandatory testing published by the Department that must be used by all licensees collecting, transporting and transferring samples for mandatory testing. The current sample collection SOP is Appendix A of Adult Use Cannabis Program Rule, 18-691 CMR, ch. 1.
25. **Sample collector** means a person licensed pursuant to 18-691 CMR, ch. 1 and 28-B MRS, ch. 1 to collect samples of cannabis and cannabis products for testing and to transport and deliver those samples to a testing facility. A sample collector must hold a valid individual identification card (“IIC”).
26. **Sampling site** means the cannabis establishment, and locations within a cannabis establishment, from which a self-sampling licensee, sample collector, or employee of a cannabis testing facility collects samples. A single cannabis establishment (i.e. cultivation facility, manufacturing facility, cannabis store) may contain multiple sampling sites (e.g. flower room, trim room, drying room, extraction room, packaging area, etc.) which each require separate environmental controls and contamination mitigation procedures.
27. **Self-sampler or Self-sampling licensee** means a cultivation facility, products manufacturing facility or cannabis store licensee that collects samples of cannabis, cannabis concentrate and cannabis products for mandatory testing or an employee of a cultivation facility, products manufacturing facility or cannabis store licensee who collects samples of cannabis, cannabis concentrate and cannabis products for that licensee for mandatory testing. Any individual collecting samples for mandatory testing must hold a valid individual identification card (“IIC”).
28. **Sterilization or Sterilize** means cleaning tools, equipment, sample preparation areas and any other required areas or surfaces to destroy and remove all forms of life present in those areas which may be reasonably expected to interfere with the integrity of mandatory test results, specifically, microbiological impurities. In the context of this guide, areas and surfaces that have been cleaned in this manner are “sterile”.

## 3.0 Planning

### Sample Collection Records

All licensees collecting samples for mandatory testing, including cultivation and products manufacturing facility and cannabis store licensees (self-samplers), sample collector licensees and cannabis testing facility licensees, must comply with all requirements of *Adult Use Cannabis Program Rule*, 18-691 CMR, chapter 1, and *Rules for the Certification of Cannabis Testing Facilities*, 18-691 CMR, chapter 5. Compliance with these requirements includes the use of the sample collection SOP, this guide and submission to the cannabis testing facility of all information required by the cannabis testing facility’s quality system to ensure representative sample collection, including random sampling of unusual or otherwise non-standard production units or circumstances. Licensees may use their own sample collection form, a form provided by the cannabis testing facility conducting the mandatory analyses or a sample collection log or any other format that the licensee can make available to the Department upon request.

Each sampling event must be preceded by a discussion between the self-sampling licensee or sample collector and the cannabis testing facility(ies) performing analyses to ensure that the sample collection form is appropriately completed and necessary guidance from the cannabis testing facility is solicited before sampling begins.

A self-sampling licensee is responsible for contacting the cannabis testing facility and ensuring that the following information is recorded in required sample collection records prior to beginning sample collection.

If the licensee that is requesting the mandatory testing will be using the services of a sample collector to collect samples for mandatory testing, the sample collector is responsible for contacting the cannabis testing facility and ensuring that the following information is recorded in the required sample collection records prior to beginning sample collection. Licensees and sample collectors shall both maintain a copy of the records.

If the licensee that is requesting the mandatory testing will be using sample collection services offered by that cannabis testing facility, the cannabis testing facility will ensure that the following information is recorded in sample collection records prior to beginning sample collection. The licensee and testing facility shall both maintain a copy of the records.

- The name and individual identification card number of the individual identification cardholder collecting samples for mandatory testing;
- The time and date that the self-sampling licensee or sample collector licensee contacted the cannabis testing facility conducting the mandatory analyses to arrange for testing to be done;
- Instructions, if any, provided to the self-sampling licensee or sample collector licensee by the cannabis testing facility conducting the mandatory analyses regarding the following:
  - Sample collection tools to be used to collect samples of cannabis, cannabis concentrate or cannabis products, based upon matrix type sampled and mandatory analyses required;
  - Sample storage containers to be used to collect and store the samples of cannabis, concentrate or cannabis products, based upon matrix type sample and mandatory analyses required;
  - Special instructions regarding sample storage and transport, including without limitation:
    - The temperature at which the samples should be stored and transported;
    - The environmental humidity at which the samples should be stored and transported; and
    - Any other instructions regarding sample storage and transport required to maintain the integrity of the samples during storage and transport;
- The anticipated time and date that the samples will be delivered by the self-sampling licensee or sample collector licensee to the cannabis testing facility in accordance with any limitations, restrictions or other special instructions on sample delivery required by the cannabis testing facility;
- Any anomalies noted by the sample collector in the batch sampled at the time of the sample collection event;
- The type, number and weight of each sample storage container used to store sample increments collected;
- The seal numbers for every tamper evident seal affixed to a sample container used in the sample collection event;
- A signed attestation by the individual identification cardholder who collected the samples for mandatory testing and affixed tamper evident seals to every sample container in accordance with the Department's Sample Collection SOP, that is also signed by an individual identification cardholder who witnessed the tamper evident seals being affixed to the sample containers. The attestation must include, without limitation, the following:

- A statement attesting that the self-sampler or sample collector:
  - Collected all samples in accordance with the Department’s Sample Collection SOP, Best Practices Guide and any instructions provided by the cannabis testing facility conducting the mandatory analyses;
  - Collected all sample increments randomly and that the self-sampler or sample collector did not intentionally enrich, alter, tamper with, degrade or otherwise alter the sample increments collected;
  - Was not asked by, nor allowed, another individual identification cardholder to enrich, alter, tamper with, degrade or otherwise alter the sample increments collected;
  - Sealed the sample collection containers with tamper evident seals in the presence of the witness countersigning the attestation; and
  - Acknowledges that any intentional misrepresentation in the sample collection records or any attempt at tampering with the samples collected is grounds for revocation of the individual’s individual identification card and/or revocation, suspension or limitation of the licensee’s license; and
- A statement attesting that the witness:
  - Was present for the sealing of the sample containers;
  - Did not witness the sample collector enrich, alter, tamper with, degrade or otherwise alter the sample increments when affixing the tamper evident seals to the sample containers;
  - Did not enrich, alter, tamper with, degrade or otherwise alter the sample increments when the tamper evident seals were affixed to the sample containers; and
  - Acknowledges that any intentional misrepresentation by the witness is grounds for revocation of the witness’ individual identification card and/or revocation, suspension or limitation of the licensee’s license.

### General Guidelines for Sample Collection

The self-sampler, sample collector, or employee of a cannabis testing facility collecting samples for mandatory testing must:

- Survey the entire batch from which the samples are to be collected and ensure that the unpackaged cannabis, cannabis concentrate, cannabis product or finished, prepackaged individual retail units of cannabis, cannabis concentrate, or cannabis product is appropriately labeled and tracked in the Department-required inventory tracking system (Metrc). Self- samplers, sample collectors, or employees of a cannabis testing facility collecting samples for mandatory testing may not collect samples from any batch of cannabis, cannabis concentrate or cannabis product that is not labeled with an appropriate label containing information generated by the Department-required inventory tracking system and accompanied by a transport manifest generated by the inventory tracking system.
- Use appropriate sample collection equipment and consistently follow the Department’s sample collection SOP for mandatory testing.
- Take equal quantities of the cannabis, cannabis concentrate or cannabis product for each sample increment.
- Systemically take sample increments throughout the batch using a random location generator.

- Obtain the required number of sample increments, based on batch size.
- Record all observations and procedures used while collecting the sample increments in sample collection records.

## Equipment and Supplies

Appendix C of this guide provides pictures and descriptions of the equipment and tools listed below.

The minimum equipment and supplies for sample collection for mandatory testing pursuant to 18-691 CMR, chapters 1 and 5, are listed in this guide, however, the cannabis testing facility must advise a self-sampling licensee or sample collector of the appropriate sample collection equipment necessary to take a consistent representative sample of the matrices for which mandatory testing is requested. A self-sampler, sample collector, or an employee of a cannabis testing facility offering sample collection services may use single use, disposable or reusable tools and equipment, as appropriate, but must use sterile equipment and tools for the collection of samples for microbiological testing and must have procedures for decontaminating any tools and equipment that are not disposable. The decontamination procedures must effectively eliminate carryover by removing any analyte of interest, regardless of the concentration of the analyte. The decontamination procedure must ensure no cross contamination between cannabis, cannabis concentrate, or cannabis products occurs, nor any cross contamination between cannabis establishments as applicable. This decontamination procedure must be validated any time there is evidence of contamination in samples or between cannabis establishments as indicated by the cannabis testing facility conducting mandatory analyses. A cannabis testing facility will notify the sample collector or self-sampler to discuss the process for validating decontamination procedures if the cannabis testing facility finds evidence that a sample is contaminated by the use of reusable sample collection tools.

### **Equipment** (items used repeatedly, may be single-use or reusable as appropriate)

- Spatulas;
- Forceps and/or scissors/shears;
- Field balance (capable of 0.01g measurements, capable of measuring sample weight in collection container, tare weight; semi-annual calibration verified by certificate of calibration);
- Calibrated verification weights appropriate to verify accuracy of field balance;
- Mylar bags / amber jars / or equivalent, certified clean (for metals, water activity and moisture content, filth & foreign material analyses);
- Amber jars or equivalent, certified clean (for pesticide and potency analyses);
- Borosilicate VOA vials or equivalent, certified clean (for residual solvent analyses);
- Sterile Amber Bottles or Whirl-Pak bags or equivalent (for microbial analyses);
- NIST-traceable thermometer or infrared thermometer gun calibrated every 6 months;
- Cooler or other appropriate refrigeration to maintain collected samples for analysis as applicable to ensure sample integrity;
- A transport manifest or other inventory tracking manifest generated by the Department-required inventory tracking system for the purposes of tracking in that system all samples collected for mandatory for the purposes of transporting samples of cannabis, cannabis concentrate or cannabis products from the sample collection site to the cannabis testing facility conducting mandatory testing;
- Chain of Custody labels, as applicable;
- Security tamper evident tape;
- Custody seals, as applicable;



- Sample labels; and
- Equipment logbook.

**Supplies** (items used only once, must be sterile, where applicable, based upon analyte and as directed by the Cannabis testing facility conducting mandatory analyses)

- Disposable or reusable syringes or pipettes (for liquid transfer);
- Scoops, dippers, sampling spoons, spatulas, other appropriate tools for collecting a sample from a batch;
- Nitrile, latex, or rubber gloves;
- Teri-Wipes, or equivalent;
- Decontamination supplies, as determined by decontamination procedure – solvent, bleach, 70% ethanol, etc.; and
- Deionized water.

### When Sample Collection is Required

Samples of any cannabis, cannabis concentrate or cannabis product shall be collected for mandatory testing prior to being sold or transferred to a cannabis store for sale to a consumer.

Please note: Seedlings, immature cannabis plants, and seeds are not required to be tested.

### Sample Amount

The sample amount collected must meet the requirements and be sufficient to complete the analyses as required by Table 5.5-A of the *Rules for the Certification of Cannabis Testing Facilities* and reproduced below.

**For cannabis flower, trim, and pre-rolled cannabis cigarettes (EXCLUDING infused pre-rolls):**

Harvest Batch Weight Range*	Composite Sample Amount*
≤ 2.5 kg	6.5 g (13 increments of 0.5 grams each)
2.5 kg < w ≤ 5 kg	9.5 g (19 increments of 0.5 grams each)
5 kg < w ≤ 7.5 kg	16 g (16 increments of 1 gram each)
7.5 kg < w ≤ 10 kg	22 g (22 increments of 1 gram each)

**For unpackaged servings or prepackaged retail units of cannabis concentrate and cannabis products (INCLUDING infused pre-rolls):**

# of Unpackaged servings or Pre-packaged Units in Production Batch	Number of sample increments**
≤ 50	2 units
51 -150	3 units

151 - 500	5 units
-----------	---------

501-1200	8 units
1201 -3200	13 units
3201-10000	20 units

\*\* Depending on the weight of the prepackaged samples more than the listed number of increments may need to be taken. Consult with the cannabis testing facility conducting analyses to confirm the appropriate number of sample increments to collect. For production batches of prepackaged cannabis products, one production unit is one sample increment. For production batches of unpackaged cannabis products, one serving size of the cannabis product is one sample increment.

**For solid, semi-solid, or liquid cannabis concentrates including shatter, wax, and slab and other liquid cannabis products:**

<b>Production Batch Weight</b>	<b>Composite Sample Amount</b>
≤ 0.5 kg	6 g (12 increments of 0.5 grams each)
0.5 kg < w ≤ 1 kg	8 g (16 increments of 0.5 grams each)
1 kg < w ≤ 1.5 kg	10 g (20 increments of 0.5 grams each)
1.5 kg < w ≤ 2 kg	12 g (24 increments of 0.5 grams each)
2 kg < w ≤ 5 kg	14 g (28 increments of 0.5 grams each)

Requirements for Self-Samplers, Sample Collectors or Employees of Cannabis Testing Facilities Collecting Samples for Mandatory Testing

All samples for mandatory testing must be collected by a self-sampling licensee, a sample collector, or an employee of a cannabis testing facility who possesses a current individual identification card issued by the Department, and who collects samples in accordance with Department rules, the Department’s sample collection SOP, this Guide, and maintains proper sample collection records.

At a minimum, a self-sampling licensee, sample collector, or employee of a cannabis testing facility offering sample collection services must:

- Have the physical ability to perform the tasks associated with sample collection, including with reasonable accommodations or modifications;
- Be free from undue influence by the licensee for whom the mandatory analyses are being performed; and
- Be able to demonstrate, upon request of the Department or the CDC, all required sample collection techniques.

A self-sampling licensee, sample collector, or cannabis testing facility employee must possess adequate skills, education, and experience to accurately and consistently collect samples of cannabis, cannabis concentrate and cannabis products in a manner that preserves the integrity of the mandatory analyses and prevents, as applicable, cross-contamination between samples, batches and cannabis establishments.

## Sample Collection Data / Chain of Custody Record

A complete chain of custody is required for each batch. Upon collection of the sample, a sample collector or employee of a cannabis testing facility will complete a testing facility-developed chain of custody form that contains, at a minimum, the following:

- Name, physical address and license number of the cannabis testing facility(ies) analyzing the sample;
- Requester name, physical address and license or registration number; or if a registered caregiver, the registration card identification number; or if an exempt caregiver, the caregiver's name and address; or if a qualifying patient, the patient's name and address;
- Unique sample identification label or tag generated by the inventory tracking system;
- For sample increments from the same sampled batch that are separated for homogeneity testing, the unique sample increment identifier;
- The sample location, number and type of containers used to collect samples, and the sample collection technique(s) used to collect the samples;
- Date and time of sample increment collection;
- The printed names and signatures of the self-sampler, sample collector or employee of the cannabis testing facility collecting samples for mandatory testing; and
- For samples that need to be stored at specific temperatures:
  - All conditions, including sample temperature at time of collection and temperature of the temperature-controlled container (cooler/insulated container) used for transport;
  - The printed name and signature of the person at the cannabis testing facility receiving the samples, and
  - The location of the sample within the cannabis testing facility storage area.

Each time the sample changes custody, is transported, is removed from storage at the cannabis testing facility, or is destroyed, the date, time and the names and signature of persons involved in these activities must be recorded on the chain of custody form.

## Records and Documentation

Both the licensee requesting the mandatory testing and the cannabis testing facility, as well as any sample collector collecting samples for mandatory testing, must keep a copy of the chain of custody form and the transport manifest generated for batch samples.

## **4.0 Sample Collection**

### Equipment Preparation

Prior to sample collection, equipment must be decontaminated (and sterile, as applicable) and inspected for damage, then collected and organized into the designated area where the sample collection shall occur. The self-sampler, sample collector, or employee of a cannabis testing facility collecting samples for mandatory testing must ensure that all equipment to be used is appropriately calibrated and otherwise verify that all equipment used is appropriately prepared to eliminate cross contamination and ensure that samples are reliable for analytic purposes. The preparation area must include:

- Gloves to be worn, to avoid sample contamination;
- Decontaminated tool(s), including stainless steel spatulas, knives and/or disposable or reusable pipettes and syringes;
- Decontaminated surfaces for sample processing;
- Labels and pens with indelible ink;

- Necessary supplies for thoroughly decontaminating and drying sample preparation tools and equipment between samples.

Sample containers shall be decontaminated (and sterile, when applicable) and dry prior to the sample collection event. The number of containers, depending on the batch size, and the proper sample size, shall be collected and packaged appropriately.

All paperwork shall be populated with pertinent information prior to the end of the sample collection event.

### Sample Collection

Samples must be collected in the product's final form for consumer use or before being transferred between licensed cannabis facilities as outlined in the *Rules for the Certification of Cannabis Testing Facilities*. All samples for mandatory testing must be collected in accordance with the Department's sample collection SOP. Diagrams portraying the sampling techniques described in the Department's sample collection SOP are contained in Appendix B of this guide.

### Representative Sample

When sampling a batch, the self-sampler, sample collector, or employee of a cannabis testing facility collecting samples for mandatory testing shall check for any signs of non-uniformity. Some indicators of non-uniformity may be different types or sizes of containers, variations in marks and labels, or mixed batch numbers. During sample collection, the self-sampler, sample collector, or employee of a cannabis testing facility shall look for differences in the sampled cannabis or cannabis product in terms of color, shape, size and treatment. The batch must be uniform for all factors that appear on the label; hence, variations in the product may indicate nonuniformity in the batch and that any sample collected may not be representative for testing. Samples from batches appearing nonuniform may be collected and used for mandatory testing, provided that anomalies are recorded in the sample collection records and indicated in the certificate of analysis.

In the event that a self-sampler, sample collector, or employee of a cannabis testing facility encounters a batch that appears to be contaminated with a potentially transmissible contaminant that could affect the environmental integrity of the cannabis testing facility, the samples, or other sampling sites, the self-sampler, sample collector, or employee of a cannabis testing facility will contact the cannabis testing facility conducting the mandatory testing, which may assess the risk to such environmental integrity and advise the self-sampler, sample collector, or employee on how to proceed, including providing additional instructions for transportation or delivery of such samples.

In the event that the cannabis testing facility determines that the risk of contamination is too great for sample collection to proceed, the cannabis testing facility must immediately contact the Department to apprise it of the circumstances.

### Random Sampling

Sample increments must be randomly selected from different locations within a container or set of containers which hold the batch to be tested to ensure the representativeness of the samples for mandatory testing based upon matrix-type. A self-sampler, sample collector, or employee of a cannabis testing facility collecting samples for mandatory testing shall use the following method for ensuring random sampling:

1. Assign consecutive numbers to each possible location from which a sample increment can be collected;

2. Using a random number generator or other similar means to determine from which numbered locations random sample increments shall be collected:
  - Assign divisions based on the type of container in the site-specific sample collection plan.
  - Use a random number generator with the higher number equal to the number of divisions for the container (for multiple containers, use existing or arbitrary order of containers to assign numbers to the total of “divisions multiplied by total number of containers” to determine the total number of random increments within a container and record in the chain of custody form).
3. Document in the sample collection field log where each sample increment was collected and the volume collected from each sample collection location.

Examples of random sampling by matrix type are included in Appendix B of this Guide.

## **5.0 Post Sample Collection procedure**

### **Sample Collection Review**

All samples collected shall be verified to the manifest generated by the inventory tracking system and the sample collection form prior to sealing and labeling all sample collection containers.

### **Equipment and Sample Collection Area Decontamination**

The area where the sample collection occurs shall be decontaminated and/or sterilized and dried between each batch sampled. Forceps and any additional sample collection equipment shall be decontaminated, sterilized, and dried between each batch sampled.

### **Sample Storage and Retention**

Following sample collection and during transport to the cannabis testing facility performing the mandatory analyses, appropriate storage and retention methods must be employed to ensure the sample continues to be representative of the sampled batch.

- Upon collection, samples must be stored at the same temperature and under the same environmental conditions from which the samples were collected.
- Samples shall be stored in a manner to prevent unauthorized access to samples and must be sealed with a tamper evident seal that is intact upon receipt by the cannabis testing facility.
- Samples must be kept in a designated area after acceptance by the testing facility. The cannabis testing facility must provide guidance to a self-sampler or sample collector to ensure sample integrity during transport to the cannabis testing facility.
- Containers for sample transport shall be designed to prevent damage, contamination, spillage, or commingling of the samples during transport. The required container for sample collection must be appropriate for the sample matrix and the tests required.

Samples shall be destroyed or otherwise disposed of in accordance with Department rules.

### **Transportation**

*Note: Current law does not permit shipping in any form by public or private mail or courier services such as the United States Postal Service or FedEx. Transfer/transportation of samples of cannabis and cannabis products to a cannabis testing facility must be by motor vehicle.*

The licensee that collects samples for mandatory testing must transport those samples to a cannabis testing facility for mandatory testing.

- The samples must not be visible to the public. Samples shall be locked in a fully enclosed box, container or cage that is secured to the inside of the vehicle or trailer. For the purposes of this section, the inside of the vehicle includes the trunk, utility, storage area or any other secure location within the vehicle appropriate for transporting samples;
- Packages or containers holding samples must not be tampered with nor opened during transport;
- A sample collector shall only travel between cannabis establishments for whom the sample collector is collecting samples for mandatory testing and the cannabis testing facility(ies) conducting the mandatory testing when engaged in the transportation of samples. A sample collector shall not deviate from the storage and transportation requirements described in Department rules;
- A self-sampling licensee will transport only samples collected from its own cannabis establishment in accordance with Department rules;
- A sample collector licensee or cannabis testing facility licensee may transport multiple samples collected from multiple licensees at once;
- Only valid IIC-holders employed by or otherwise affiliated with the licensee transporting the samples for mandatory testing shall be in a vehicle or trailer transporting samples;
- All samples being transported must have a label with the following statement: “For Testing Purposes Only.”; and
- Transport must be done in a way to ensure that the samples arrive intact and in a manner that protects the analytical integrity of all samples:
  - Sample increments and composite samples shall be packaged appropriately for secure transport.
  - Protect the sample(s) from moisture and temperature extremes.
  - Include all sample collection forms and field data with the sample(s).
  - Transport the samples by the most expedient and secure means to ensure that the sample continues to be representative of the batch sampled.

### Sample Rejection

When samples are received, the cannabis testing facility must check the integrity of the samples. The cannabis testing facility must deem a sample compromised if one or more of the following has occurred:

- Broken shipping container;
- Evidence that the sample has been tampered with, manipulated, adulterated or contaminated;
- Evidence that the sample was not collected in the manner required by this rule or the cannabis testing facility’s sample collection standard operating procedures;
- Missing or incomplete sample collection field log;
- The temperature of the sample is out of the required range; or
- Any other factor that may have negatively impacted the integrity of the sample since its collection.

If the sample is rejected, the cannabis testing facility must document the reason for rejecting the sample(s) and contact the licensee who requested the mandatory testing to inform the licensee that the sample was rejected and to determine the process by which the licensee will have the batch(es) re- sampled.

## **6.0 Quality Assurance**

Composite samples collected in accordance with the Department’s sample collection SOP must include enough sample increments for any required quality control analysis.

### Field Quality Control

Field sample collection equipment shall be decontaminated prior to use by the cannabis testing facility. Decontamination techniques will vary depending upon the desired analysis. In general, sample collection equipment must be sterile for microbiological samples and decontaminated for all other samples. A self-sampling licensee, sample collector, or employee of a cannabis testing facility shall inspect each batch of sample collection equipment for contaminants prior to taking that equipment into the sampling location. If it is determined that the sample collection equipment is contaminated, decontamination and sterilization must be repeated as appropriate.

### Field Audits

Any self-sampler, sample collector or cannabis testing facility providing sample collection services for mandatory testing may be subject to an audit of its sample collection practices by the Department at any time.

Cannabis testing facilities providing sample collection services shall adopt an ongoing system for performing audits of field activities. Field audits must be conducted periodically and in accordance with a predetermined schedule and procedure. The goal of the field audit is to verify that the sample collection operation continues to comply with the requirements of the rules and is being performed according to the Department's sample collection SOP. Audits are to be carried out by trained and qualified personnel who are, wherever resources permit, independent of the activity to be audited. The field audit shall address all elements of the sample collection activities and shall be documented.



## Appendices

Appendix A. Minimum representative sample size for each analyte.

<b>Analyte</b>	<b>Cannabis Plant material (g)</b>	<b>Cannabis Concentrate (g)</b>	<b>Cannabis edible product (g)</b>
Cannabinoids	0.5	0.5	0.5
Homogeneity	1.0 (2 increments of 0.5)	1.0 (2 increments of 0.5)	1.0 (2 increments of 0.5)
Residual Solvents and Processing Chemicals	0.5	0.5	0.5
Residual Pesticides and Growth Regulators	0.5	0.5	0.5
Heavy Metals	0.5	0.5	0.5
Microbiological Impurities	1.2	1	1
Water Activity	0.5	N/A	1
Filth and Foreign Material	0.5	0.5	0.5

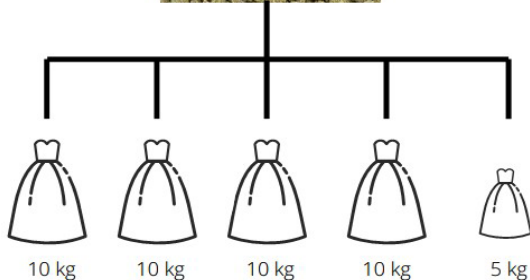
## Appendix B. Sampling techniques based upon matrix and matrix-container type.

The methods demonstrated below are provided as reference for self-samplers, sample collectors, and cannabis testing facilities providing a service to collect samples for mandatory testing and should not be construed to be the only acceptable method for collecting samples from each matrix type.

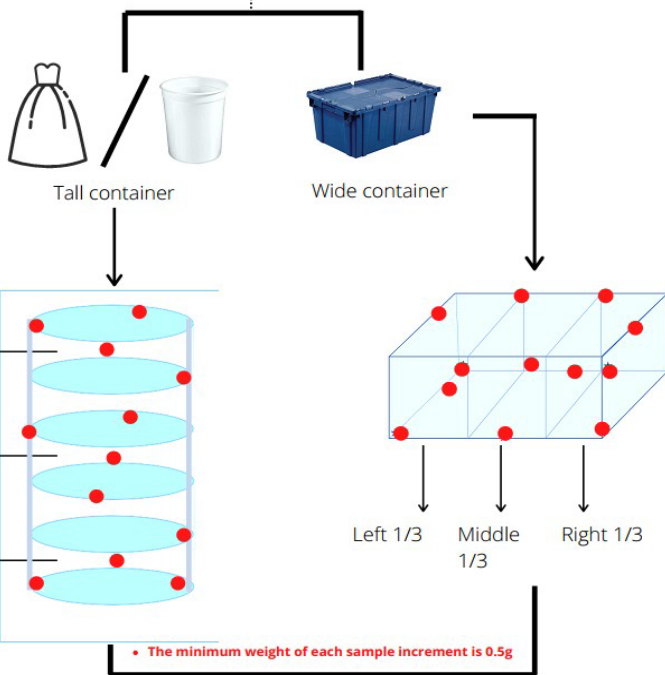
# Sampling example for marijuana plant material



Harvest batch: 45kg



Production batch container types



1. Locate the batch to be sampled and review container label information. Harvest batch need to be separated into production batches before sample.

2. Determine the number of production batch(es) and potential sample increments of each production batch. Assign random numeric sampling location in each level or area within the production batch.

- The maximum weight of each production batch is **10kg**;
- For Minimum sample amount, please refer to section Sample Amount, or Table 5.5-A. Required Sample Size Based Upon Matrix Type and Batch Size of *The State of Maine Rules for The Certification of Marijuana Testing Facilities*.

3. a. From the example presented in the graphic, use a spatula or a pair of forceps to randomly obtain at least **22** increments from each of the **10kg** production batch.  
b. For the **5kg** production batch, a minimum of **19** increments must be obtained.

- The production batch container shall be sampled in a spatial pattern to ensure each region of the container has been sampled.
- A random number generator shall be used for each region to identify the sample location,
- Each sample increment contain minimum of **0.5g** of materials.

"●" indicated the sampling pattern and positions that can be numerically designated.)



(If it is large size flower strain, sample increments should be taken from these parts of the flowers:

- top 1/3,
- middle 1/3,
- bottom 1/3

4. Combine all sample increments, as applicable, to form the composite sample.

## Sampling example for solid or semi solid marijuana products



Product batch: 1500 units

1. Divide the total number of product units from the same production process by 3.

2. Determine the quantity of sample units.

- Unpackaged retail units sample increment: **Per serving**
- Pre-packaged retail units sample increment: **Per packaged unit**
- *(Minimum sample amount please refer to Table 5.5-A. Required Sample Size Based Upon Matrix Type and Batch Size of the State of Maine Rules for the Certification of Marijuana Testing Facility.)*



Section 1: 500 units



Section 2: 500 units



Section 3: 500 units

Section 1



Section 2



Section 3



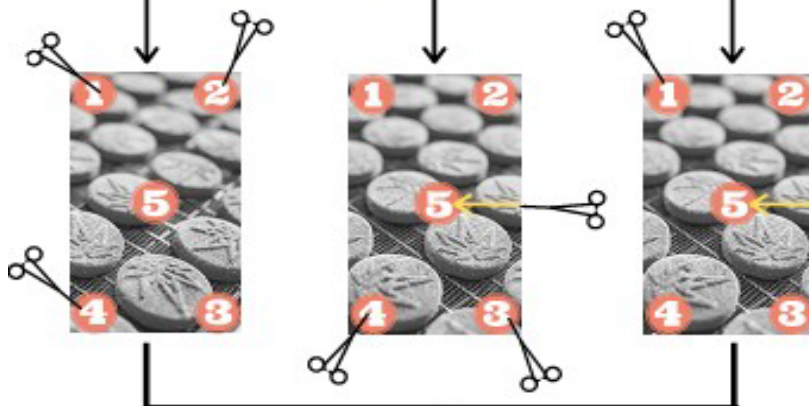
3. Assign random numeric sampling location in each section.

4. Determine the amount of sample increments from each section. Each sample increment should contain **1 unit** or **1 serving** of the product.

- According to the State of Maine Rules for the Certification of Marijuana Testing facility, in this example, a total product batch of 1500 units will need at least total of 13 sample increments. 4 samples shall be taken from the beginning third, 4 samples from the middle third, and 5 samples from the end third.

4A. Randomly select sample increments from each section. A random number generator shall be used to identify the location of each sample increment.

5. Combine all sample increments, as applicable, to form the composite sample.

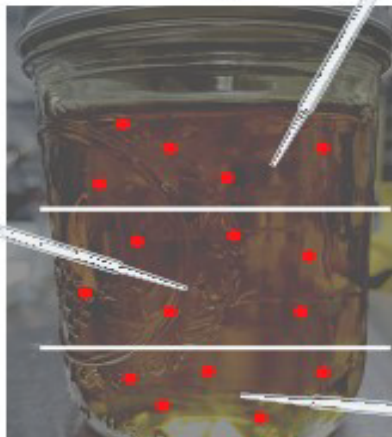


# Sampling example for marijuana extracts

## A. Sampling liquid from a container



1 kg of marijuana oil



1. Let oil or tincture come to room temperature.

2. Invert the oil or tincture at least 3 times. The oil or tincture shall flow to the cap of the container and back to the base 3 times.

3. Mix the oil or tincture thoroughly.

4. Determine the amount of sample increments from each level of depth. Each sample increment should contain 0.5g of the product.

- (Minimum sample amount please refer to Table 5.5-A. Required Sample Size Based Upon Matrix Type and Batch Size the State of Maine Rules for the Certification of Marijuana Testing Facility.)
  - For example: For 1 kg of oil, it requires 8 g of sample. )

5. Use a pipette or appropriate equipment depends on the consistency of the liquid to randomly collect sample increments from top 1/3, middle 1/3, and bottom 1/3 of the bottle to ensure sample representative.

- Example: For 1 kg of oil, 16 sample increment with 0.5 g each is required.
- Product should be sample in a spacial pattern as indicated as "•"

6. Combine all sample increments, as applicable, to form the composite sample.



## B. Sampling shatter / wax / slab



1 kg slab



1. Divide the production batch in 3 thickness level.



2. Determine the amount of sample increments from each section. Each sample increment should contain 0.5g of the product. Randomly collect same amount of sample increments from each thickness level. Sample increments shall be collected in a spacial pattern as indicated in "●"

- With 1 kg slab, 8 g of sample is needed which is at least 16 sample increments with 0.5g each.
- To collect same amount of sample increment in every zone, you will be collecting 18 sample increment in total (6 increment from each zone).





3. Combine all sample increments, as applicable, to form the composite sample.

## Appendix C. Sample Collection Equipment and Containers.

### Sampling Equipment

#### Sampling Tools

Tool Type	Tool Description
 <p data-bbox="355 1104 480 1142"><b>Spatula</b></p>	<p data-bbox="678 835 1247 989">The micro <b>spatula</b> can be used to sample, transfer or process small amounts of chemicals, powders, granulates, pastes, creams or liquids.</p>
 <p data-bbox="358 1675 488 1713"><b>Forceps</b></p>	<p data-bbox="683 1371 1247 1612"><b>Forceps</b> are used when fingers are too large to grasp small objects or when many objects need to be held at one time while the hands are used to perform a task. These are also referred to as tweezers, tongs, pliers, clips or clamps.</p>



**Field Balance**

**Field balance** is used to measure an object's mass to a degree of precision. It's easy to transfer for field visits.



**Calibrated  
Verification Weight**

Precise, stable reference standard weights are used for checking the calibration of the balance during site visits and before each use.



**NIST Traceable  
Thermometer**

NIST traceable calibration is an assurance program that certifies that equipment is traceable to National Institute of Standards and Technology (NIST) standards and that any products offered by that manufacturer will match those NIST-maintained measurement standards. This traceability for thermometer gives greater confidence that the temperature readings are accurate.





**NIST Traceable Infrared Thermometer Gun**

An **infrared thermometer** is a thermometer which infers temperature from a portion of the thermal radiation emitted by the object being measured. These need to be NIST traceable as well.



**Pipette**



**Pipettes** may be constructed out of glass or plastic and are used to transfer a measurable amount of liquid. They are designed either to contain or to deliver a specific volume and will be stamped as such by the manufacturer.



**Syringe**

**Syringe** functions as a pipette or liquid transfer device.

## Sample Collection Containers

Container Type	Container Description
 <p data-bbox="293 846 574 919"><b>Whirl-Pak Sterile Sample Bag</b></p>	<p data-bbox="699 491 1279 716"><b>Whirl-Pak sterile sample bags</b> are disposable, transparent bags for liquid or solid samples. These are made of polyethylene and have a sealed top that tears open easily along perforations. The mouth is reinforced by a wired band with an integrated loop tab which serve as a handle to allow for easy filling.</p> <p data-bbox="699 758 873 779"><b>Suitable analyses:</b></p> <ul data-bbox="699 785 1235 884" style="list-style-type: none"><li>• Filth and foreign materials</li><li>• Microbiological Impurities (Bacteria, Yeasts and Mold)</li><li>• Metals</li><li>• Water Activity &amp; Moisture Content</li></ul>
 <p data-bbox="318 1402 553 1486"><b>Certified Clean Amber Jars</b></p>	<p data-bbox="675 995 1295 1220"><b>Amber glass jars</b> (amber glass bottles; amber glass Boston Rounds; amber glass wide mouth packers), which should be certified clean, protect contents from UV rays and are ideal for light sensitive products. These general use bottles are perfect for liquids. These environmentally sensitive bottles help eliminate waste and help to ensure product integrity for long term storage.</p> <p data-bbox="675 1262 849 1283"><b>Suitable analyses:</b></p> <ul data-bbox="675 1289 1024 1486" style="list-style-type: none"><li>• Homogeneity</li><li>• Cannabinoid Profile</li><li>• Pesticides</li><li>• Water Activity &amp; Moisture Content</li><li>• Metals</li><li>• Filth and Foreign Materials</li><li>• Aflatoxins and Ochratoxins</li></ul>



**Borosilicate VOA Vial  
with PTFE/Silicone  
or Rubber Septa**

These **vials** are made of chemically inert clear Type I borosilicate 33 expansion glass, or for light sensitive samples, of amber 51 expansion glass. Silicone/PTFE is the most widely used material combination for septa used in vial closures (caps and seals). Both types of silicone and butyl rubber septa have a PTFE barrier layer which faces the sample, thereby reducing contact between the sample and the silicone or butyl rubber which is preferable for samples being analyzed for solvents.

**Suitable analyses:**

- Residual solvents



**Centrifuge  
Tubes**

Centrifuge tubes are typically used in laboratory centrifuges, machines that spin samples in order to separate solids out of liquid chemical solutions; however, these can be used for sample collection as well.

**Suitable analyses:**

- Metals,
- Filth and Foreign Material
- Water Activity & Moisture Content