New Jersey Cannabis Regulatory Commission

Testing Guidance

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Introduction

The New Jersey Cannabis Regulatory Commission ("Commission") provides this Testing Guidance in accordance with N.J.A.C. 17:30-19.4(a)(1) to define contaminants and corresponding action limits associated with those contaminants in cannabis and cannabis products. This information is intended for testing laboratories licensed by the Commission.

N.J.A.C. 17:30-3.1(b) provides broad authority to the Commission to implement the New Jersey Cannabis Regulatory, Enforcement Assistance, and Marketplace Modernization Act, ("Act") and Chapter 17:30 and 17:30A, including by issuing guidance that provides explanation, clarification, and scientific details of the rules related to the testing of unusable and usable cannabis and cannabis products by testing laboratories. N.J.A.C. 17:30-19.4(a)(1) names this Testing Guidance as the instrument by which to provide these clarificatory details. Questions about the guidance may be directed to CRC.Legal@crc.nj.gov.

The regulations applicable to this guidance and related notes are provided in Appendix A.

Definitions

All definitions contained in N.J.A.C. 17:30-1.2 are incorporated herein by reference. See Appendix A Testing laboratories should also be guided by the following comments intended to provide further clarity and improve scientific accuracy.

"Action limit" means the maximum allowable amount of an analyte that a cannabis item sample shall not exceed in testing in order to meet specifications.

"Analyte" means the compound being identified and measured in a test.

"Dermal product" means oil or a cannabis-infused product intended for dermal (skin) application.

"Increment sample or unit" amount =

$$\frac{\text{the total representative sample needed}}{\text{required number of increments (where each increment shall be an equivalent mass).}}$$

"Ingestible product" means oil or a cannabis-infused product intended for oral administration and ingestion.

"Inhalable product" means usable cannabis, solid cannabis concentrate, infused usable cannabis, vaporized formulation, and oil or oil with excipients for an inhaler, intended for oral inhalation.

"Limit of Quantification (LOQ)" means the smallest amount or lowest concentration at which the analyte can be reliably measured in a specific testing method.

"Matrix" means the type of cannabis item to be tested (e.g. usable cannabis, cannabis concentrate, cannabis-infused product).

"Moisture content" means the total amount of water present in usable cannabis; the percentage of water retained compared to its overall weight.

"Transmucosal product" means oil or a cannabis-infused product designed to be administered across the mucosa, including intranasal, sublingual, buccal, rectal, vaginal, and ophthalmic forms.

"Unit" means a single cannabis concentrate or cannabis-infused product (e.g. one (1) tube of "RSO oil", one (1) electronic smoking device with vaporized formulation, one (1) lozenge, one (1) gummy, one (1) edible, one (1) tablet, one (1) beverage can, one (1) lotion bottle) after it is in its final manufactured form pursuant to one (1) (c) of Sample Collection Procedures below, after it has been packaged, before it is sent out for distribution. A package may contain a single unit or multiple units.

"Vaporized formulation" means oil or oil with excipients for an electronic smoking device.

Sampling

An effective testing program relies on standardized sampling procedures to ensure that laboratory testing results are reliable, uniform, and defensible. By emphasizing the importance of method precision and accuracy during the sample testing process, this Testing Guidance aims to establish best practices for sample collection by the testing laboratory. Adhering to these best practices will contribute to generating consistent, high-quality data that meets regulatory standards.

To ensure that the laboratory is testing a representative sample of the cannabis item(s) under N.J.A.C. 17:30-19.3 and this Testing Guidance, the testing laboratory must establish a standard operating procedure (SOP) that outlines accepted sampling methodologies with clear, chronological steps to minimize imprecision and bias. This SOP should emphasize quality and consistency in sampling practices, requiring adherence to the outlined procedures to guarantee that each sample accurately reflects the intended quality and characteristics for reliable laboratory analysis.

The testing laboratory shall collect samples of unusable cannabis, usable cannabis, and cannabis product in accordance with N.J.A.C. 17:30-19.3 and this Testing Guidance.

Once a testing laboratory initiates sample collection as detailed below, the Alternative Treatment Center (ATC) or cannabis business shall use the same testing laboratory for initial sample testing and for retention sample stability testing, unless one of the parties of the testing contract breaks the terms of the agreement.

1. The testing laboratory shall use the same laboratory methodology for initial and retention sampling.
2. An ATC/cannabis business or testing laboratory requesting changes between initial sampling and retention sampling to the laboratory, technology, or protocols shall submit a request for approval to the Commission.
3. Where one of the parties of the testing contract breaks the terms of the agreement, the testing laboratory and the cannabis business or ATC shall notify the Commission within 72 hours of such breach. The Commission Safety, Packaging, and Labeling Committee shall review such notifications and the underlying contract breaches.

Sample Collection Procedures

1. When a batch or lot of cannabis items is ready for testing, a testing laboratory employee shall initiate a sample collection, collecting enough samples of the item to be representative of the batch or lot and providing material for all applicable tests.
    a. Unusable cannabis is ready for testing before it has been packaged and sent to a manufacturer in order to be manufactured into a cannabis product.
    b. Usable cannabis is ready for testing after it is in its final usable form, before it has been packaged and sent to a manufacturer for manufacturing into a cannabis product or a dispensary/retailer for distribution. Final usable form of usable cannabis includes placement of usable cannabis in a pre-roll; and, if it will be used for manufacturing, includes both wet/uncured and dried/cured usable cannabis.
    c. A cannabis product (a cannabis concentrate or cannabis-infused product) is ready for testing after it is in its final manufactured or processed form, after it has been packaged, before it is

sent to a dispensary/retailer for distribution. Final manufactured/processed form includes placement of vaporized formulation in an electronic smoking device, oil in a pressurized metered dose inhaler, and beverage ingestible cannabis-infused product in a can or bottle.

2. A testing laboratory employee shall collect a representative initial sample and a representative retention sample from each batch of unusable cannabis for manufacturing or usable cannabis from a cannabis cultivator and from each lot of cannabis products from a cannabis manufacturer according to a statistically valid sampling method.
3. A cannabis business employee shall be physically present to observe the testing laboratory employee collect any sample.
4. The cannabis business employee shall not touch the unusable or usable cannabis, cannabis product, or the sampling equipment while the testing laboratory employee is collecting the samples.
5. The testing laboratory employee shall collect a representative initial sample and a representative retention sample of each batch or lot by removing increment samples of material or units from throughout the container(s) in the batch or lot as follows:
   a. The testing laboratory employee shall draw the increment samples or units from different, representative parts of the batch or lot using Stratified Random Sampling.
   b. Where the nature of the material being sampled allows, samples must be removed from the top, middle, and bottom of containers, with the top sample being taken from a depth of not less than 10 centimeters.
   c. Where there are fewer than 11 containers in the batch or lot, the testing laboratory employee shall draw at least one increment sample or unit from each container.
   d. Containers from which samples have been taken shall be marked to indicate that samples have been removed from them.

Equipment Protocols

When collecting representative samples, the testing laboratory employee shall:

1. Clean, open, sample, and reseal the containers in a manner designed to prevent the introduction of contaminants; and
2. Use sterile equipment and work surfaces, personal protective equipment, and aseptic sampling techniques.

Increment Sample Amounts by Cannabis Item

Through resolution 2025-312, the Commission has waived N.J.A.C. 17:30-19.3(b)(4) and (b)(5). In accordance with the resolution, testing laboratories should refer to this Testing Guidance for current requirements for batches, lots, and increment samples and units, which reflect greater specificity and precision for emerging cannabis product types:

I. Unusable or Usable Cannabis

A representative initial sample of unusable or usable cannabis (including pre-rolls) shall be.5% of a batch, but shall be at least 10.0g, with the following increment sample amounts:

Unusable Cannabis (for manufacturing) Examples: seeds, stems, stalks, roots, immature buds, and leaves.	
Representative sample amount	0.5%
Minimum weight of representative sample	10.0 g
If the batch weight is…	**Then the testing laboratory shall collect…**
< 2.0 kg (4.41 lbs.)	4 increment samples
2.1 – 3.0 kg (4.42 – 6.62 lbs.)	6 increment samples
3.1 – 4.0 kg (6.63 – 8.82 lbs.)	8 increment samples
4.1 – 5.0 kg (8.83 – 11.02 lbs.)	10 increment samples
5.1 – 6.0 kg (11.03 – 13.23 lbs.)	12 increment samples
6.1 – 7.0 kg (13.24 – 15.43 lbs.)	14 increment samples.
7.1 – 8.0 kg (15.44 – 17.64 lbs.)	16 increment samples
8.1 – 9.0 kg (17.65 – 19.84 lbs.)	18 increment samples
9.1 – 10.0 kg (19.85 – 22.05 lbs.)	20 increment samples
10.1 – 11.0 kg (22.06 – 24.25 lbs.)	22 increment samples
11.1 – 12.0 kg (24.26 – 26.46 lbs.)	24 increment samples
12.1 – 13.0 kg (26.47 – 28.67 lbs.)	26 increment samples
13.1 – 14.0 kg (28.68 – 30.87 lbs.)	28 increment samples
14.1 – 15.0 kg (30.88 – 33.07 lbs.)	30 increment samples

Usable Cannabis (for manufacturing or distribution) Examples: flower and leaves (no concentrates or excipients added).	
Representative sample amount	0.5%
Minimum weight of representative sample	10.0 g
If the batch weight is…	**Then the testing laboratory shall collect…**
< 2.0 kg (4.41 lbs.)	4 increment samples
2.1 – 3.0 kg (4.42 – 6.62 lbs.)	6 increment samples
3.1 – 4.0 kg (6.63 – 8.82 lbs.)	8 increment samples
4.1 – 5.0 kg (8.83 – 11.02 lbs.)	10 increment samples
5.1 – 6.0 kg (11.03 – 13.23 lbs.)	12 increment samples
6.1 – 7.0 kg (13.24 – 15.43 lbs.)	14 increment samples
7.1 – 8.0 kg (15.44 – 17.64 lbs.)	16 increment samples
8.1 – 9.0 kg (17.65 – 19.84 lbs.)	18 increment samples
9.1 – 10.0 kg (19.85 – 22.05 lbs.)	20 increment samples
10.1 – 11.0 kg (22.06 – 24.25 lbs.)	22 increment samples
11.1 – 12.0 kg (24.26 – 26.46 lbs.)	24 increment samples
12.1 – 13.0 kg (26.47 – 28.67 lbs.)	26 increment samples
13.1 – 14.0 kg (28.68 – 30.87 lbs.)	28 increment samples
14.1 – 15.0 kg (30.88 – 33.07 lbs.)	30 increment samples

II. Inhalable Products, Ingestible Oil

A representative initial sample of solid cannabis concentrate (including wax, shatter, bubble hash, etc.); infused usable cannabis (infused pre-rolls, moon rocks); inhalable oil (liquid cannabis concentrate) or inhalable cannabis-infused product in a pressurized metered dose inhaler; transmucosal oil nasal spray; or ingestible oil ("RSO") shall be at least 6.0g and a representative initial sample of vaporized formulation (inhalable oil or oil with excipients) in an electronic smoking device shall be at least 8.0g, with the following minimum increment units (where an increment unit shall be rounded up to the nearest whole package, and a package cannot be subdivided):

Inhalable Cannabis Concentrate (solid or liquid), Ingestible Oil Examples: cannabis extracts; resin; wax; shatter; bubble hash; inhalable oil, transmucosal oil nasal spray, and consumed oil ("RSO")	
Minimum weight of representative sample	6.0 g
If the lot weight is…	**Then the testing laboratory shall collect…**
< 2.0 kg (4.41 lbs.)	4 increment units
2.1 – 3.0 kg (4.42 – 6.62 lbs.)	6 increment units
3.1 – 4.0 kg (6.63 – 8.82 lbs.)	8 increment units
4.1 – 5.0 kg (8.83 – 11.02 lbs.)	10 increment units

Inhalable Cannabis-Infused Product (liquid) Examples: inhalable cannabis-infused product in a pressurized metered dose inhaler.	
Minimum weight of representative sample	6.0 g
If the lot weight is…	**Then the testing laboratory shall collect…**
< 2.0 kg (4.41 lbs.)	4 increment units
2.1 – 3.0 kg (4.42 – 6.62 lbs.)	6 increment units
3.1 – 4.0 kg (6.63 – 8.82 lbs.)	8 increment units
4.1 – 5.0 kg (8.83 – 11.02 lbs.)	10 increment units

Infused Usable Cannabis Examples: pre-rolls infused with concentrates, and moon rocks.	
Minimum weight of representative sample	6.0 g
If the lot weight is…	**Then the testing laboratory shall collect…**
< 2.0 kg (4.41 lbs.)	4 increment units
2.1 – 3.0 kg (4.42 – 6.62 lbs.)	6 increment units
3.1 – 4.0 kg (6.63 – 8.82 lbs.)	8 increment units
4.1 – 5.0 kg (8.83 – 11.02 lbs.)	10 increment units

Vaporized Formulation Examples: inhalable oil or oil with excipients (cannabis-infused product) in an electronic smoking device that is meant to be heated or aerosolized.	
Minimum weight of representative sample	8.0 g
If the lot weight is…	**Then the testing laboratory shall collect…**
< 2.0 kg (4.41 lbs.)	4 increment units
2.1 – 3.0 kg (4.42 – 6.62 lbs.)	6 increment units
3.1 – 4.0 kg (6.63 – 8.82 lbs.)	8 increment units
4.1 – 5.0 kg (8.83 – 11.02 lbs.)	10 increment units

III. Solid Ingestible & Transmucosal Cannabis-Infused Products

A representative initial sample of a solid ingestible cannabis-infused product (including a gummy, an "edible", a tablet, a pill), or a solid transmucosal cannabis-infused product (including a lozenge, dissolving strip, or suppository) shall be at least 10.0 g, with the following minimum number of increment samples, (where an increment unit shall be rounded up to the nearest whole package, and a package cannot be subdivided):

Ingestible Cannabis-Infused Product (solid) Examples: gummy, "edible"; tablet or pill;	
Minimum weight of representative sample	10.0 g
If the lot size is…	**Then the testing laboratory shall collect…**
1 – 500 total units	13 increment units
501 – 1,200 total units	20 increment units
1,201 – 10,000 total units	32 increment units
10,001 – 35,000 total units	50 increment units

Transmucosal Cannabis-Infused Product (solid) Examples: lozenge, dissolving strip, and suppository	
Minimum weight of representative sample	10.0 g
If the lot size is…	**Then the testing laboratory shall collect…**
1 – 500 total units	13 increment units
501 – 1,200 total units	20 increment units
1,201 – 10,000 total units	32 increment units
10,001 – 35,000 total units	50 increment units

IV. Liquid Ingestible & Transmucosal Cannabis-Infused Products and Dermal Products

A representative initial sample of a liquid ingestible cannabis-infused product (including a beverage ingestible cannabis-infused product, a syrup, an oral suspension, beverage concentrate, or drops), a liquid transmucosal cannabis-infused product (including tincture and nasal spray), or a dermal cannabis-infused product (including lotion, balm, patch, salve), shall be at least 10g, with the following minimum increment samples (where an increment unit shall be rounded up to the nearest whole package, and a package cannot be subdivided):

Ingestible Cannabis-Infused Products (liquid) Examples: beverage; beverage concentrate; syrup; drops; oral suspension	
Minimum weight of representative sample	10.0 g
If the lot size is…	**Then the testing laboratory shall collect…**
1 – 100 total units	2 increment units
101 – 500 total units	4 increment units
501 – 1,000 total units	6 increment units
1,001 – 5,000 total units	8 increment units
5,001-10,000 total units	10 increment units

Transmucosal Cannabis-Infused Products (liquid) Examples: tincture; cannabis-infused product nasal spray	
Minimum weight of representative sample	10.0 g
If the lot size is…	**Then the testing laboratory shall collect…**
1 – 100 total units	2 increment units
101 – 500 total units	4 increment units
501 – 1,000 total units	6 increment units
1,001 – 5,000 total units	8 increment units
5,001-10,000 total units	10 increment units

Dermal Products Examples: lotion; balm; patch; salve; topical formulation	
Minimum weight of representative sample	10.0 g
If the lot size is…	**Then the testing laboratory shall collect…**
1 – 100 total units	2 increment units
101 – 500 total units	4 increment units
501 – 1,000 total units	6 increment units
1,001 – 5,000 total units	8 increment units
5,001-10,000 total units	10 increment units

Retention Sample Amounts

By conducting stability testing on a product batch at various time intervals, manufacturers effectively assess cannabinoid degradation and the potential rise in contaminants, such as microbes, over time. This data is crucial for establishing the product's shelf life and determining appropriate expiration dates, ensuring consumer safety and product efficacy.

Through resolution 2025-312, the Commission has waived N.J.A.C. 17:30-19.3(b)(6). In accordance with the resolution, testing laboratories should refer to this Testing Guidance for current requirements for batches, lots, and increment retention samples and units.

A representative retention sample for a batch or lot taken according to Initial Increment Sample Amount Category I, III, and IV above shall be 20 grams and the representative retention sample for a lot for a sample taken according to Initial Increment Sample Amount Category II above shall be 10 grams. An increment unit shall be rounded up to the nearest whole package, and a package cannot be subdivided.

Sample Tag Identification

In order to ensure compliance and traceability within the industry, after completing sample collection, the testing laboratory employee shall:

1. place, on each sample container, the cannabis business license number and sample tag identification label associated with the inventory control system designated pursuant to N.J.A.C. 17:30-3.6 (such identification label including access to the description and quantity of the content of such sample container);
2. seal and initial each sample container, along with the cannabis business employee; and
3. provide a receipt for the collected samples to the cannabis business employee.

The cannabis business employee shall then record the samples removed from a batch or lot in the inventory record for the batch or lot.

Retention Sample Storage at Cannabis Business

Unusable and usable cannabis for manufacturing retention samples are stored for possible recall testing and will not undergo stability testing under N.J.A.C. 17:30-19.5(b) or (j), and thus have a shorter storage mandate.

The testing laboratory employee shall transfer the representative retention samples to the cannabis business employee, who shall:

1. For unusable and usable cannabis, package the representative retention samples using the same packaging process, if such process is able to package small samples, and the same containers and packaging materials that will be used for the rest of the batch; and
2. Store them under recommended storage conditions and at the designated storage temperature pursuant to N.J.A.C. 17:30-19.5(a)(2) and (3); Except that a cannabis business only needs to store retention samples of usable and unusable cannabis for manufacturing for 60 days.

Secure Transport and Receipt

The testing laboratory employee shall securely transport any unusable or usable cannabis and cannabis product representative initial samples to the laboratory in accordance with N.J.A.C. 17:30-19.3(i). At the testing laboratory, a testing laboratory employee shall record the receipt of the samples in accordance with N.J.A.C. 17:30-19.3(j).

Initial Testing (Procedures and Specifications for Cannabis Items)

Portions of the requirements in N.J.A.C. 17:30-19.4(a), are no longer applicable because this Testing Guidance provides an exhaustive look at testing action limits for the State of New Jersey, and it clarifies that this Testing Guidance is the instrument to provide the final source for detailed testing analysis, and not the AHP cannabis inflorescence monograph. See Appendix A.

The testing laboratory shall test the initial samples of unusable and usable cannabis and cannabis product to confirm whether the samples meet the specifications of N.J.A.C.17:30-19.4 and the requirements set forth herein. Testing must be performed according to the laboratory's standard operating procedures that have been approved by the accreditation body pursuant to N.J.A.C. 17:30-18.5(e).

The testing laboratory shall analyze the samples according to the following requirements:

1. The testing laboratory is required to set the Limit of Quantification (LOQ) for each analyte in each test to no greater than half the action limit, except for any microbial presence/absence tests (e.g. where the action limit is "None detected in 1g").
2. The testing laboratory shall conduct a verification process to demonstrate that it can successfully perform a testing method validated by a third-party method validating organization such as the Association of Official Analytical Collaboration ("AOAC").
3. Unusable and usable cannabis that will be manufactured into a cannabis product shall be tested pursuant to the requirements set forth herein, even where a vertically integrated cannabis cultivator is transferring it to a co-located cannabis manufacturer.
4. The testing laboratory shall provide the sample's written report and its data in accordance with N.J.A.C. 17:30-19.6 to the cannabis business or ATC and shall submit identical data to the inventory control system designated pursuant to N.J.A.C. 17:30-3.6.

This Testing Guidance provides clarification on testing action limits and procedures for foreign matter, water activity, moisture content, cannabinoid potency, homogeneity testing, terpene potency, excipients, microbial, mycotoxins, pesticides, residual solvents, and heavy metals based on cannabis product type. Testing laboratories should be guided by the following for current requirements for initial testing:

I. Foreign Material

The testing laboratory shall do a visual inspection of unusable cannabis, usable cannabis, and cannabis products to screen for the presence of foreign material. The inspection shall include, at minimum:

- for usable and unusable cannabis, the interior and exterior of the dried flower or plant material; and
- for a cannabis product, the exterior of the product

If visible foreign material such as sand, soil, cinders, dirt, mold or mildew exceeds 10% of the total sample area, the sample shall not meet specifications.

If visible foreign material exceeds one (1) insect fragment, one (1) hair or one (1) count of mammalian excreta per 3.0g, the sample shall not meet specifications.

II. Water Activity

After the foreign material screening, the testing laboratory shall test usable cannabis for distribution, solid ingestible cannabis-infused products, and solid transmucosal cannabis-infused products for water activity in available water (aw). The testing laboratory is not required to perform this test on: unusable or usable cannabis that will be manufactured by a cannabis business/ATC into a cannabis product, a cannabis concentrate or vaporized formulation, a beverage ingestible cannabis-infused product, other liquid ingestible cannabis-infused product, transmucosal cannabis-infused product, or dermal product; but may perform this test upon request of the cannabis business/ATC.

To meet specifications, a usable cannabis sample shall not exceed 0.65 aw and a solid cannabis-infused product shall not exceed 0.85 aw.

The testing laboratory shall use the Standard Practice for Determination of Water Activity in Cannabis Flower: ASTM D8196 sample analysis method, or another AOAC-certified, USP-validated, or ASTM, FDA or EPA sample analysis method for water activity in cannabis.

III. Homogenization

Before testing for cannabinoid and terpene potency, the testing laboratory shall homogenize all increment samples or units of the representative sample, except for any amount needed for homogeneity testing in (V) below.

IV. Moisture Content

Within the two hours preceding testing for cannabinoid and terpene potency or at the same time as such testing, the testing laboratory shall test usable cannabis for distribution for moisture content percentage for the purposes of (V) below.

- When drying a representative sample of usable cannabis in preparation for testing, a testing laboratory shall not exceed 105*C.

V. Cannabinoid Potency & Homogeneity Testing

The testing laboratory shall test usable cannabis for distribution, cannabis concentrates, and cannabis-infused products to determine the chemical composition and potency of individual cannabinoids, both as a percentage and in milligrams per gram (mg/g) (by weight), or in milligram per milliliter (mg/mL) (by volume) and include the total amount of the cannabinoid and its acidic precursor pursuant to N.J.A.C 17:30-16.3(b)(9). The testing laboratory is not required to perform this test on usable or unusable cannabis that will be manufactured by a cannabis business/ATC into a cannabis product but may perform it upon request of the cannabis business/ATC.

The test shall include:

- delta-9-Tetrahydrocannabinolic Acid (THCA);
- delta-9-Tetrahydrocannabinol (THC);
- Cannabidiolic Acid (CBDA);
- Cannabidiol (CBD);
- Cannabigerolic Acid (CBGA);
- Cannabigerol (CBG); and
- Cannabinol (CBN);

The test may include other cannabinoids, such as:

- delta-8-Tetrahydrocannabinol (d8-THC);
- delta-9-Tetrahydrocannabivarinic acid (THCVA);
- delta-9-Tetrahydrocannabivarin (THCV);
- Cannabidivarinic Acid (CBDVA);
- Cannabidivarin (CBDV);
- Cannabichromenic Acid (CBCA); or
- Cannabichromene (CBC);

For usable cannabis, the chemical composition and potency of individual cannabinoids shall be calculated using a dry weight basis where:

$$\text{Dry weight \%} = \frac{\text{measured cannabinoid weight \%}}{1 - (\text{\% of moisture content}/100)};$$

Each single serving of cannabis product shall have a cannabinoid concentration that is within 90-110% of the specified concentration or milligram serving size claimed for that cannabis product.

The testing laboratory shall use the Quantitation of Cannabinoids in Cannabis Dried Plant Materials, Concentrates, and Oils AOAC 2018.11 sample analysis method or another AOAC-certified, USP-validated, or ASTM, FDA or EPA sample analysis method for cannabinoid potency in cannabis.

The testing laboratory may validate its method using the AOAC SMPR 2017.002 validation for usable cannabis, the AOAC SMPR 2017.001 validation for cannabis concentrates, and the AOAC SMPR 2017.019 validation for edible chocolate.

For ingestible, transmucosal, or dermal cannabis-infused products manufactured in accordance with a new or updated master formulation record, the testing laboratory shall perform additional homogeneity testing on the first three lots. This shall include the testing of four separate increment samples from each lot to ensure an acceptable level of product variance and relative standard deviation percentage of THCA, THC, CBDA, and CBD, and adherence to the master formulation record.

- The three lots shall be manufactured in accordance with the master formulation record and shall be manufactured on three separate dates.
- At least one of the lots shall be the maximum lot size for that type of cannabis product, if the cannabis manufacturer has the capacity to produce such a lot.
- Each lot will be sampled and tested for homogeneity individually by lot (within-lot variance), and the testing results from each of the three lots are to be compared to each other for consistency between lots (between-lot variance).
- The Relative Standard Deviation (RSD) % between tested increments/servings (in mg/unit) shall not exceed 15%.

$$\text{RSD\%} = \frac{\text{Standard Deviation}}{\text{Mean of the Sample set}} \times 100$$

VI. Terpene Potency

The testing laboratory shall test usable cannabis for distribution, cannabis concentrates, and cannabis-infused products formulated or labeled to contain terpenes to determine the chemical composition and potency of the individual terpenes, separated by isomer, described in the most current version of the cannabis inflorescence monograph published by the American Herbal Pharmacopeia ("AHP"), both as a percentage and in milligrams per gram (mg/g) (by weight) or in milligrams per milliliter (mg/mL) (by volume). The testing laboratory is not required to perform this test on unusable or usable cannabis that will be manufactured by a cannabis business/ATC into a cannabis product but may perform it upon request of the cannabis business/ATC.

The test shall include the following terpenes:

- alpha-Pinene;
- beta-Caryophyllene;
- beta-Myrcene;
- d-Limonene;
- Ocimene;
- Terpinolene;
- alpha-Humulene;
- beta-Pinene; and
- Linalool

For cannabis concentrate intended for inhalation or vaporized formulation, to meet specifications, the sample shall not exceed a level of terpenes that is 10% of the product by volume.

The testing laboratory shall use any sample analysis method included in the most current version of the cannabis inflorescence monograph published by the AHP or any AOAC-certified, USP-validated, ASTM, FDA, or EPA sample analysis method for terpene potency in cannabis, if available.

VII. Excipients

The testing laboratory shall test vaporized formulation (inhalable oil and oil with excipients) for Vitamin E Acetate as set forth below. To meet specifications, the sample shall not exceed the following level:

Analyte Tested	Action limit (in ppm)
Vitamin E acetate/tocopherol acetate (VEA).	7000

Upon request of an ATC, cannabis business, patient, caregiver, consumer, or the Commission, the testing laboratory shall test vaporized formulation for the presence of other additives, cutting agents, and artificial flavorings known to be harmful in parts per million (ppm). Such testing methods are not required to be included in a testing laboratory's scope of accreditation.

To meet specifications, if a sample is tested, the sample shall not exceed the following levels:

Analyte Tested	Action Limit (in ppm)
a Polyethylene glycol (PEG) variant	10,000
a Propylene glycol (PG) variant	10,000
Vegetable glycerin or glycerol (VG)	10,000
Acetic Acid (AA)	5,000

The testing laboratory shall use an AOAC-certified, USP-validated, or ASTM, FDA, or EPA sample analysis method, if available, for these contaminants.

VIII. Microbes

The testing laboratory shall test unusable cannabis, usable cannabis, cannabis concentrates, and cannabis-infused products for microbial contamination in Colony Forming Units (CFU/g).

To meet specifications, the unusable cannabis, usable cannabis, cannabis concentrate, or cannabis-infused product sample shall not exceed the following levels:

Analyte Tested	Action Limit/CFU/g
Total aerobic bacteria count for unusable cannabis & usable cannabis for manufacturing	No action limit
Total aerobic bacteria count for usable cannabis for distribution and infused usable cannabis	100,000 CFU/g
Total aerobic bacteria count for other cannabis products	10,000 CFU/g
Total yeast and mold count for unusable cannabis & usable cannabis for manufacturing	No action limit
Total yeast and mold count for usable cannabis for distribution and infused usable cannabis	100,000 CFU/g
Total yeast and mold count for other cannabis products	10,000 CFG/g
Shiga Toxin producing E. coli (STEC)	None detected in 1g.
Salmonella spp.	None detected in 1g.
Pathogenic Aspergillus (A. flavus, A. fumigatus, A. niger, A. terreus)	None detected in 1g.

To meet specifications, in addition to the tests immediately above, an ingestible or transmucosal cannabis-infused product sample shall additionally not exceed the following levels:

Analyte Tested	Action Limit
Total Coliforms	1000 CFU/g
Listeria monocytogenes	None detected in 1g

For Total Aerobic Bacteria Counts, Total Yeast and Mold Counts, and Total Coliform Counts the testing laboratory shall use the Yeast and Mold Counts in Foods and Dried Cannabis Flower: AOAC 997.02 sample analysis method, another total counts culture-based sample analysis method listed in the most current version of the Maryland's MCA Technical Authority for Cannabis Testing (Appendix I:Microbiological Impurities: Sample Analysis), or an AOAC-certified total counts culture-based sample analysis method for cannabis.

For pathogens STEC, Salmonella spp., pathogenic Aspergillus, and Listeria monocytogenes, the testing laboratory shall use a qPCR, isothermal PCR, or end-point PCR with microarray pathogen sample analysis method listed in the most current version of the Maryland's MCA Technical Authority for Cannabis Testing (Appendix I:Microbiological Impurities: Confirmation Testing), or an AOAC-certified qPCR, isothermal PCR, or end-point PCR with microarray pathogen sample analysis method for cannabis.

The testing laboratory may validate its TYM count method using Viable Yeast and Mold Count Enumeration in Cannabis and Cannabis Products: AOAC 2021:009 validation; and may validate its Salmonella spp. and Shiga Toxin producing E. coli methods using Detection of Salmonella species in Cannabis and Cannabis Products: AOAC 2020.002 and Detection of Shiga Toxin-Producing Escherichia coli in Cannabis and Cannabis Products: AOAC 2020.012.

IX. Mycotoxins

The testing laboratory shall test unusable cannabis, usable cannabis, cannabis concentrate, and cannabis-infused products for mycotoxin contamination in parts per billion (ppb).

To meet specifications, the sample shall not exceed the following levels:

Analyte Tested	Action Limit (in ppb)
Aflatoxin B1	20
Aflatoxin B2	20
Aflatoxin G1	20
Aflotoxin G2	20
Total cumulative aflatoxins (sum of B1, B2, G1, G2)	20
Ochratoxin A	20

The testing laboratory shall use an AOAC-certified, USP-validated, or ASTM, FDA, or EPA sample analysis method for mycotoxins in cannabis, if available.

The testing laboratory may validate its mycotoxin method using Mycotoxin Screening Technique in Cannabis Plant Material and Cannabis Derivatives: AOAC 2020.013.

X. Pesticides, fungicides, and plant growth regulators

The testing laboratory shall test unusable cannabis, usable cannabis, cannabis concentrates, and cannabis-infused products for pesticides, fungicides, and plant growth regulators, including inhalable products at one action limit and ingestible, transmucosal, and dermal products at a different action limit.

To meet specifications, the sample shall not exceed the following levels:

Analyte Tested	Action Limit (in ppm)
Abamectin for inhalable products	0.3
Abamectin for ingestible, transmucosal, & dermal products	0.3
Acetamiprid for inhalable products	0.2
Acetamiprid for ingestible, transmucosal, & dermal products	3.0
Aldicarb for inhalable products	0.1
Aldicarb for ingestible, transmucosal, & dermal products	0.1
Ancymidol for inhalable products	0.2
Ancymidol for ingestible, transmucosal, & dermal products	0.2
Azoxystrobin for inhalable products	0.2
Azoxystrobin for ingestible, transmucosal, & dermal products	3.0
Bifenazate for inhalable products	0.2
Bifenazate for ingestible, transmucosal, & dermal products	3.0
Bifenthrin for inhalable products	0.2
Bifenthrin for ingestible, transmucosal, & dermal products	0.5

Analyte Tested	Action Limit (in ppm)
Boscalid for inhalable products	0.4
Boscalid for ingestible, transmucosal, & dermal products	3.0
Carbaryl for inhalable products	0.5
Carbaryl for ingestible, transmucosal, & dermal products	0.5
Carbofuran for inhalable products	0.1
Carbofuran for ingestible, transmucosal, & dermal products	0.1
Chlorantraniliprole for inhalable products	1.0
Chlorantraniliprole for ingestible, transmucosal, & dermal products	3.0
Chlorpyrifos for inhalable products	0.1
Chlorpyrifos for ingestible, transmucosal, & dermal products	0.1
Clofentezine for inhalable products	0.2
Clofentezine for ingestible, transmucosal, & dermal products	0.5
Cyfluthrin for inhalable products	1.0
Cyfluthrin for ingestible, transmucosal, & dermal product	1.0
Daminozide (Alar) for inhalable products	0.5
Daminozide (Alar) for ingestible, transmucosal, & dermal products	0.1
Diazinon for inhalable products	0.1
Diazinon for ingestible, transmucosal, & dermal products	0.2
Dichlorvos (DDVP) for inhalable products	0.1
Dichlorvos (DDVP) for ingestible, transmucosal, & dermal products	0.1
Dimethoate for inhalable products	0.1
Dimethoate for ingestible, transmucosal, & dermal products	0.1
Ethephon for inhalable products	1.0
Ethephon for ingestible, transmucosal, & dermal products	1.0
Etoxazole for inhalable products	0.2
Etoxazole for ingestible, transmucosal, & dermal products	0.5
Fenpyroximate for inhalable products	0.4
Fenpyroximate for ingestible, transmucosal, & dermal products	2.0
Fipronil for inhalable products	0.1
Fipronil for ingestible, transmucosal, & dermal products	0.1
Flonicamid for inhalable products	0.5
Flonicamid for ingestible, transmucosal, & dermal products	2.0
Fludioxonil for inhalable products	0.4
Fludioxonil for ingestible, transmucosal, & dermal products	3.0
Flurprimidol for inhalable products	0.2
Flurprimidol for ingestible, transmucosal, & dermal products	0.2
Hexythiazox for inhalable products	0.5
Hexythiazox for ingestible, transmucosal, & dermal products	2.0
Imazalil for inhalable products	0.1
Imazalil for ingestible, transmucosal, & dermal products	0.1
Imidacloprid for inhalable products	0.4

Analyte Tested	Action Limit (in ppm)
Imidacloprid for ingestible, transmucosal, & dermal product	3.0
Kresoxim-methyl for inhalable products	0.4
Kresoxim-methyl for ingestible, transmucosal, & dermal products	1.0
Malathion for inhalable products	0.2
Malathion for ingestible, transmucosal, & dermal products	2.0
Metalaxyl for inhalable products	0.2
Metalaxyl for ingestible, transmucosal, & dermal products	3.0
Methiocarb for inhalable products	0.1
Methiocarb for ingestible, transmucosal, & dermal product	0.1
Methomyl for inhalable products	0.1
Methomyl for ingestible, transmucosal, & dermal products	0.1
Myclobutanil for inhalable products	0.2
Myclobutanil for ingestible, transmucosal, & dermal products	3.0
Naled for inhalable products	0.25
Naled for ingestible, transmucosal, & dermal products	0.5
Oxamyl for inhalable products	0.5
Oxamyl for ingestible, transmucosal, & dermal products	0.5
Paclobutrazol for inhalable products	0.1
Paclobutrazol for ingestible, transmucosal, & dermal products	0.1
Permethrin for inhalable products	0.1
Permethrin for ingestible, transmucosal, & dermal products	1.0
Phosmet for inhalable products	0.2
Phosmet for ingestible, transmucosal, & dermal products	0.2
Piperonyl butoxide for inhalable products	3.0
Piperonyl butoxide for ingestible, transmucosal, & dermal products	3.0
Propiconazole for inhalable products	0.4
Propiconazole for ingestible, transmucosal, & dermal products	20
Pyrethrins for inhalable products	1.0
Pyrethrins for ingestible, transmucosal, & dermal products	1.0
Spinosad for inhalable products	0.2
Spinosad for ingestible, transmucosal, & dermal products	3.0
Spiromesifen for inhalable products	0.2
Spiromesifen for ingestible, transmucosal, & dermal products	3.0
Spirotetramat for inhalable products	0.2
Spirotetramat for ingestible, transmucosal, & dermal products	3.0
Thiacloprid for inhalable products	0.1
Thiacloprid for ingestible, transmucosal, & dermal products	0.1
Thiamethoxam for inhalable products	0.5
Thiamethoxam for ingestible, transmucosal, & dermal products	1.0
Trifloxystrobin for inhalable products	0.2
Trifloxystrobin for ingestible, transmucosal, & dermal product	3.0

The testing laboratory shall use an AOAC-certified, USP-validated, or ASTM, FDA, or EPA sample analysis method for pesticides in cannabis, if available.

The testing laboratory may validate its pesticide method using Identification and Quantification of Selected Pesticide Residue in Dried Cannabis Flower: AOAC SMPR 2018.011 validation; The action limits in this paragraph nonetheless override such validation.

XI. Residual solvents and other manufacturing residue

The testing laboratory shall test cannabis concentrates and cannabis-infused products for residual solvents and other manufacturing residue, including inhalable products at one action limit and ingestible, transmucosal, and dermal products at a different action limit.

To meet specifications, the sample shall not exceed the following levels:

Analyte Tested	Action Limit (in ppm)
1,1 Dichloroethene for inhalable products	8
1,1 Dichloroethene for ingestible, transmucosal, & dermal products	20
1,2 Dichloroethane for inhalable products	2
1,2 Dichloroethane for ingestible, transmucosal, & dermal products	5
Acetone for inhalable products	750
Acetone for ingestible, transmucosal, & dermal products	5,000
Acetonitrile for inhalable products	60
Acetonitrile for ingestible, transmucosal, & dermal products	410
Benzene for inhalable products	1
Benzene for ingestible, transmucosal, & dermal products	2
Butane for inhalable products	800
Butane for ingestible, transmucosal, & dermal products	5,000
Chloroform for inhalable products	2
Chloroform for ingestible, transmucosal, & dermal products	60
Ethanol for inhalable products	1,000
Ethanol for ingestible, transmucosal, & dermal products*	5,000
Ethyl Acetate for inhalable products	400
Ethyl Acetate for ingestible, transmucosal, & dermal products	5,000
Ethyl Ether for inhalable products	500
Ethyl Ether for ingestible, transmucosal, & dermal products	5,000
Ethylene Oxide for inhalable products	5
Ethylene Oxide for ingestible, transmucosal, & dermal products	50
Heptane for inhalable products	500
Heptane for ingestible, transmucosal, & dermal products	5,000
Hexane for inhalable products	50
Hexane for ingestible, transmucosal, & dermal products	290
Isopropyl Alcohol for inhalable products	500
Isopropyl Alcohol for ingestible & transmucosal products**	5,000

Analyte Tested	Action Limit (in ppm)
Methanol for inhalable products	250
Methanol for ingestible, transmucosal, & dermal products	3,000
Methylene Chloride for inhalable products	125
Methylene Chloride for ingestible, transmucosal, & dermal products	600
Pentane for inhalable products	750
Pentane for ingestible, transmucosal, & dermal products	5,000
Propane for inhalable products	2,100
Propane for ingestible, transmucosal, & dermal products	5,000
Toluene for inhalable products	150
Toluene for ingestible, transmucosal, & dermal products	890
Trichloroethylene for inhalable products	25
Trichloroethylene for ingestible, transmucosal, & dermal products	80
Xylenes (total of ortho-, meta-, para-) for inhalable products	150
Xylenes (total of ortho-, meta-, para-) for ingestible, transmucosal, & dermal products	2,170

*The ethanol limit above does not apply to an ingestible, transmucosal, or dermal product using alcohol as an ingredient.

**The isopropyl alcohol limit for ingestible and transmucosal products above does not apply to a dermal product.

The testing laboratory shall use an AOAC-certified, USP-validated, or ASTM, FDA, or EPA sample analysis method for residual solvents in cannabis, if available.

The testing laboratory may validate its residual solvents method using Identification and Quantitation of Selected Residual Solvents in Cannabis-Derived Materials: AOAC 2019.002 validation; The action limits in this paragraph nonetheless override such validation.

XII. Heavy Metals

The testing laboratory shall test unusable cannabis, usable cannabis, cannabis concentrates, and cannabis-infused products for heavy metals, including beverage ingestible cannabis-infused products (large serving infused drinks like juice, soda, coffee, or water) at one action limit and solid ingestible cannabis-infused products (pills and shelf-stable food), small serving liquid ingestible cannabis-infused products (syrups, oral suspensions, beverage concentrates, drops), solid transmucosal CIPs (suppositories and lozenges), liquid transmucosal CIPs (tinctures and drops), and dermal products at a different action limit.

To meet specifications, the sample shall not exceed the following levels:

Analyte Tested	Action Limit (in ppm)
Arsenic for inhalable products	0.2
Arsenic for non-beverage ingestible, transmucosal, and dermal products	1.5

Analyte Tested	Action Limit (in ppm)
Arsenic for beverage ingestible products	0.01
Cadmium for inhalable products	0.2
Cadmium for non-beverage ingestible, transmucosal, and dermal products	0.5
Cadmium for beverage ingestible products	0.005
Chromium for inhalable products	0.6
Chromium for non-beverage ingestible, transmucosal, and dermal products	1,070
Chromium for beverage ingestible products	0.1
Lead for inhalable products	0.5
Lead for non-beverage ingestible, transmucosal, and dermal products	0.5
Lead for beverage ingestible products	0.005
Mercury for inhalable products	0.1
Mercury for non-beverage ingestible, transmucosal, and dermal products	2.0
Mercury for beverage ingestible products	0.002

The testing laboratory shall use the Heavy Metals in a Variety of Cannabis and Cannabis Derived Products: AOAC 2021.03 sample analysis method or another AOAC-certified, USP-validated, or ASTM, FDA or EPA sample analysis method for heavy metals in cannabis.

The testing laboratory may validate its heavy metals method using Determination of Heavy Metals in a Variety of Cannabis and Cannabis Derived Products: AOAC SMPR 2020.001 validation.

Failure to Meet Specifications & Sample Storage

If an initial sample does not meet the specifications of this Testing Guidance, the testing laboratory shall follow its standard operating procedure to confirm or refute the original results.

If retesting confirms that the sample does not meet specifications, the ATC/cannabis business may, upon notice to the Commission, remediate the batch or lot from which the failed sample was taken pursuant to N.J.S.A. 24:6I-35(a)(13)(c). The remediated batch or lot shall be subject to a subsequent test of a new representative sample.

The testing laboratory shall retain the remains of the initial sample for 30 days after analysis is completed. At such time, the testing laboratory shall destroy the sample or render it unrecoverable and unrecognizable.

Additional Optional Research and Development Testing

A cannabis business or ATC may request from a testing laboratory additional voluntary testing before or after a batch or lot has been packaged, or optional research and development testing pursuant to N.J.A.C. 17:30-18.5, which may include viroid testing or other non-mandated test analyses.

The results of these voluntary tests shall not be considered to meet any mandated requirement in the Initial Testing portion of this Testing Guidance and are for research and development purposes only.

Stability & Recall Testing (Procedures and Specifications for Cannabis Items)

Pursuant to N.J.A.C. 17:30-19.5, testing laboratories must conduct stability testing on the collected retention samples to ensure product potency and purity and support or debunk the listed expiration date of the batch or lot.

The testing laboratory shall test the retention samples of usable cannabis and cannabis product, provided by the ATC or cannabis business, at 6 months and 12 months after the release of the batch or lot in order to confirm whether the samples meet the specifications of this Testing Guidance. The retention sample shall be tested within 14 calendar days of the interval time point.

A cannabis business may request from a testing laboratory additional voluntary stability testing of a batch of usable cannabis or a lot of cannabis product for additional time intervals beyond 12 months for the purposes of supporting longer expiration dates.

The testing laboratory shall analyze the samples according to this Testing Guidance. The action limits and limits of quantification established in the Initial Testing portion of this Testing Guidance shall apply to the stability tests conducted.

The testing laboratory shall stability test the following cannabis items for water activity:

- Usable cannabis for distribution;
- Solid ingestible cannabis-infused products; and
- Solid transmucosal cannabis-infused products.

The testing laboratory shall stability test the following cannabis items for cannabinoid potency:

- Usable cannabis for distribution;
- Cannabis concentrates; and
- Cannabis-infused products.

The testing laboratory shall stability test the following cannabis items for microbial contamination:

- Usable cannabis for distribution;
- Cannabis concentrates; and
- Cannabis-infused products.

The testing laboratory shall stability test the following cannabis item for heavy metals:

- Vaporized formulation in an electronic smoking device.

Testing Requirement Table for Each Type of Medicinal or Personal Use Cannabis Item

Matrix (CRC Term)	Unusable Cannabis for manufacturing ("trim", "biomass", stems, stalks, leaves, plant)*	Usable Cannabis for manufacturing (flower, including fresh frozen)**	Usable Cannabis for distribution (flower, shake, pre-rolls)	Inhalable Solid Cannabis Concentrate + Infused Usable Cannabis (infused pre-rolls; moon rock) + Inhalable Oil for Inhalers + Transmucosal Oil for Nasal Spray +Ingestible Oil ("RSO")	Vaporized Formulation (Inhalable Oil, Oil with Excipients) for Electronic Smoking Devices + Inhalable Cannabis-Infused Product for Inhalers	Beverage Ingestible Cannabis-Infused Product	Syrup, Oral Suspension, Beverage Concentrate, Drops + Liquid Transmucosal Cannabis-Infused Product (Tincture, Nasal Spray)	Solid Ingestible Cannabis-Infused Product ("edible", capsule, pill) + Solid Transmucosal Cannabis-Infused Product (suppository, dissolving strip, lozenge)	Dermal Cannabis-Infused Product (lotion, balm, patch, salve)
Matrix (METRC Term)	**Raw Plant Material (Unusable/For Processing)**	**Raw Plant Material (Bulk/For Processing)**	**Raw Plan Material (Final Form)**	**Solvent-based or Non-Solvent-based Concentrates/ Extracts**	**Inhalable/ Vape Cart**	**Infused Liquid Edible Beverage**	**Tincture for Oral Administration**	**Infused Edible; Infused Edible (Capsule)**	**Infused Non-Edible**
Sampling Category	I	I	I	II	II	IV	IV	III	IV
ANALYTES TESTED									
Foreign Matter	X	X	X	X	X	X	X	X	X
Water Activity			X					X	
Moisture Content			X						
Cannabinoid Potency			X	X	X	X	X	X	X
Homogeneity Testing (1st 3 lots)						X	X	X	X
Terpene Potency			X	X	X***	X***	X***	X***	X***

Testing Requirement Table for Each Type of Medicinal or Personal Use Cannabis Item

Matrix (CRC Term)	Unusable Cannabis for manufacturing ("trim", "biomass", stems, stalks, leaves, plant)*	Usable Cannabis for manufacturing (flower, including fresh frozen)**	Usable Cannabis for distribution (flower, shake, pre-rolls)	Inhalable Solid Cannabis Concentrate + Infused Usable Cannabis (infused pre-rolls; moon rock) + Inhalable Oil for Inhalers + Transmucosal Oil for Nasal Spray +Ingestible Oil ("RSO")	Vaporized Formulation (Inhalable Oil, Oil with Excipients) for Electronic Smoking Devices + Inhalable Cannabis-Infused Product for Inhalers	Beverage Ingestible Cannabis-Infused Product	Syrup, Oral Suspension, Beverage Concentrate, Drops + Liquid Transmucosal Cannabis-Infused Product (Tincture, Nasal Spray)	Solid Ingestible Cannabis-Infused Product ("edible", capsule, pill) + Solid Transmucosal Cannabis-Infused Product (suppository, dissolving strip, lozenge)	Dermal Cannabis-Infused Product (lotion, balm, patch, salve)
Vitamin E Acetate (& optional excipiet tests)					X****				
Microbial (Total Bacteria, Total Yeast & Mold, 3 Pathogens)	X*****	X*****	X	X	X	X	X	X	X
Total coliforms + Listeria						X	X	X	
Mycotoxins	X	X	X	X	X	X	X	X	X
Pesticides	X	X	X	X	X	X	X	X	X
Residual Solents				X	X	X	X	X	X
Heavy Metals	X	X	X	X	X	X	X	X	X
Water Activity-Stability Testing			X					X	

Testing Requirement Table for Each Type of Medicinal or Personal Use Cannabis Item

Matrix (CRC Term)	Unusable Cannabis for manufacturing ("trim", "biomass", stems, stalks, leaves, plant)*	Usable Cannabis for manufacturing (flower, including fresh frozen)**	Usable Cannabis for distribution (flower, shake, pre-rolls)	Inhalable Solid Cannabis Concentrate + Infused Usable Cannabis (infused pre-rolls; moon rock) + Inhalable Oil for Inhalers + Transmucosal Oil for Nasal Spray +Ingestible Oil ("RSO")	Vaporized Formulation (Inhalable Oil, Oil with Excipients) for Electronic Smoking Devices + Inhalable Cannabis-Infused Product for Inhalers	Beverage Ingestible Cannabis-Infused Product	Syrup, Oral Suspension, Beverage Concentrate, Drops + Liquid Transmucosal Cannabis-Infused Product (Tincture, Nasal Spray)	Solid Ingestible Cannabis-Infused Product ("edible", capsule, pill) + Solid Transmucosal Cannabis-Infused Product (suppository, dissolving strip, lozenge)	Dermal Cannabis-Infused Product (lotion, balm, patch, salve)
Cannabinoid Potency + Microbial (TAB, TYM, 3 pathogens)- Stability Testing			X	X	X	X	X	X	X
Total coliforms + Listeria						X	X	X	
Heavy Metals- Stability Testing					X****				

* Only unusable cannabis for manufacturing must be tested. Unusable cannabis that is cannabis waste is not tested and may be disposed of according the rules.
** Cannabis for manufacturing that includes a mix of usable cannabis and unusable cannabis, such as a fresh frozen plant that includes flower, as well as stalks, sugar leaves, fan leaves, and other non-flower plant materials, shall be considered usable cannabis for manufacturing, for the purposes of testing and METRC entry.
*** Only cannabis-infused products that are formulated or labeled with terpenes are required to test for terpene potency.
**** Inhalable Cannabis-Infused Product for Inhalers is not required to undergo the Vitamin E Acetate test or the heavy metals stability testing.
***** Unusable cannabis and usable cannabis for manufacturing with any amount on the TYM Count and TAB Count tests (which must still occur) may still be sold to a cannabis manufacturer for the purposes of manufacturing using a solvent or heat.

Appendix A: Applicable Regulations & Related Notes

Introductory Note: This Testing Guidance includes a restatement of the relevant rules that apply to testing laboratories, and an explanation where such rules are waived pursuant to N.J.A.C. 17:30-3.7 and/or where additional details are needed to clarify such rules. The rules and their related guidance have been separated by topic below for ease of reading. *Rule language that has been waived is italicized.*

N.J.A.C. 17:30-1.2(b)

(b) The following words and terms, as used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

- "Dermal products" means oil, topical formulation, or products in a transdermal form intended for dermal application.
- "Ingestible products" means cannabis product forms intended for oral administration and ingestion, including oil and sublabial, sublingual, buccal, and enteral forms.
- "Inhalable products" means usable cannabis, solid cannabis concentrate, and vaporized formulation intended for inhalation.
- "Vaporized formulation" means oil or oil and one or more inactive ingredients in an electronic smoking device that is meant to be heated, aerosolized, and inhaled.

N.J.A.C. 17:30-1.2(b) Note: The definitions in this Testing Guidance are subsets of the above referenced definitions.

N.J.A.C. 17:30-10.2(c)

(c) Where a cannabis cultivator sells unusable cannabis to other cannabis cultivators or to cannabis manufacturers for the purposes of manufacturing, the cannabis cultivator shall ensure such unusable cannabis does not have any mold, rot, or disease, through a visual inspection, and that it meets specifications in quality control for unusable cannabis.

N.J.A.C. 17:30-16.1(a)

(a) Each cannabis cultivator and cannabis manufacturer shall contract with a testing laboratory to obtain and test samples of unusable or usable cannabis and cannabis products.

N.J.A.C. 17:30-19.2

(a) In addition to testing of usable cannabis and cannabis products by the Commission in accordance with N.J.A.C. 17:30-19.1, each batch of usable cannabis and each lot of cannabis products manufactured shall be tested in accordance with the requirements at N.J.S.A. 24:6I-35 and this subchapter by a testing laboratory licensed pursuant to N.J.S.A. 24:6I-18 and N.J.A.C. 17:30-18.

N.J.A.C. 17:30-10.2 (c), -16.1 (a), -19.2(a) Note: This Testing Guidance includes testing of unusable cannabis for the purposes of manufacturing under 17:30-10.2 (c) and -16.1 (a)and clarifies the requirements for testing under 17:30-19.2(a). The Commission believes that it is important to test unusable cannabis that is used for manufacturing to ensure that cannabis manufacturers have all relevant safety information before purchasing it. This Testing Guidance ensures consistency in laboratory testing so that usable and unusable cannabis for the purposes of manufacturing are tested uniformly and are subject to the same requirements.

N.J.A.C. 17:30-16.3(b)

(b) Direct printing on the package of, or labels affixed to, unusable cannabis packaged for the purposes of manufacturing or cannabis items shall include the following consumer safety and product information:

9. For a finished cannabis item, serving size and the total number of servings contained and the cannabinoid and terpene profile, in milligrams and as a percentage, of the cannabis item and of a single serving size.

ii. The cannabinoid profile shall reflect for the consumer the total THC, total CBD, and total CBG in the finished cannabis item:

(1) Total THC = (THCA * 0.877) + delta-9-THC; and
(2) Total CBD = (CBDA * 0.877) + CBD;

iii. The cannabinoid profile may reflect for the consumer the total CBG, total CBN, total CBC, total THCV, total CBDV, or other total cannabinoids in the finished cannabis item:

(1) Total CBG = (CBGA * 0.878) + CBG;
(2) Total CBC = (CBCA * 0.877) + CBC;
(3) Total THCV = (THCVA * 0.867) + THCV; and
(4) Total CBDV = (CBDVA * 0.867) + CBDV;

N.J.A.C. 17:30-16.3(b) Note: Although N.J.A.C. 17:30-16.3(b)(9)(iii) states that the cannabinoid profile may reflect "total CBG and CBN", the Commission encourages that product labels include "total CBG and CBN" because this information is important to provide for consumers and patients.

N.J.A.C. 17:30-18.5

(l) A licensed testing laboratory shall not acquire or receive personal use usable cannabis or cannabis products, except from a cannabis business in accordance with this chapter, and shall not distribute, sell, or dispense cannabis or cannabis products, except that:

2. A testing laboratory may receive samples of usable cannabis or cannabis products from a cannabis business and may provide additional optional research and development testing.

N.J.A.C. 17:30-18.5(l) Note: This Testing Guidance provides further clarification regarding the "additional optional research and development testing" provision in N.J.A.C. 17:30-18.5(l)(2), which may include viroid testing.

N.J.A.C. 17:30-19.3

(a) Upon request of a cannabis business when a batch or lot is ready for testing, a testing laboratory employee shall initiate a sample collection for all applicable tests before packaging:

1. After usable cannabis is in its final usable form, including placement of usable cannabis in a pre-roll, ready to be manufactured into a cannabis product, or ready to be distributed for personal use; or
2. After a cannabis product is in its final processed form, including placement of vaporized formulation in its electronic smoking device or oil in its pressurized metered dose inhaler, or ready to be distributed for personal use.

N.J.A.C. 17:30-19.3(a) Note: This Testing Guidance provides further clarification regarding the readiness for testing requirements of N.J.A.C. 17:30-19.3(a) and incorporates the testing of certain unusable cannabis.

(b) A testing laboratory employee shall collect a representative initial sample and a representative retention sample from each batch of usable cannabis from a cannabis business that cultivates and from each lot of cannabis products from a cannabis business that manufactures according to a statistically valid sampling method.

1. A cannabis business employee shall be physically present to observe the testing laboratory employee collect any sample.
2. The cannabis business employee shall not touch the usable cannabis, cannabis product, or the sampling equipment while the testing laboratory employee is collecting the samples.
3. The testing laboratory employee shall collect a representative initial sample and a representative retention sample of each batch or lot by removing increment samples of material or units from throughout the container(s) in the batch or lot in the manner required at (b)3i and ii below.

   i. Where appropriate for the purpose of the sample and the nature of the material being sampled, sample portions are removed from the top, middle, and bottom of containers.
   ii. Containers from which samples have been taken shall be marked to indicate that samples have been re-moved from them.

N.J.A.C. 17:30-19.3(b)(1-3) Note: This Testing Guidance provides further clarification regarding the representative sample requirements of N.J.A.C. 17:30-19.3(b)(3) and incorporates the testing of certain unusable cannabis.

(b) A testing laboratory employee shall collect a representative initial sample and a representative retention sample from each batch of usable cannabis from a cannabis business that cultivates and from each lot of cannabis products from a cannabis business that manufactures according to a statistically valid sampling method.

4. A representative initial sample of usable cannabis shall be.5 percent of a batch or lot, with the following increment sample amounts:

   i. Less than or equal to 10 pounds of usable cannabis, five increment samples;

ii. 10.1-20 pounds of usable cannabis, 10 increment samples;
iii. 20.1-30 pounds of usable cannabis, 15 increment samples;
iv. *30.1-40 pounds of usable cannabis, 20 increment samples;*
v. 40.1-50 pounds of usable cannabis, 25 increment samples; and
vi. 50.1-100 pounds of usable cannabis, 30 increment samples.

5. A representative initial sample of non-homogenizable cannabis product shall be:

i. 50 or less total units, two increment units;
ii. 51-150 total units, three increment units;
iii. 151-500 total units, five increment units;
iv. 501-1,200 total units, eight increment units;
v. 1,201-3,200 total units, 16 increment units;
vi. 3,201-10,000 total units, 40 increment units; and
vii. 10,001-35,000 total units, 125 increment units.

N.J.A.C. 17:30-19.3(b)(4-5) Note: The requirements in N.J.A.C. 17:30-19.3(b)(4) and (b)(5) are being waived. Testing laboratories should refer to this Testing Guidance for current requirements for batches, lots, and increment samples and units, which reflect greater specificity and precision for emerging cannabis product types.

(b) A testing laboratory employee shall collect a representative initial sample and a representative retention sample from each batch of usable cannabis from a cannabis business that cultivates and from each lot of cannabis products from a cannabis business that manufactures according to a statistically valid sampling method.

6. A representative retention sample shall be two times the amounts listed for representative initial samples of a batch or lot at (b)4 and 5 above.

N.J.A.C. 17:30-19.3(b)(6) Note: The requirements in N.J.A.C. 17:30-19.3(b)(6) are being waived. Testing laboratories should refer to this Testing Guidance for current requirements for batches, lots, and increment samples and units, which reflect greater specificity and precision for emerging cannabis product types.

(b) A testing laboratory employee shall collect a representative initial sample and a representative retention sample from each batch of usable cannabis from a cannabis business that cultivates and from each lot of cannabis products from a cannabis business that manufactures according to a statistically valid sampling method.

7. When collecting representative samples, the testing laboratory employee shall:

i. Clean, open, sample, and reseal the containers in a manner designed to prevent introduction of contaminants; and
ii. Use sterile equipment and aseptic sampling techniques when necessary.

N.J.A.C. 17:30-19.3(b)(7) Note: This Testing Guidance provides further clarification regarding the "sterile equipment" requirement of N.J.A.C. 17:30-19.3(b)(7)(ii), which includes "sterile work surfaces and personal protective equipment."

(c) After completing sample collection, the testing laboratory employee shall place the cannabis business license number and affix a label with a description and the quantity of the content on each sample container.

N.J.A.C. 17:30-19.3(c) Note: This Testing Guidance provides further clarification regarding the sample container labeling requirements of N.J.A.C. 17:30-19.3(c), where affixing a "sample tag identification label associated with the inventory control system designated pursuant to N.J.A.C. 17:30-3.6" includes the "cannabis business license number" and the "description and the quantity of the content" as well as additional important information.

(d) The testing laboratory employee shall seal each sample container.

(e) The cannabis business employee and the testing laboratory employee shall initial each sample container.

(f) The testing laboratory employee shall provide a receipt for the collected samples to the cannabis business employee.

(g) The cannabis business employee shall record the samples removed from a batch or lot in the inventory record for the batch or lot.

(h) The testing laboratory employee shall transfer the representative retention samples to the cannabis business employee, who shall store them pursuant to N.J.A.C. 17:30-19.5.

N.J.A.C. 17:30-19.3(h) Note: This Testing Guidance provides further clarification regarding the "same container" requirement of N.J.A.C. 17:30-19.5(a)(1), required by N.J.A.C. 17:30-19.3(h), which includes the "same process and packaging materials." This Testing Guidance pertains to the testing of usable and unusable cannabis for manufacturing. Usable and unusable cannabis for manufacturing retention samples will be kept for possible recall testing and will not undergo stability testing under N.J.A.C. 17:30-19.5(b) and (j), and thus have a shorter storage mandate.

(i) The testing laboratory employee shall securely transport any usable cannabis and cannabis product representative initial samples in a secure lockbox.

1. The testing laboratory employee shall not leave cannabis or cannabis products in an unattended transfer vehicle, unless the vehicle is locked and equipped with an active vehicle alarm system.
2. The testing laboratory employee engaged in a transfer of cannabis or cannabis products shall have access to a secure form of communication with the testing laboratory, such as a cellular telephone, at all times that the testing laboratory employee is in possession of cannabis or cannabis products for transfer.
3. The testing laboratory employee shall carry a copy of their Cannabis Business Identification Card when performing a transfer and shall produce it upon request of Commission staff or law enforcement officials.

4. The transfer vehicle shall be equipped with a secure lockbox in a secured cargo area, which shall be used for the sanitary and secure transport of cannabis or cannabis products.
5. The testing laboratory shall maintain current hired and non-owned automobile liability insurance sufficient to insure all transfer vehicles in the amount of not less than one million dollars per occurrence or accident.
6. The testing laboratory shall ensure that transfer vehicles used to transport cannabis or cannabis products bear no markings that would either identify or indicate that the vehicle is used to transport cannabis.
7. The testing laboratory shall ensure that transfers are completed in a timely and efficient manner. While per-forming transfers of cannabis or cannabis products, the testing laboratory employee shall travel only from the premises of the cannabis business to the testing laboratory. The testing laboratory employee shall not deviate from the route described in this paragraph, except in the event of emergency, or as necessary, for rest, fuel, or vehicle repair stops, or because road conditions make continued use of the route or operation of the vehicle unsafe, impossible, or impracticable.
8. The testing laboratory shall report any vehicle accidents, diversions, losses, or other reportable events that occur during transfer to the Commission within seven days.

N.J.A.C. 17:30-19.3(i) Note: This Testing Guidance pertains to the testing of usable and unusable cannabis for manufacturing.

(j) At the testing laboratory, a testing laboratory employee shall record the receipt of the samples, including the following:

1. Name and contact information for the cannabis business or individual who provided the samples;
2. Description of cannabis or cannabis product;
3. Batch or lot number;
4. Unique sample identifier;
5. Quantity of sample by net and gross weight or volume during sample collection;
6. Date and time of receipt of sample;
7. Testing laboratory employee who collected the sample;
8. Cannabis business employee who observed sample collection;
9. Testing laboratory employee who received sample; and
10. Quantity of sample by gross weight during sample receipt.

N.J.A.C. 17:30-19.4

(a) The testing laboratory shall test the initial samples of cannabis and cannabis product collected in accordance with N.J.A.C. 17:30-19.3 to confirm whether the samples meet the specifications of this section according to the standard operating procedures of the laboratory that have been approved by the accreditation body pursuant to N.J.A.C. 17:30-18.5(e).

1. The testing laboratory shall analyze the samples according to the Cannabis Regulatory Commission's Testing Guidance, available on the Commission website, **except when otherwise required by this subchapter and the Cannabis Regulatory Commission's Testing Guidance, the testing laboratory shall analyze the samples according to the most current version of the cannabis inflorescence monograph published by the American Herbal Pharmacopeia (AHP).**

N.J.A.C. 17:30-19.4(a)(i) Note: This Testing Guidance includes the testing of usable and unusable cannabis for manufacturing. In addition, the bolded portion of N.J.A.C. 17:30-19.4(a) above is no longer applicable and will not be enforced by the Commission. This Testing Guidance provides an exhaustive look at testing action limits for the State of New Jersey, and it is the final source for detailed testing analysis, not the AHP cannabis inflorescence monograph.

This Testing Guidance provides clarification on testing action limits and procedures for foreign matter, water activity, moisture content, cannabinoid potency, homogeneity testing, terpene potency, excipients, microbial, mycotoxins, pesticides, residual solvents, and heavy metals based on cannabis product type. Testing laboratories should refer to this Testing Guidance for current requirements for initial testing.

(b) If the initial sample does not meet the specifications of this section:

1. The testing laboratory shall follow their standard operating procedure to confirm or refute the original results; and
2. The license holder may be permitted an opportunity to remediate pursuant to N.J.S.A. 24:6I-35.a(13)(c), upon notice to the Commission, the batch or lot from which the failed sample was taken, which batch or lot shall be subject to a subsequent test of a new representative sample.

(c) The testing laboratory shall retain the remains of the initial sample for 30 days after analysis is completed. At such time, the testing laboratory shall destroy or render unrecoverable and unrecognizable the remains of the initial sample.

N.J.A.C. 17:30-19.5

(a) A cannabis business shall properly store the retention sample from each batch or lot released for distribution for personal use:

1. By using the same container in which the usable cannabis or cannabis product is distributed;
2. Under conditions consistent with the storage conditions recommended on the product label or, if no storage conditions are recommended on the label, under ordinary storage conditions; and
3. Undisturbed at the designated storage temperature for the appropriate time interval.

(b) At six months and 12 months after the release of the batch or lot, the cannabis business shall provide the testing laboratory with a portion of the retention sample for stability testing.

(c) The testing laboratory shall perform stability testing of the retention sample of usable cannabis and cannabis products for the cannabinoid content pursuant to the cannabinoid and terpene potency subsections of the Cannabis Regulatory Commission's Testing Guidance to:

1. Ensure product potency and purity; and
2. Support or debunk the listed expiration date of the batch or lot.

(d) If the stability testing debunks the listed expiration date of the batch or lot, the cannabis business shall amend its standard operating procedure on choosing an expiration date for a batch or lot and base its amended standard operating procedure on the results of stability testing.

(e) The testing laboratory shall perform stability testing of the retention sample of usable cannabis and cannabis products for:

1. Microbial contamination, pursuant to the microbial contamination subsection of the Cannabis Regulatory Commission's Testing Guidance; and

2. Water activity, pursuant to the water activity subsection of the Cannabis Regulatory Commission's Testing Guidance.

(f) The testing laboratory shall perform stability testing of the retention sample of vaporized formulation in an electronic smoking device for heavy metals, pursuant to the heavy metals subsection of the Cannabis Regulatory Commission's Testing Guidance.
(g) The cannabis business shall report the findings of the stability testing to the Commission, to ensure that usable cannabis and cannabis product purity and potency are maintained throughout the storage process without the stored products falling out of specification.
(h) If the sample falls out of specification, the cannabis business shall amend its standard operating procedure for packaging and storage and base its amended standard operating procedure on the results of the stability testing.
(i) In the case of an adverse event reported to the cannabis business or the Commission related to cannabis or cannabis products from the batch or lot pursuant to N.J.A.C. 17:30-9.16, the cannabis business shall provide the testing laboratory with a portion of the retention sample for confirmatory testing by the testing laboratory.
(j) A cannabis business shall destroy the remains of the retention sample, if any, rendering it unrecoverable and unrecognizable, six months after the expiration of the batch or lot.

N.J.A.C. 17:30-19.5(a)(b)(j) Note: This Testing Guidance provides further clarification regarding the "same container" requirement of N.J.A.C. 17:30-19.5(a)(1), required by N.J.A.C. 17:30-19.3(h), which includes the "same process and packaging materials." This Testing Guidance pertains to the testing of usable and unusable cannabis for manufacturing. Usable and unusable cannabis for manufacturing retention samples will be kept for possible recall testing and will not undergo stability testing under N.J.A.C. 17:30-19.5(b) and (j) and, thus, have a shorter storage mandate.

Appendix B: Certificate of Waiver

State of New Jersey

CERTIFICATE OF WAIVER OF REGULATION

Authority:	N.J.A.C. 17:30-3.7
Date Issued:	*February 18, 2025*
Regulation(s) Affected:	N.J.A.C. 17:30-19.3(b)(4) N.J.A.C. 17:30-19.3(b)(5) N.J.A.C. 17:30-19.3(b)(6)
Effective Date:	*February 18, 2025*
Expiration Date:	Upon modification or revocation by the Board of Commissioners

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The New Jersey Cannabis Regulatory Commission (Commission) grants relief in the form of this temporary regulatory waiver to cannabis businesses and testing laboratories subject to the criteria and conditions set forth herein. N.J.A.C. 17:30-3.7 provides that the Commission may waive a regulatory requirement regarding the operations of a cannabis business if such waiver is necessary to achieve the purpose of the Cannabis Regulatory, Enforcement Assistance, and Marketplace Modernization Act, N.J.S.A. 24:6I-31, et seq. (P.L.2021, c.16); is necessary to provide access to cannabis items to consumers; and does not create a danger to public health, safety, or welfare.

In March 2023, the Commission's final regulations concerning testing of cannabis items became effective. Since then, the Commission has conducted additional research, gathered feedback from other state regulatory bodies, and engaged with stakeholders about best practices for cannabis testing and sample collection. In light of new knowledge and insights gained, the Commission is waiving its existing regulations in order to address product safety concerns posed in the regulation. Waiver of the regulation is necessary to provide testing laboratories with testing standards for better specificity and accuracy, which will lead to safer cannabis items for consumers.

The specific rule(s) being waived is(are) as follows:

N.J.A.C. 17:30-19.3(b)(4): Testing laboratory sample collection; chain of custody

A representative initial sample of usable cannabis shall be.5 percent of a batch or lot, with the following increment sample amounts:

i. Less than or equal to 10 pounds of usable cannabis, five increment samples;
ii. 10.1-20 pounds of usable cannabis, 10 increment samples;
iii. 20.1-30 pounds of usable cannabis, 15 increment samples;
iv. 30.1-40 pounds of usable cannabis, 20 increment samples;
v. 40.1-50 pounds of usable cannabis, 25 increment samples; and
vi. 50.1-100 pounds of usable cannabis, 30 increment samples.

N.J.A.C. 17:30-19.3(b)(5): Testing laboratory sample collection; chain of custody

A representative initial sample of non-homogenizable cannabis product shall be:

i. 50 or less total units, two increment units;
ii. 51-150 total units, three increment units;
iii. 151-500 total units, five increment units;
iv. 501-1,200 total units, eight increment units;
v. 1,201-3,200 total units, 16 increment units;
vi. 3,201-10,000 total units, 40 increment units; and
vii. 10,001-35,000 total units, 125 increment units.

N.J.A.C. 17:30-19.3(b)(6): Testing laboratory sample collection; chain of custody

A representative retention sample shall be two times the amounts listed for representative initial samples of a batch or lot at [N.J.A.C. 17-30-19.3(b)(4) and (5)].

This waiver is subject to the following terms and conditions:

1. Nothing herein shall be construed to authorize any person or entity that does not hold a Testing Laboratory license to engage in any activities authorized by this waiver.
2. Testing Laboratories shall follow the requirements and specifications detailed in the Commission's Testing Guidance document.
3. Failure to adhere to the terms and conditions herein shall be considered a regulatory violation and is subject to adverse action by the Commission consistent with N.J.A.C. 17:30-20.1 through -20.10.

This relief granted by the Commission is based upon assessments of New Jersey's personal-use and medical cannabis industry and the history of conduct by regulated entities, including the history of regulatory violations committed by license or permit holders. The relief granted is subject to review, modification, or revocation as the Commission deems appropriate. Nothing in this waiver shall be construed to guarantee continued applicability of this waiver.

BY: Dianna Houenou, Chairperson
New Jersey Cannabis Regulatory Commission