

## **CABINET FOR HEALTH AND FAMILY SERVICES**

### **Office of the Secretary**

**(Amended at ARRS Committee)**

#### **915 KAR 1:110. Medicinal cannabis testing.**

RELATES TO: KRS Chapter 218B

STATUTORY AUTHORITY: KRS 218B.140

NECESSITY, FUNCTION, AND CONFORMITY: KRS 218B.140 requires the Cabinet for Health and Family Services to promulgate administrative regulations establishing requirements for random sample testing of medicinal cannabis to ensure quality control. This administrative regulation establishes those requirements and procedures.

##### **Section 1. General Requirements.**

(1) To ensure the suitability and safety for human consumption of medicinal cannabis and medicinal cannabis products, cultivators, processors, and producers shall test medicinal cannabis in accordance with Section 2 of this administrative regulation.

(2) A laboratory shall not test medicinal cannabis under this administrative regulation without being issued a license to operate as a safety compliance facility. A safety compliance facility shall only send medicinal cannabis samples for testing to another licensed safety compliance facility in the Commonwealth.

(3) Batch size.

(a) Cultivators and producers shall separate all harvested medicinal cannabis into harvest batches not to exceed twenty (20) pounds with the exception of any raw plant material to be sold to a processor or producer for the purposes of turning the raw plant material into concentrate which may be separated into harvest batches of no more than fifty (50) pounds.

(b) Processors and producers shall separate all medicinal cannabis product into production batches not to exceed five (5) liters of liquid medicinal cannabis concentrate or nine (9) pounds for nonliquid medicinal cannabis products and, for final medicinal cannabis products, no greater than 1,000 grams of delta-9-tetrahydrocannabinol.

(4) An authorized cannabis business employee or agent collecting any samples for testing shall follow the standard operating procedures established by the contracted safety compliance facility conducting the testing for:

(a) Sampling; and

(b) Documenting the chain of custody.

(5) Testing frequency.

(a) Harvest batch samples shall be obtained and tested post-harvest and prior to sell, transfer, or delivery of the medicinal cannabis from the respective harvest batch.

(b) Production batch samples shall be obtained and tested in their final form prepackaging and prior to sale, transfer, or delivery of the medicinal cannabis from the respective production batch.

(6) Prohibitions.

(a) Cultivators and producers shall not sell, transfer, or deliver any medicinal cannabis from a harvest batch to a dispensary, processor, cultivator, or producer until a sample of the harvest batch has passed all tests required by Section 2 of this administrative regulation.

(b) Processors and producers shall not sell, transfer, or deliver any medicinal cannabis from a production batch to a dispensary, processor, cultivator, or producer until a sample of the production batch has passed all tests required by Section 2 of this administrative regulation.

(c) Dispensaries shall not dispense or sell medicinal cannabis to cardholders until a sample of its harvest or production batch has passed all tests required by Section 2 of this administrative regulation.

(d) Following the collection of a sample from a harvest batch or production batch, medicinal cannabis shall not undergo any additional processing, transforming, or other changes that alter the substance of the medicinal cannabis or otherwise would result in different test results. Any medicinal cannabis that undergoes additional processing, transforming, or other changes that alters the substance of the medicinal cannabis following sample collection shall be tested as required by Section 2 of this administrative regulation prior to any sale, transfer, or delivery to a dispensary, processor, or producer.

(7) The cabinet may select and collect a sample or test sample from a cannabis business at any time. The cabinet may require a cultivator, processor, producer, or dispensary to submit a sample or test sample to a safety compliance facility upon request when the cabinet has reason to believe the medicinal cannabis is unsafe for cardholder consumption or inhalation or has not been tested in accordance with KRS Chapter 218B and Section 2 of this administrative regulation. A cultivator, processor, producer, or dispensary shall provide the samples for testing at their own expense.

(8) Except as authorized in Section 5 of this administrative regulation, cannabis businesses shall properly dispose of and shall not use, sell, or otherwise transfer medicinal cannabis that fails to meet any testing standard or requirement set forth in this administrative regulation. Cannabis businesses shall dispose of this medicinal cannabis waste in accordance with the 915 KAR 1:030, 915 KAR 1:040, 915 KAR 1:060, and 915 KAR 1:070, as applicable.

## Section 2. Medicinal Cannabis Tests.

(1) In accordance with Section 3 of this administrative regulation, finished medicinal cannabis products intended for sale by dispensaries to cardholders shall be tested for:

- (a) Tetrahydrocannabinol (THC) and cannabinoid concentration;
- (b) Terpenoid type and concentration;
- (c) Residual solvents and processing chemicals (for production batches);
- (d) Residual pesticides;
- (e) Heavy metals;
- (f) Microbial impurities;
- (g) Mycotoxins;
- (h) Water activity (for harvest batches);
- (i) Yeast and mold; and
- (j) Vitamin E acetate.

(2) The cabinet may conduct additional tests on samples or test samples at its discretion.

(3) For harvest batches consisting of raw plant material not intended for sale to cardholders in its current form, the following tests shall be performed prior to sale or transfer of the harvest batch to another licensed cannabis business:

- (a) Residual pesticides; and
- (b) THC and cannabinoid concentration.

(4) For production batches consisting of non-finished medicinal cannabis products not intended for sale to cardholders in its current form, the following tests shall be performed prior to sale or transfer of the production batch to another licensed cannabis business:

- (a) Residual solvents and processing chemicals;
- (b) Heavy metals; and
- (c) THC and cannabinoid concentration.

(5) Harvest batches and production batches tested pursuant to subsections (3) and (4) of this Section that pass those tests shall not be required to be retested for those items in

their final form if those batches were not physically or chemically altered following the prior sale or transfer.

### Section 3. Maximum Allowable Limits for Medicinal Cannabis Tests.

(1) Cannabinoid and terpenoid concentration. KRS Chapter 218B, specifically KRS 218B.095, KRS 218B.105, KRS 218B.115, and KRS 218B.120, establishes the maximum delta-9 tetrahydrocannabinol content for raw plant material and medicinal cannabis products in the Commonwealth. Cultivators, processors, and producers shall test harvest batch and production batch samples for levels of total THC and cannabinoid concentration and terpenoid type and concentration.

(a) For THC and cannabinoid concentration, the testing shall include:

1. Total THC;
2. Total cannabidiol (CBD);
3. Total cannabinoids;
4. Tetrahydrocannabinolic acid (THCa);
5. Delta-9-tetrahydrocannabinol (Delta-9-THC);
6. Delta-8-tetrahydrocannabinol (Delta-8-THC);
7. Cannabidiolic acid (CBDA);
8. Cannabidiol (CBD);
9. Cannabinol (CBN);
10. Cannabigerolic acid (CBGa);
11. Cannabigerol (CBG);
12. Tetrahydrocannabivarin (THCV); and
13. Cannabichromene (CBC);

(b) For terpenoid type and concentration, the testing shall establish the percentage of total terpenes and the most prevalent terpenes expressed in the sample; and.

(c) In accordance with KRS 218B.140(1)(c)(9), cultivators and producers shall track the terpene content of the twelve (12) major terpenoids within each strain of medicinal cannabis that they cultivate in the Commonwealth and provide a written summary of this information to the cabinet upon request.

(2) Residual solvents and processing chemicals. Production batch samples shall be tested for residual solvents and processing chemicals and shall not exceed the maximum allowable concentration for each solvent or chemical used as set forth in Appendix A, which is incorporated by reference.

(3) Residual Pesticides. Harvest batch samples and production batch samples shall be tested for residual pesticides and shall not exceed the maximum allowable concentration for each pesticide used as set forth in Appendix B, which is incorporated by reference.

(4) Heavy Metals. All harvest batch and production batch samples shall be tested for heavy metals, which shall include arsenic, cadmium, lead, and mercury, as follows:

(a) For inhaled medicinal cannabis products, including administration by metered dose nasal spray or pressurized metered dose inhaler, harvest and production batches shall be tested for the following heavy metal analytes and shall comply with the maximum allowable concentration:

1. Arsenic, maximum allowable concentration: zero and two-tenths (0.2) parts per million (ppm);
2. Cadmium, maximum allowable concentration: zero and two-tenths (0.2) ppm;
3. Lead, maximum allowable concentration: zero and five-tenths (0.5) ppm; and
4. Mercury, maximum allowable concentration: zero and one-tenths (0.1) ppm; and

(b) For medicinal cannabis products not intended to be inhaled, harvest and production batches shall be tested for the following heavy metal analytes and shall comply with the maximum allowable concentration:

1. Arsenic, maximum allowable concentration: zero and four-tenths (0.4) ppm;

2. Cadmium, maximum allowable concentration: zero and four-tenths (0.4) ppm;
  3. Lead, maximum allowable concentration: one (1) ppm; and
  4. Mercury, maximum allowable concentration: one and two-tenths (1.2) ppm.
- (5) Microbial impurities. Harvest batch samples and production batch samples shall be tested for the presence of microbial impurities. Harvest batch and production batch samples shall be deemed to have passed the microbial impurities testing if:
- (a) Total *Escherichia coli* is not detected above one hundred (100) colony forming units/gram;
  - (b) Shiga toxin-producing *Escherichia coli* is not detected in one (1) gram;
  - (c) *Salmonella* spp. is not detected in one (1) gram; and
  - (d) Pathogenic *Aspergillus* species *A. fumigatus*, *A. flavus*, *A. niger*, and *A. terreus* are not detected in one (1) gram.
- (6) Mycotoxins. Harvest batch and production batch samples shall be tested for the following mycotoxins: aflatoxin B1, B2, G1, and G2 ochratoxin A. A production batch shall be deemed to have passed mycotoxin testing if:
- (a) Total of aflatoxin B1, B2, G1, and G2 does not exceed twenty (20) microgram per kilogram ( $\mu\text{g/kg}$ ) of substance; and
  - (b) Ochratoxin A does not exceed twenty (20)  $\mu\text{g/kg}$  of substance.
- (7) Water activity. Harvest batch samples shall be tested to determine the level of water activity. Harvest batch samples shall have a water activity ( $a_w$ ) rate of less than 0.65.
- (8) Yeast and mold. Harvest batch and production batch samples shall be tested to determine the level of yeast and mold. Harvest batch and production batch samples shall have a total combined yeast and mold not to exceed 10,000 colony forming units per gram.
- (9) Vitamin E acetate. Production batches shall be tested for any detectable level of vitamin E acetate.

#### Section 4. Failed Testing.

- (1) A harvest batch or production batch sample that fails any initial testing may be reanalyzed by the safety compliance facility using the reserve sample for that harvest or production batch.
- (2) A harvest batch or production batch shall fail testing if the respective sample exceeds any maximum allowable limit established in Section 3 of this administrative regulation or the maximum allowable delta-9 tetrahydrocannabinol content for raw plant material and medicinal cannabis products established in KRS Chapter 218B:
  - (a) During an initial test where no reanalysis is requested; or
  - (b) Upon reanalysis as described in this section.
- (3) If a harvest batch or production batch sample fails a test or a reanalysis, the harvest batch or production batch:
  - (a) May be remediated or sterilized if allowed by Section 5 of this administrative regulation; or
  - (b) If it cannot be remediated or sterilized in accordance with Section 5 of this administrative regulation, the harvest or production batch shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.
- (4) Medicinal cannabis from a harvest or production batch that failed testing shall not be combined with another harvest or production batch. Mixed products shall be considered adulterated and shall not be sold, transferred, or otherwise delivered to a cannabis business.

#### Section 5. Remediation.

- (1) THC concentration.

- (a) If a harvest batch sample exceeds the THC content limit imposed on raw plant material in KRS 218B.095, 218B.105, 218B.115, or 218B.120, the harvest batch shall be deemed medicinal cannabis waste and destroyed by the cultivator or producer in accordance with 915 KAR 1:030.
  - (b) If a production batch sample exceeds the THC content limits imposed on edibles, oils, tincture, and other medicinal cannabis products by KRS 218B.095, 218B.115, or 218B.120, the production batch may be remediated using procedures that would reduce the concentration of THC to allowable levels provided that the remediation method does not impart any toxic or deleterious substance to the medicinal cannabis in the production batch.
  - (c) A production batch that is remediated in accordance with this subsection shall be sampled and tested in accordance with Sections 2 and 3 of this administrative regulation.
  - (d) A processor or producer shall inform the safety compliance facility conducting the retesting prior to samples being taken that the production batch has previously failed testing and is being retested after undergoing remediation. Any remediation methods or remediation solvents used on the production batch being retested shall be disclosed to the safety compliance facility conducting the retesting.
  - (e) A production batch that exceeds the required THC content limits that is not remediated or that if remediated fails testing shall be deemed medicinal cannabis waste and destroyed by the processor or producer in accordance with 915 KAR 1:040.
- (2) Residual solvents and processing chemicals.
- (a) If a production batch sample fails residual solvent testing, the production batch may be remediated using procedures that would reduce the concentration of solvents to less than the action level provided that the remediation method does not impart any toxic or deleterious substance to the medicinal cannabis in the production batch.
  - (b) A production batch that is remediated in accordance with this subsection shall be sampled and tested in accordance with Sections 2 and 3 of this administrative regulation.
  - (c) A processor or producer shall inform the safety compliance facility conducting the retesting prior to samples being taken that the production batch has previously failed testing and is being retested after undergoing remediation or decontamination. Any remediation methods or remediation solvents used on the production batch being retested shall be disclosed to the safety compliance facility conducting the retesting.
  - (d) A production batch that fails solvent testing that is not remediated or that if remediated fails testing shall be deemed medicinal cannabis waste and destroyed by the processor or producer in accordance with the 915 KAR 1:040.
- (3) Residual Pesticides. A harvest batch or production batch that fails residual pesticide testing shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.
- (4) Heavy metals. A harvest batch or production batch that fails heavy metals testing shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with the 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.
- (5) Microbial impurities.
- (a) If a harvest batch or production batch sample fails microbial impurities testing, the harvest batch or production batch may be further processed if the processing method effectively sterilizes the batch and does not impart any toxic or deleterious substance to the medicinal cannabis in the batch.
  - (b) A harvest batch or production batch that is sterilized in accordance with this subsection shall be sampled and tested in accordance with Sections 2 and 3 of this

administrative regulation.

(c) A cultivator, processor, or producer shall inform the safety compliance facility conducting the retesting prior to samples being taken that the harvest or production batch has previously failed testing and is being retested after undergoing sterilization. Any sterilization methods or sterilization solvents used on the harvest or production batch being retested shall be disclosed to the safety compliance facility conducting the retesting.

(d) A harvest batch or production batch that fails microbiological contaminant testing after undergoing a sterilization process in accordance with this subsection shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.

(6) Mycotoxins. A harvest batch or production batch that fails mycotoxins testing shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.

(7) Water activity. If a harvest batch sample fails water activity testing, the harvest batch may be further dried and cured by the cultivator or producer. A harvest batch that is further dried and cured shall be sampled and retested in accordance with Sections 2 and 3 of this administrative regulation.

(8) Yeast and mold. A harvest batch or production batch sample that fails yeast and mold testing shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.

(9) Vitamin E acetate. A harvest batch or production batch that fails vitamin E acetate testing shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.

(10) Where remediation is allowed, a harvest or production batch shall only be remediated twice. If the harvest or production batch fails testing after a second remediation attempt and the second retesting, the harvest or production batch shall be deemed medicinal cannabis waste and destroyed by the cultivator, processor, or producer in accordance with 915 KAR 1:030 or 915 KAR 1:040 as applicable for their respective business.

(11) Prior to taking any remediation efforts, cultivators, processors, and producers shall:

(a) Create and maintain detailed written procedures for all remediation processes used by the cannabis business and provide those procedures to the cabinet upon request within three (3) business days of receiving the request or during an inspection; and

(b) Document all remediation, sterilization, resampling, retesting, and disposal of medicinal cannabis that fails testing required by Section 2 of this administrative regulation.

## Section 6. Certificate of Analysis.

(1) A safety compliance facility shall:

(a) Generate a certificate of analysis (COA) for each harvest batch and production batch sample that the safety compliance facility analyzes; and

(b) Ensure the COA contains the results of all required analyses performed for the harvest batch or production batch sample.

(2) The COA shall contain, at minimum:

(a) The safety compliance facility's name, address, and license number;

(b) The cultivator, processor, or producer's name, address, and license number;

- (c) The harvest batch or production batch number from which the sample was obtained;
  - (d) Sample identifying information, including matrix type and unique sample identifiers;
  - (e) Sample history, including the date collected, the date received by the safety compliance facility, and the date of all sample analyses and corresponding testing results;
  - (f) The analytical methods, analytical instrumentation used, and corresponding limit of detection (LOD) and limits of quantitation (LOQ);
  - (g) An attestation from an authorized employee of the safety compliance facility that all testing required by Section 2 of this administrative regulation was performed; and
  - (h) Analytes detected during the analyses of the harvest batch or production batch sample that are unknown, unidentified, or injurious to human health if consumed, if any.
- (3) The safety compliance facility shall report test results for each representative harvest batch or production batch sample on the COA as an overall "pass" or "fail" for the entire batch as follows:
- (a) When reporting qualitative results for each analyte, the safety compliance facility shall indicate "pass" or "fail";
  - (b) When reporting quantitative results for each analyte, the testing facility shall use the appropriate units of measurement for testing the analyte;
  - (c) When reporting results for each test method, the testing facility shall indicate "pass" or "fail";
  - (d) When reporting results for any analytes that were detected below the analytical method LOQ, indicate "<LOQ," notwithstanding cannabinoid and terpenoid results;
  - (e) When reporting results for any analytes that were not detected or detected below the LOD, indicate "ND"; and
  - (f) Indicate "NT" for any test that the safety compliance facility did not perform.
- (4) The safety compliance facility shall retain a reserve sample for each harvest or production batch consisting of any portion of a sample that was not used in the testing process. The reserve sample shall be kept for a minimum of forty-five (45) calendar days after the analyses, after which time it may be destroyed as medicinal cannabis waste by the safety compliance facility in accordance with 915 KAR 1:060.
- (5) The safety compliance facility shall securely store the reserve sample in a manner that minimizes the risk of sample degradation, contamination, and tampering.
- (6) The safety compliance facility shall provide any reserve samples to the cabinet upon request within three (3) business days of receiving the request.
- (7) All certificates of analysis prepared by safety compliance facilities shall be documented in the Commonwealth's designated electronic monitoring system and seed to sale tracking system in accordance with instructions provided by the cabinet.
- (8) On any informational Web site that they maintain in accordance with 915 KAR 1:090, Section 2, cultivators, processors, and producers shall publish or provide links to the COAs that they receive from safety compliance facilities for their respective harvest batches and production batches. The information required to be provided under this subsection shall be presented in a way that cardholders can easily access the specific COA for the harvest batch or production batch referenced on the medicinal cannabis product label.

#### Section 7. Incorporation by Reference.

- (1) The following material is incorporated by reference:
  - (a) "Appendix A: List of residual solvents for medicinal cannabis testing", dated January 4, 2024; and

(b) "Appendix B: List of residual pesticides for medicinal cannabis testing", dated January 4, 2024.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Cabinet for Health and Family Services, Office of the Secretary, 275 East Main Street, Frankfort, Kentucky 40621, Monday through Friday, 8:30 a.m. to 4:30 p.m.. This material may also be viewed on the Kentucky Medical Cannabis Program's Web site at <https://kymedcan.ky.gov>.

(50 Ky.R. 1845, 2453; 51 Ky.R. 317; eff. 8-28-2024.)

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