



# TECHNICAL BULLETIN

April 1, 2021

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## Process to Obtain Agency Approval for the Analysis of Marijuana-Infused Beverages

This technical bulletin is intended to release guidelines clarifying the requirements for the testing and analysis of marijuana-infused beverages. Specifically, this bulletin details all requirements for the submission and approval of methods used for:

- The analysis of beverages as it relates to compliance testing.
- Any voluntary laboratory participation in the research and development process in partnership with a licensed producer for the development of marijuana-infused beverages.

For those facilities that wish to add additional tests specific to marijuana-infused beverages to their scope of accreditation, a scope expansion will be required. For those facilities who may be accredited for all other required tests, the addition of a matrix will require updates to the current scope. Questions related to scope additions and expansions should be directed to the accrediting body. All currently approved methods expanded to include the marijuana-infused beverage matrix must be approved by the Marijuana Regulatory Agency (MRA) prior to use.

Please note, the ability to test beverages is not required by the MRA.

### Verification and/or Validation Requirements

Verification and/or validation of the performance of all methods employed by the laboratory is required. Testing must be performed using methodology validated by an independent third party and approved by the MRA. Furthermore, any updates or changes to a method must be approved by the accrediting body and the MRA.

Laboratories who would like to conduct marijuana-infused beverage testing will need to perform a matrix specific verification or validation, whichever is more appropriate, for all analyses in question.

Please note that producers may opt to use an array of emulsification processes in the creation of marijuana-infused beverages. It is critical that the laboratory works closely with the producer to determine if any additional steps are necessary to optimize extractions for all analyses and required testing.

Laboratories are required to submit a passing proficiency test. This proficiency test should be performed on a beverage-specific matrix where available. Please reach out to [MRA-scf@michigan.gov](mailto:MRA-scf@michigan.gov) for additional guidance on this topic.



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---

## **Analytical Challenges Presented by Marijuana-Infused-Beverage Testing**

Beverages and aqueous solutions are a unique matrix and present challenges to analytical laboratories. Most laboratories are familiar with these challenges, however, for the sake of clarity, they are presented below.

One of the primary issues facing producers is stability of marijuana-infused beverages. Producers will likely use an emulsion or nano-formulation in the production of marijuana-infused beverages with the goal of producing a stable product. This presents unique challenges to laboratories as they must determine how to optimize the disruption and extraction process for each analysis type. It is critical that the laboratory work closely with the producer to help guide the process of optimization in sample processing and subsequent extraction. Without a close partnership between the producer and the laboratory, it will be nearly impossible to verify that extraction is optimal, complete, and consistent.

Another critical issue facing producers is the leeching of cannabinoids out of the aqueous solution. This is something that producers are acutely aware of, but it is worth sharing with the laboratories as well, since the laboratories will be responsible for ensuring that cannabinoid content is stable over time.

## **Research and Development of Marijuana-Infused Beverages**

The requirements for producers during the Research and Development phase can be found in the technical bulletin: [Process to Obtain Agency Approval for Production of Marijuana-Infused Beverages](#). Producers are required to partner with a laboratory for some aspects of the research and development process. The testing that occurs during this phase of beverage production will be subject to additional oversight by the agency.

The level of collaboration between the producer and the laboratory is up to the discretion of the producer. Any of the more subjective assessments of quality may be done by the producer and a properly trained quality control team.

However, laboratories are required to perform all the analytical tests associated with infused beverages during the development phase of the process. These tests include:

- Homogeneity
- Potency
- Foreign Matter Inspection
- Microbial (Qualitative & Quantitative)
- Heavy Metals
- Residual Solvents
- Chemical Residue
- pH
- Terpene Analysis



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---

## Compliance Testing of Beverages

Once marijuana-infused beverages are in their final form and approved for compliance testing in advance of distribution, they will be subject to full compliance testing as well as additional analyses required specifically for marijuana-infused beverages. These additional analyses are outlined below:

**pH** – pH is a quantitative measure of the acidity or basicity of aqueous or other liquid solution and is a required test for marijuana-infused beverages. Any laboratory seeking approval to test marijuana-infused beverages must follow AOAC Method 945.10 and should conduct analyses and validations in accordance with all manufacturer specifications.

**Terpenes** – Terpenes are required for the analysis of beverages to ensure consistency among batches and to assess stability over time. A standard method for the analysis of terpenes is not currently available. Therefore, a laboratory may select any method that is appropriately validated. Alternatively, a laboratory may opt to develop an internal method and validate to appropriate guidelines.

Please see below for a list of all required terpenes.

- Alpha-Bisabolol
- Alpha-Humulene
- Alpha-Pinene
- Alpha-Terpinene
- Beta-Caryophyllene
- Beta-Myrcene
- Beta-Pinene
- Caryophyllene Oxide
- Eucalyptol
- Limonene
- Linalool
- Nerolidol
- Phytol

For additional questions and inquiries please contact [MRA-scf@michigan.gov](mailto:MRA-scf@michigan.gov).