



Updated March 25, 2021 – Effective after USDA Approval on May 25, 2021

The Missouri Department of Agriculture anticipates continued program modifications in the coming years in order to comply with federal law updates. Modifications may include procedures outlined in this document.

Registered Producers are responsible for selecting a laboratory that meets all accreditation, registration, testing, and reporting requirements. *Compliance of lots may be invalidated if a laboratory is found to not meet all requirements.*

I. LABORATORY STANDARDS

Missouri Industrial Hemp rules require that all industrial hemp compliance testing is conducted by a testing laboratory that is ISO/IEC 17025 accredited, **and** after December 31, 2022 is also registered with the DEA.

Any laboratory conducting compliance testing for a producer operating under a State Plan, including Missouri, must meet federal requirements, including but not limited to the following standards:

- Laboratory quality assurance protocols must ensure the validity and reliability of test results;
- Analytical method selection, validation, and verification protocols must ensure that the testing method used is appropriate (fit for purpose) and that the laboratory can successfully perform the testing;
- Protocols for demonstrating testing validity must ensure consistent, accurate analytical performance;
- Method performance specifications must ensure analytical tests are sufficiently sensitive for the purposes of the detectability requirements of this part;
- Testing protocols must include an effective disposal procedure, in accordance with USDA guidelines, for non-compliant samples that do not meet the requirements of this part;
- Laboratories shall use appropriate, validated methods and procedures for all testing activities and evaluate measurement of uncertainty;
- The range of estimated uncertainty is reported as a \pm value and is the same unit as the hemp THC threshold (e.g. +/- 0.05), following best practices for significant figures and rounding.

More information is available at: <https://www.ams.usda.gov/rules-regulations/hemp/information-laboratories>

II. LABORATORY TESTING

These procedures are for laboratories conducting compliance testing for industrial hemp, including pre-harvest and post-harvest (remediation) samples.

1. All equipment utilized throughout the testing process must be adequately cleaned between each sample to prevent contamination and carryover.
2. Immediately evaluate the security seal and Chain of Custody paperwork to ensure validity.
3. Assess the quality of the delivered sample. If the sample's quality is not sufficient for testing, immediately notify the producer so that they may take additional action.



4. Promptly dry the plant material in a manner that maintains the quality and cannabinoid content of the sample.
5. Homogenize the sample. This may be accomplished by pulverizing, grinding, or milling all cuttings within the sample together.
6. From the homogenized sample, obtain a “test specimen” and “retain specimen” consisting of the amount necessary to conduct the requested testing. Any surplus material may be properly disposed of.
7. The “retain specimen” must be packaged, security sealed, and stored in a secured place in a manner consistent with maintaining quality of the sample, including cannabinoid content. This retained specimen may be tested if requested by the producer.
 - a. The retained specimen must be properly stored for an established period after the “test specimen” testing is completed. MDA recommends fifteen (15) days, but yields to laboratory business practices.
8. Determine moisture content of the test specimen, or dry to a consistent weight.
9. Analyze the specimen by gas or liquid chromatography with detection, or similarly reliable methods approved by the United States Department of Agriculture.
 - a. This test must measure the decarboxylated Delta-9 tetrahydrocannabinol (THC), or other similarly reliable measures approved by the United States Department of Agriculture that also account for the conversion of tetrahydrocannabinolic acid (THC-A) into Delta-9 THC, including a calculated value of the sum of measured Delta-9 THC and 87.7% of measured THC-A.
10. Report test results on a dry-weight basis.

III. MEASUREMENT OF UNCERTAINTY

A Measurement of Uncertainty (MU) is the parameter, associated with the result of a measurement, which characterizes the dispersion of the values that could reasonably be attributed to the particular quantity subject to measurement. It is a laboratory-calculated measurement that is similar to a margin of error. The MU must be reported as a \pm value and is the same unit as the hemp THC threshold (e.g. ± 0.05), and follow best practices for significant figures and rounding.

If the MU is not calculated, or is not presented on the Certificate of Analysis, the MU is effectively ± 0.00 for the purposes of creating a range. The decarboxylated Delta-9 THC measurement, or the total THC calculation is interpreted as-is.

IV. CHAIN OF CUSTODY

All compliance samples from Missouri’s registered producers must be in a *sealed* package, include a *signature* or initials from the registered producer **and** the Certified Sampler over the seal, and have a *Chain of Custody* form attached to each bag. The Chain of Custody form is available on the program website, in the Certified Samplers tab at:

<https://agriculture.mo.gov/plants/industrial-hemp/sample-chain-of-custody-form.pdf>

The Chain of Custody form will include a *Sample ID*, which must be transcribed onto the Certificate of Analysis for further identification. This may be entered in any field (notes, lot name, batch name, etc.).



V. REPORTING

For The Laboratory

USDA requires testing laboratories to submit test results for all industrial hemp compliance samples tested. More information about that reporting requirement can be found at: <https://www.ams.usda.gov/rules-regulations/hemp/information-laboratories>.

Missouri is currently operating under a federally-approved State Plan, under the authority of the 2018 Farm Bill. As of the date of this document, the Missouri Industrial Hemp Program does not have additional reporting requirements for testing laboratories to report directly to the Department.

On Behalf of the Producer

Registered producers are responsible for submitting Certificates of Analysis for all compliance samples to the Department within seven (7) days of receipt. Laboratories may send these results on the producer's behalf, but it is the producer's responsibility to ensure receipt within the allotted timeframe. Any agreement to submit results on a producer's behalf is between the laboratory and the producer, and is not regulated by the department.

VI. CERTIFIED INDUSTRIAL HEMP SAMPLERS

Certified Industrial Hemp Samplers are authorized to collect compliance samples in accordance with the MDA Sampling Protocol, but may not collect compliance samples for registrations in their name, their employer's name, or for a registration in which they are a key participant.

Laboratory personnel are eligible to become Certified Industrial Hemp Samplers, and may do so as third-party individuals or as representatives of the laboratory. More information about Certified Samplers and sampling can be found on our Certified Samplers webpage and in the MDA Sampling Protocol, both linked below.

<https://agriculture.mo.gov/plants/industrial-hemp/certified-sampler.php>

<https://agriculture.mo.gov/plants/industrial-hemp/sampling-protocol.pdf>

Please contact program staff at hempprogram@mda.mo.gov or (573) 522-0351 for questions regarding this document.

Any reporting, including Certificate of Analysis submissions, should be directed to reporting.hemp@mda.mo.gov.