Office of Cannabis Policy
Department of Administrative and Financial Services

Fall 2023

Harmful Contaminants in Maine's Medical Cannabis Program

Findings from the Office of Cannabis Policy's August 2023 audit testing of Maine medical cannabis and cannabis products.

Executive Summary

Testing cannabis and cannabis products for harmful contaminants is voluntary in Maine's Medical Use of Cannabis Program (MMCP), not mandatory. Recent audit testing conducted by the Office of Cannabis Policy (OCP) on 120 samples from the medical cannabis program found that 50 samples, or 42%, contained at least one contaminant that would have failed testing according to the mandatory testing standards set for Maine's Adult Use Cannabis Program (AUCP).

Some samples failed testing for more than one contaminant, and some failed testing for multiple contaminants within a given analyte category. Overall, testing showed 30 failures for yeast and mold, 26 failures for pesticides, four failures for heavy metals, and one failure for filth and foreign materials. Of the pesticides detected, myclobutanil was most prevalent with eight individual medical samples exceeding the AUCP pass/fail threshold of 200 ppb. Myclobutanil releases cyanide gas upon combustion and causes a range of mild to severe effects when inhaled. Alarmingly, one medical cannabis sample's myclobutanil concentration was as high as 58,600 ppb, which is 293 times the pass/fail threshold established in the AUCP.

Over the years, public conversations in Maine about mandatory testing have been deeply contentious, have included disinformation about cannabis product testing and its accuracy, and have lacked reliable, rigorous, and sound data on contamination in Maine's medical cannabis supply chain. This report aims to bring data to the conversation, as well as fill information gaps around the impacts of cannabis contaminants and the requirements for certified cannabis testing facilities (CTFs) to operate and become licensed in Maine.

This report also identifies several policy challenges in Maine's medical cannabis program. This includes the lack of an inventory tracking system for addressing contaminated products in the supply chain coupled with insufficient authority for OCP to seize and destroy contaminated cannabis, as well as strict confidentiality protections for program participants that prevent OCP from disclosing which businesses were found to have contaminated products. OCP describes how these policy challenges impact the state's 106,000+ medical cannabis patients—especially the lack of mandatory testing—and highlights the need for a comprehensive solution for reforming and modernizing the *Maine Medical Use of Cannabis Act* to protect Maine's patients.

Introduction

Maine's Medical Use of Cannabis Program (MMCP) falls critically short of national standards around mandatory contaminant testing, which puts the state's most vulnerable medical patients at risk of complicating their medical conditions and experiencing symptoms of contamination that can be mistaken for symptoms associated with their condition. Public conversations in Maine about mandatory testing have been deeply contentious, have included disinformation about cannabis product testing and its

accuracy, and have lacked reliable, rigorous, and sound data on contamination in Maine's medical cannabis supply chain. The information and findings in this report by Maine's Office of Cannabis Policy (OCP) aim to help reset discussions around medical cannabis testing, bringing data and science to the core of this discussion with a primary goal of protecting patients.

The goal of any policy conversation around mandatory medical cannabis testing must always be keeping Maine's patients safe. Any serious stakeholder should be prioritizing patient safety over anything else. OCP's charge is to provide policymakers and patients with the best available data and science on the topic and to ensure that medical and policy choices are not made based on anecdote and business self-interest.

As such, OCP has examined past policy debates around mandatory medical cannabis testing and identified key informational gaps that exist. This report helps fill those gaps with information about the scientific processes around testing and the potential harm posed by the ingestion of contaminants. Most importantly, this report provides the first comprehensive and public look at contamination in the medical cannabis supply chain. Ultimately, this resource will help patients, their providers, and the public to understand more clearly what is contained in Maine's medical cannabis and how policy changes can protect Maine's patients from potential harms.

Methodology

Informational deficiencies exist in the public debate around medical cannabis testing. To correct this issue, OCP implemented a program to test the supply chain and bring scientific data to the conversation. The goal was to examine a basic question: whether and to what extent contamination exists in Maine's medical cannabis supply chain. In the process, OCP's goal was to provide clearer information and data to the public on this topic.

From August 4 to August 25, 2023, OCP field investigators collected 101 cannabis flower samples and 19 cannabis product samples (18 vape cartridges and one edible) from 112 registered caregivers and 8 registered dispensaries. This resulted in a total of 120 samples from 120 program registrants.

The locations from which samples were taken was selected through a combination of pre-scheduled field inspections and the geographic location of field investigators on a given day, with the goal of ensuring a geographically diverse sample of medical cannabis.[1] Each sample was preserved properly and sent to one of the state's licensed and certified cannabis testing facilities.[2] The cannabis testing facilities tested each sample for analytes that cannabis and cannabis products are required to be tested for in the state's Adult Use Cannabis Program (AUCP), using the same pass/fail thresholds.[3] Those analytes include heavy metals, potency, pesticides, yeast and mold, and microbials. Results were reported to the medical cannabis businesses from which samples were taken. OCP paid for the entirety of the cost of testing.

Every medical cannabis business that had product sampled and tested was fully informed as to why product was being taken and for what purpose. After the sample was tested, each business was given a copy of the certificate of analysis (COA) from the testing laboratory that showed the test results for the business' sample(s).[4] In addition to the COA, OCP included a letter explaining whether the sample(s)

[1] Samples were taken from approximately 36% of registered medical cannabis retail operations, including caregiver retail stores and registered dispensaries with a retail location. Not every retail location in the state was selected, as OCP sought to balance between getting a significant sample size from retail locations and responsibly using taxpayer dollars.
[2] At the time of sampling and testing, the state had three cannabis testing facilities licensed by OCP and certified by the Maine CDC: Nova Analytic Labs, Nelson Analytical, and CATLAB. Since that time, a fourth licensed and certified testing facility, MCR Labs, has come online, but was not used in this study due to timing.
[3] A complete list of analytes that each medical cannabis sample type was tested for is included in Appendix A of this report.
[4] Appendix B contains de-identified examples of a certificate of analysis from this effort.

passed or failed testing. When a sample failed, OCP included in that letter a set of recommendations for the removal of the product from shelves, the destruction of the product (or remediation wherever possible), and the notification of patients who had purchased or consumed it.[5] **Unfortunately, because of existing statutory restrictions, OCP does not have the authority to seize or destroy contaminated medical cannabis.**[6] Furthermore, because of the broad and restrictive confidentiality provisions of the medical cannabis program statute, OCP is unable to conduct public, mandatory recalls of contaminated medical cannabis products derived from registered caregivers.[7] Existing medical cannabis law prioritizes the confidentiality of businesses over patients' rights to know about contaminants in their medicine and to make informed decisions about their treatment options.

It is amid this precarious regulatory environment that OCP, for the first time, conducted a broad-based, scientifically rigorous, and data-driven assessment of contamination in Maine's medical cannabis supply.

The results of OCP's medical testing effort clearly demonstrate that without mandatory testing, contaminated medical cannabis products are sitting on the shelves of numerous caregiver retail stores and medical dispensaries across the state of Maine, being sold to vulnerable, unsuspecting patients.

Findings

Test results from the 120 Maine medical cannabis samples provided exceptional data and insight for regulators, registrants, policymakers, and most importantly, medical cannabis patients. Testing showed that 50 samples, or **42% of all samples contained at least one contaminant** that would have failed testing in Maine's adult use program. In the 101 flower samples that were collected, the fail rate was 44.6%.

Of the 120 medical samples collected, the failures among the analyte categories for which adult use cannabis in Maine is mandatorily tested were as follows:

- 30 individual samples failed for yeast and mold (25.0% of all samples)
- 21 individual samples failed for pesticides (17.5% of all samples)
- 3 individual samples failed for heavy metals (2.5% of all samples)
- 1 individual sample failed for filth and foreign materials (0.8% of all samples)

It is important to note that samples can and did fail multiple categories and/or for multiple analytes within a given category. There were 12 samples (10.0% of all samples) that failed for more than one analyte category. There were also 4 samples (3.3% of all samples) that failed for multiple pesticides, resulting in a total of 26 pesticide failures. Another sample (0.08% of all samples) failed for multiple heavy metals, resulting in a total of 4 heavy metal failures.

[5] Appendix C provides examples of the receipt OCP gave to cannabis businesses when collecting a sample along with the letter OCP sent to businesses if their sample failed testing.
[6] Prior to this year, OCP lacked any authority to seize and destroy medical cannabis. Recent changes to the law have given OCP the authority to require the forfeiture and/or destruction of medical cannabis only pursuant to "a final order imposing an administrative penalty", not simply due to an imminent public health threat. *See* PL 2023, ch. 365, specifically, 22 MRS § 2430-I(5).
[7] *See* 22 MRS § 2425-A(12).

It is also noteworthy that the contamination within the medical cannabis program is diverse. While failures for yeast and mold and pesticides were more common, samples failed for 19 different analytes across the categories. As seen in Table 1 below, included in those failures were 11 specific, different pesticides, none of which are approved for use on cannabis—in any quantity—by the Maine Board of Pesticides Control. In addition, samples failed for arsenic, cadmium, and lead as indicated in Table 2.

Table 1: Failures for Pesticides out of 120 Samples

Analyte	**Fail Count**	**Fail Percentage**
Total	26	21.5%
Abamectin	1	0.8%
Bifenazate	1	0.8%
Bifenthrin	3	2.5%
Dichlorvos (DDVP)	1	0.8%
Imidacloprid	1	0.8%
Metalaxyl	1	0.8%
Myclobutanil	8	6.7%
Piperonylbutoxide	3	2.5%
Pyrethrins (Total)	2	1.7%
Spinosad	4	3.3%
Spiromesifen	1	0.8%

Table 2: Failures for Heavy Metals out of 120 Samples

Analyte	**Fail Count**	**Fail Percentage**
Total	4	3.3%
Arsenic	2	1.7%
Cadmium	1	0.8%
Lead	1	0.8%

To understand in greater detail the extent of harm posed by such contaminants, it is important to understand the quantity of contamination within some samples. Some analytes like *Salmonella* or *E. coli* fail if any amount is present. For most analytes, there are thresholds above which the sample fails. These thresholds are in place for testing pesticides and heavy metals, for example, as scientific research provides information about the levels above which toxicity to humans can occur.

Table 3: Examples of Highly Contaminated Samples

	Analyte	AUCP Pass/Fail Threshold[8]	Concentration Found in Sample	Units[9]
Location 1	Lead	500	523	ppb
	Myclobutanil	200	8,400	ppb
	Pyrethrins (Total)	1,000	3,390	ppb
Location 2	Spinosad	200	420	ppb
	Total Aerobic Bacteria	100,000	>490,000	cfu/g
	Total Coliform	1,000	1,100	cfu/g
	Enterobacteriaceae	1,000	7,000	cfu/g
Location 3	Total Coliform	100	24,000	cfu/g
	Enterobacteriaceae	100	28,000	cfu/g
	Myclobutanil	200	58,600	ppb
	Spiromesifen	200	7,691	ppb
Location 4	Arsenic	200	251	ppb
	Total Yeast & Mold	10,000	>490,000	cfu/g
Location 5	Bifenthrin	200	1,700	ppb
	Piperonylbutoxide	2,000	15,300	ppb
	Pyrethrins (Total)	1,000	1,600	ppb

The mandatory testing standards for Maine's Adult Use Cannabis Program (AUCP) require cannabis testing facilities to analyze samples for the following categories of analytes: filth and foreign materials; dangerous molds and mildews; harmful microbes; water activity; heavy metals; residual solvents; and pesticides. However, it is critical to note *why* OCP requires testing for those analytes.

To begin, every analyte tested presents some level of potential harm to a healthy human. That potential harm is exacerbated for those dealing with illness, especially individuals who are immunocompromised. It is also important to note that not all contaminants pose identical potential harms. Some present severe risks of harm; others are more moderate. Similarly, some contaminants can cause acute reactions while others present risks with chronic exposure.

Some common contaminants can provide a better understanding of these differences. For example, two microbial contaminants tested for are *Salmonella* and *E. coli*, which are commonly associated with foodborne illness in products like raw meat but can manifest in a variety of products. Exposure to those bacteria can cause acute health issues—commonly called food poisoning. In contrast, another contaminant tested for in the AUCP is lead. Consuming a small amount of lead will not cause serious illness or death in a healthy human. However, prolonged consumption of lead can cause an accumulation

[8] Some pass/fail thresholds vary depending on the type of cannabis or cannabis product. *See generally, Rules for the Certification of Cannabis Testing Facilities,* 18-691 CMR, ch. 5.
[9] The following abbreviations have the following meanings, "ppb" means "parts per billion", and "cfu/g" means "[microbial] colony forming units per gram [of sample]".

of the toxin in the body and can induce to a variety of health issues in children and adults. Differences between acute reactions and reactions due to chronic exposure can also depend on the amount of immediate exposure.

Testing cannabis generally is important for preventing both acute reactions and complications due to chronic exposure, regardless of the consumer of the cannabis or cannabis product. The cannabis plant is a bio-accumulator that, for better or worse, works as a sponge to its environmental surroundings, absorbing contaminants and nutrients alike from the air, water, and soil around it. Indeed, cannabis plants can and have been used to pull harmful contaminants from soil—a process known as phytoremediation. A particularly notable use of the cannabis plant as a phytoremediator is its use to purge soil contaminated by radiation released during the Chernobyl nuclear meltdown in 1986.[10]

As cannabis plants soak up potential contaminants in their surroundings, those contaminants cannot simply be washed off, like pesticides from the skin of an apple. This means that while some contaminants—like pesticides—can be purposefully applied to cannabis plants in ways that present potential harm for consumers, other contaminants can unknowingly be lurking in water or soil and are pulled into the cannabis plant. These potential harms are of concern for any cannabis consumer, and of even greater concern for the more than 106,000 medical cannabis patients in the state of Maine, whose conditions leave them even more vulnerable to the effects of such contaminants.

Complicating these issues is the fact that the effects of cannabis contaminants can be masked, especially for chronically ill patients. Some patients can unknowingly be experiencing the effects of contaminated cannabis yet end up associating those symptoms with the conditions or illnesses for which they are using medical cannabis. A recent report published by Americans for Safe Access engages scientists and other medical professionals to evaluate those precise questions. The report notes the risks for medical cannabis patients to confuse the effects of contaminated cannabis with the potential symptoms of illness or the side effects of pharmaceuticals. These concerns become even more worrisome for medical cannabis patients who are hesitant to communicate to health professionals that they are using medical cannabis as part of their treatment. In those situations, potential effects of contaminated cannabis may not be identified when individuals are not forthcoming about medical cannabis use for fears of a negative reaction from healthcare providers.

The effects of untested cannabis have also been documented in medical and scientific literature. For example, a September 2023 article in *Environmental Health Perspectives* examines the effects of individuals using cannabis that is untested for harmful contaminants.[11] Those individuals show higher levels of lead and cadmium in their bodies compared to individuals who did not consume untested cannabis. That article suggests the importance of cannabis reform policies that include the testing of cannabis for harmful contaminants.

The following table provides a detailed explanation of the analytes tested for in Maine's Adult Use Cannabis Program, the type of toxicity and/or health impacts associated with those analytes, and the level of risk those contaminants present.

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[10] Placido, D. F., & Lee, C. C. (2022). Potential of Industrial Hemp for Phytoremediation of Heavy Metals. *Plants*, *11*(5), 595. https://doi.org/10.3390/plants11050595. *See also,* Nason, S. L., Stanley, C. J., PeterPaul, C. E., Blumenthal, M. F., Zuverza-Mena, Z., & Silliboy, R. (2021). *A community based PFAS phytoremediation project at the former Loring Airforce Base.* https://www.maine.gov/dep/spills/topics/pfas/A%20community%20based%20PFAS%20phytoremediation...pdf.

[11] Nate Seltenrich. (2023). Untested, Unsafe? Cannabis Users Show Higher Lead and Cadmium Levels. *Environmental Health Perspectives*, *131*(9). https://doi.org/10.1289/ehp13519.

Table 4: Toxicity and Health Impacts of Cannabis Contaminants

SOLVENTS	
Analyte	**Effects**
Acetone	Short term in high amounts cause headaches, nausea, and blood cell changes. Long term exposure can cause kidney, liver, and nerve damage.
Acetonitrile	Inhalation exposure causes moderate effects. Long term impacts cause cyanide poisoning, as cyanide is released after metabolism of acetonitrile.
Butanes	Central nervous system (CNS) and cardiac effects. Impact tends to be low.
Ethanol	Cognitive issues with acute and chronic exposure.
Ethyl Acetate	Cellular irritation in mucous membranes.
Ethyl Ether	Long term exposure can affect impairment and be habit forming.
Heptane	Dizziness, stupor, incoordination; loss of appetite, nausea; dermatitis; chemical pneumonitis (aspiration liquid); and unconsciousness.
Hexane (NEUROTOXIN)	Acute inhalation exposure in high levels causes mild CNS effects, including dizziness, giddiness, slight nausea, and headache. Chronic exposure in air is associated with polyneuropathy with numbness in the extremities, muscular weakness, blurred vision, headache, and fatigue observed. Neurotoxic effects have also been exhibited in rats.
Isopropyl Alcohol	Irritation of mucous membranes, especially if inhaled in high concentrations.
Methanol (NEUROTOXIN)	Chronic exposure may cause CNS birth defects. Chronic poisoning from repeated exposure to methanol vapor may produce inflammation of the eye (conjunctivitis), recurrent headaches, giddiness, insomnia, stomach disturbances, and visual failure.
Pentane	Irritation of mucous membranes.
Propane	Respiratory inflammation in high levels.
Toluene (NEUROTOXIN)	Can cause eye and nose irritation, tiredness, confusion, euphoria, dizziness, headache, dilated pupils, tears, anxiety, muscle fatigue, insomnia, nerve damage, inflammation of the skin, and liver and kidney damage. Long term exposure can be serious.
Xylenes	Short term exposure toxicity is unknown. Long term exposure includes CNS effects (headache, dizziness, ataxia, drowsiness, excitement, tremor, and coma), ventricular arrythmias, acute pulmonary edema, respiratory depression, nausea, vomiting, and reversible hepatic impairment.
Dichloroethane	Irritation, especially of lungs. Chronic exposure can be serious. Potential carcinogen.
Benzene (CARCINOGEN)	Exposure at high levels can cause death and have neurological effects. Leukemia and cancers in blood forming organs with long term exposure.
Chloroform	Toxic if inhaled and potential carcinogen.
Ethylene Oxide (REPRODUCTIVE HAZARD)	Cancer risk in long term, low-level exposure. Acute exposure causes irritation.
Methylene chloride (REPRODUCTIVE HAZARD)	Neurotoxin especially with prolonged exposure.
Trichloroethylene (CARCINOGEN)	Inhalation or ingestion can produce CNS effects including headache, dizziness, lack of coordination, stupor, and coma. Respiratory depression or cardiac dysrhythmia from high-level exposures can result in death. Other effects of acute exposure include hypotension, nausea, vomiting, and diarrhea.

HEAVY METALS	
Arsenic (CARCINOGEN)	Arsenic can be harmful to the eyes, skin, liver, kidneys, lungs, and lymphatic system. Can also cause cancer and have acute and long term effects.
Cadmium (CARCINOGEN)	High levels of inhalation damages people's lungs and can cause death. Exposure to low levels in air, food, water, and particularly in tobacco smoke over time may build up cadmium in the kidneys and cause kidney disease and fragile bones.
Lead	Particularly harmful for children as it stunts brain development. Can cause high blood pressure and brain, kidney, and reproductive health issues in adults. Symptoms of lead poisoning include headaches, stomach cramps, constipation, muscle/joint pain, trouble sleeping, fatigue, irritability, and loss of sex drive.
Mercury (NEUROTOXIN)	Neurotoxin that can cause CNS problems, among many symptoms.
OTHER ANALYTES	
E. coli	Each year in the United States, *E. coli* infections cause approximately 265,000 illnesses and about 100 deaths.
Enterobacteriaceae	Antibiotic resistant bacteria that kills hundreds annually. Particularly risky to those with suppressed immune systems. Enterobacteriaceae has over 13,000 infections annually.
Mycotoxins	Biproducts of fungus and may cause different types of poisoning and, consequently, diverse health problems (from acute to chronic problems) in both animals and humans. Long term exposure can cause immune suppression. Multiple mycotoxins are carcinogens.
Salmonella	CDC estimates *Salmonella* bacteria cause about 1.35 million infections, 26,500 hospitalizations, and 420 deaths in the United States every year.
PESTICIDES *This list includes pesticides that have been detected either in the adult use program or in the medical audit testing*	
Abamectin	Patients may initially present with nausea, vomiting, salivation, diarrhea and dizziness. More severe manifestations may include aspiration pneumonia, respiratory failure, hypotension and coma.
Bifenazate	Irritant of eyes and skin, respiratory tract. May cause allergic skin reaction.
Bifenthrin	Harmful if inhaled, causes acute inhalation toxicity. May cause allergic skin reaction.
Cypermethrin	Banned pesticide. Suspected of damaging fertility.
Dichlorvos	Banned pesticide. May be fatal if it is absorbed through the eye or skin, is ingested or inhaled. May produce acute cholinesterase depression, symptoms of which include headache, nausea, vomiting, diarrhea, abdominal cramps, excessive sweating, salivation and tearing, constricted pupils, blurred vision, tightness in chest, weakness, muscle twitching and confusion; in extreme cases, unconsciousness, convulsions, severe respiratory depression and death may occur. Possible carcinogen.
Etoxazole	Irritant of eyes and skin. Minimally toxic when ingested or inhaled. High doses can cause lethargy, vomiting, decreased respiratory rate, reduced food consumption.
Fludioxonil	May cause allergic skin reaction.
Imazalil	Harmful if inhaled, toxic if swallowed. Causes serious eye damage and suspected of causing cancer.
Imidacloprid	Toxic if swallowed.
Malathion	Acute oral toxicity, skin sensitizer (causes allergic contact dermatitis).
Metalaxyl	Acute oral toxicity, skin sensitizer (causes allergic contact dermatitis).

Methyl parathion	Fatal if swallowed or inhaled. Toxic in contact with skin. Causes eye irritation. May cause damage to organs through prolonged or repeated exposure.
Myclobutanil	Harmful if swallowed. Causes serious eye irritation. Suspected of damaging fertility or the unborn child. Also releases cyanide upon combustion. Cyanide Inhalation: • Mild to moderate: CNS effects: headache, confusion, anxiety, dizziness, weakness (malaise), and loss of consciousness. Cardiovascular effects: palpitations. Respiratory effects: respiratory tract irritation, difficulty breathing or shortness of breath (dyspnea), and transient increase in the rate and depth of breathing (hyperpnea). Gastrointestinal effects: nausea and vomiting (emesis). • Severe: CNS effects: coma, seizures, and dilated pupils (mydriasis). Cardiovascular effects: shock, abnormal or disordered heart rhythms (dysrhythmias), critically low blood pressure, and cardiac arrest. Respiratory effects: abnormally rapid, followed by abnormally slow respirations; accumulation of fluid in the lungs (pulmonary edema); and respiratory arrest. Eye effects: dilated pupils, inflammation of the surface of the eye, and temporary blindness.
Permethrin	Harmful if swallowed or inhaled. May cause an allergic skin reaction.
Piperonylbutoxide	Very toxic to aquatic life with long lasting effects.
Propiconazole	Harmful if swallowed. May cause an allergic skin reaction. May damage fertility or the unborn child.
Pyrethrins	Toxic if swallowed, in contact with skin or if inhaled. May cause an allergic skin reaction. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.
Spinosad	Very toxic to aquatic life with long lasting effects.
Spiromesifen	May cause an allergic skin reaction.

Understanding Maine's Cannabis Testing System

There is a deep misunderstanding, especially in the medical cannabis community, about the certified cannabis testing facilities (CTFs) in the state, how they operate, and how they come to be licensed in Maine. Maine has four certified cannabis testing facilities. Those facilities are licensed by Maine's Office of Cannabis Policy (OCP) and certified annually by Maine's Center for Disease Control & Prevention (CDC). That combination of different agencies in different departments blends the expertise that OCP has with respect to cannabis with the expertise CDC has regarding chemistry, microbiology, and laboratory testing certification. It ensures that laboratories are certified according to the most up-to-date scientific understanding around not only laboratory practices and standard operating procedures (SOPs), but also the relationship between contaminants and the risks to the human body.

The Certification Process for Cannabis Testing Facilities

For a testing facility to accept and analyze cannabis samples in Maine's Adult Use Cannabis Program, they must go through a lengthy and rigorous accreditation and certification process. They must meet all requirements in both the Licensing and Certification rules, which include demonstrating that they have proper security, confidentiality, impartiality, quality assurance, and personnel qualifications.[12]

[12] *See generally, Adult Use Cannabis Program Rule*, 18-691 CMR, ch. 1 and *Rules for the Certification of Cannabis Testing Facilities*, 18-691 CMR, ch. 5.

Furthermore, testing facilities must attain International Organization for Standardization and International Electrotechnical Committee (ISO/IEC) accreditation from an independent, third-party accreditor. ISO/IEC 17025:2017 accreditation is an international standard for the demonstration of competent facility operation and the ability to generate valid results. In addition to this accreditation, testing facilities must also complete Maine CDC's certification process, which requires adherence to more detailed and stringent Maine regulations.

Included in Maine's certification process is the requirement for a testing facility to develop a robust quality assurance program. This program must demonstrate how the testing facility ensures accuracy, precision, traceability, staff competence, chain of custody, and safety through their policies, operating procedures, training programs, validation, and reporting systems.[13]

Preliminary and annual on-site evaluations by the CDC's certification staff are required for a testing facility to enter and remain in the adult use testing program. During this assessment, all documentation and methods are reviewed, data is checked randomly to be sure it is accurate and all associated quality control requirements are complete, and staff qualifications and trainings are reviewed.

Currently OCP and CDC have certified four cannabis testing facilities in the state—CATLAB, MCR Labs, Nelson Analytical, and Nova Analytic Labs. All adult use cannabis and cannabis products in Maine must be submitted to one of these four testing facilities and pass all mandatory testing before those products can be sold at market. Products that fail testing are prohibited by the state's inventory tracking system from being transferred to a retail store. While other laboratories in the state will test cannabis that is voluntarily submitted to them from program participants, those facilities have not demonstrated adherence to state standards nor passed certification for testing. Therefore, the quality of data issued from uncertified testing facilities is unknown.

Cannabis Testing Facility Accuracy

OCP and CDC work closely to ensure that the practices and procedures in the state's certified cannabis testing labs—as well as the standards and thresholds around potential harm from contaminants—are science-based, data-driven, and focused on protecting consumers. Criticism has existed among cannabis business licensees about state-certified cannabis testing laboratories, which has largely been driven by anecdote and conjecture. However, OCP takes those concerns seriously. In the past year, the Office has added to its Compliance Team a full-time chemist to review, analyze, and make conclusions and recommendations regarding the data produced by the licensed testing facilities to evaluate potential deficiencies, skewed data, or potential problems. Allegations have specifically arisen around differences in measuring cannabis potency (total THC in cannabis).

As a result, OCP has conducted an analysis of this specific question: do certain cannabis testing facilities skew cannabis and cannabis product potency?

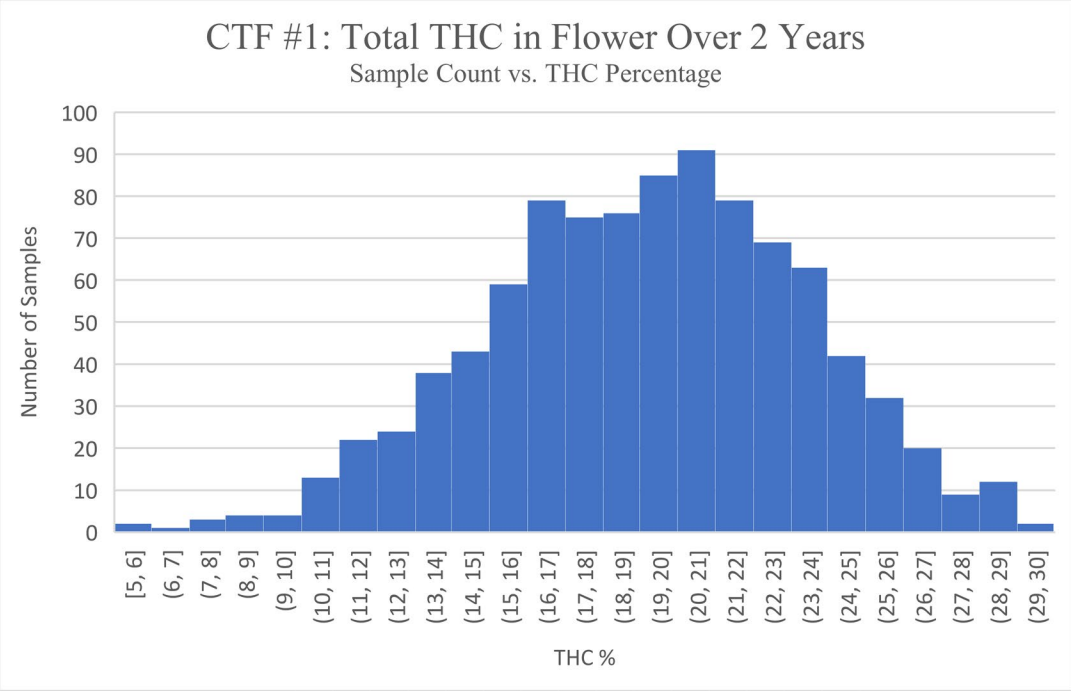
[13] Examples of data accuracy requirements are participation in a proficiency testing (PT) program, internal quality control (QC) samples, calibration verifications, and data review procedures. PT testing requires annual participation in which a testing facility receives unknown samples and reports back results for every required analyte for which the testing facility is certified. The testing facility must pass these tests to remain certified. QC samples include Method Blanks to ensure no cross contamination occurs, Laboratory Control Samples to demonstrate testing accuracy, Duplicates to demonstrate analytical precision and repeatability, Matrix Spikes to demonstrate additional testing accuracy, and Certified Reference Material samples as an additional demonstration of accuracy. Calibrations are required to meet high correlation coefficient standards (not less than 0.99) and must be verified daily and between every 10 samples to further ensure accuracy. A final data review process by the laboratory manager or quality assurance officer is required to make sure every sample report that is issued from a certified testing facility meets all Quality Assurance objectives. *See generally, Rules for the Certification of Cannabis Testing Facilities,* 18-691 CMR, ch. 5.

In order to address this question, the Office examined all potency test results for cannabis flower over a two-year period among three certified cannabis testing facilities (CTFs): CATLAB, Nelson Analytical, and Nova Analytic Labs.[14] This involved 7,976 total potency test results.

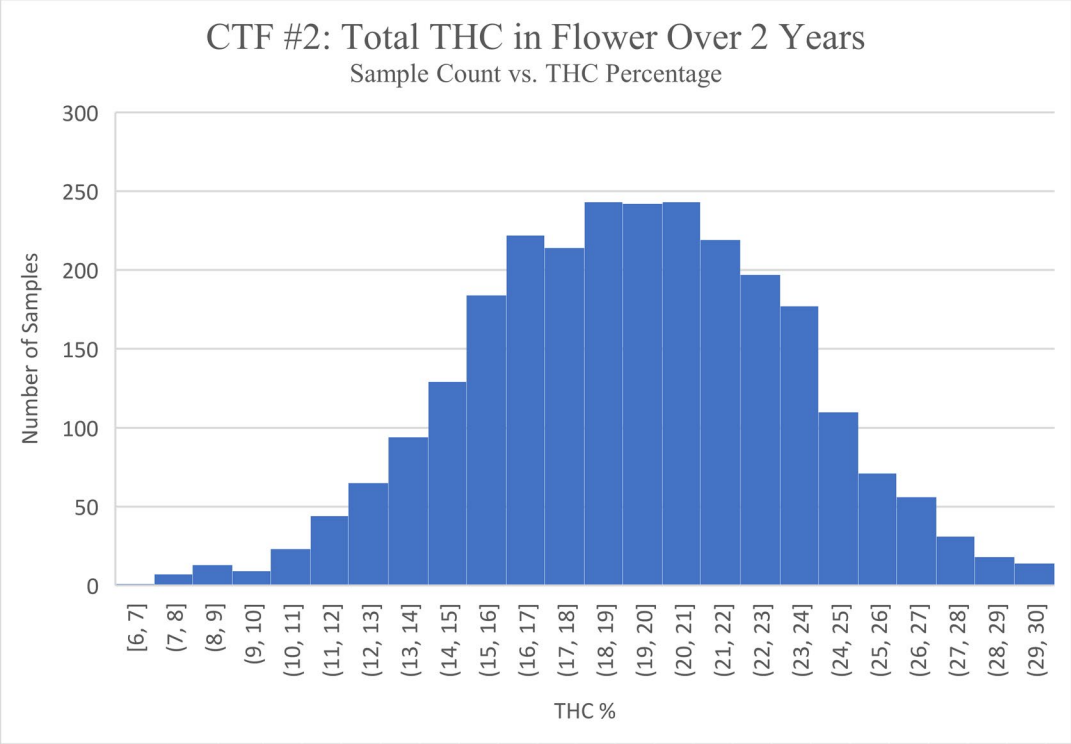
The results of this review are presented in the following histograms. Histograms are a visual way to show how the values of Total THC in flower are distributed. A normal distribution is one that is a "bell-shaped" curve. This "normal" shape indicates that there is no bias in the samples, and that there are no introduced or manufactured values that would skew the data. A skewed data set would appear offset to one side or have a pronounced drop-off at a certain point in the curve. Such an appearance would indicate testing facility systemic errors or malfeasance.

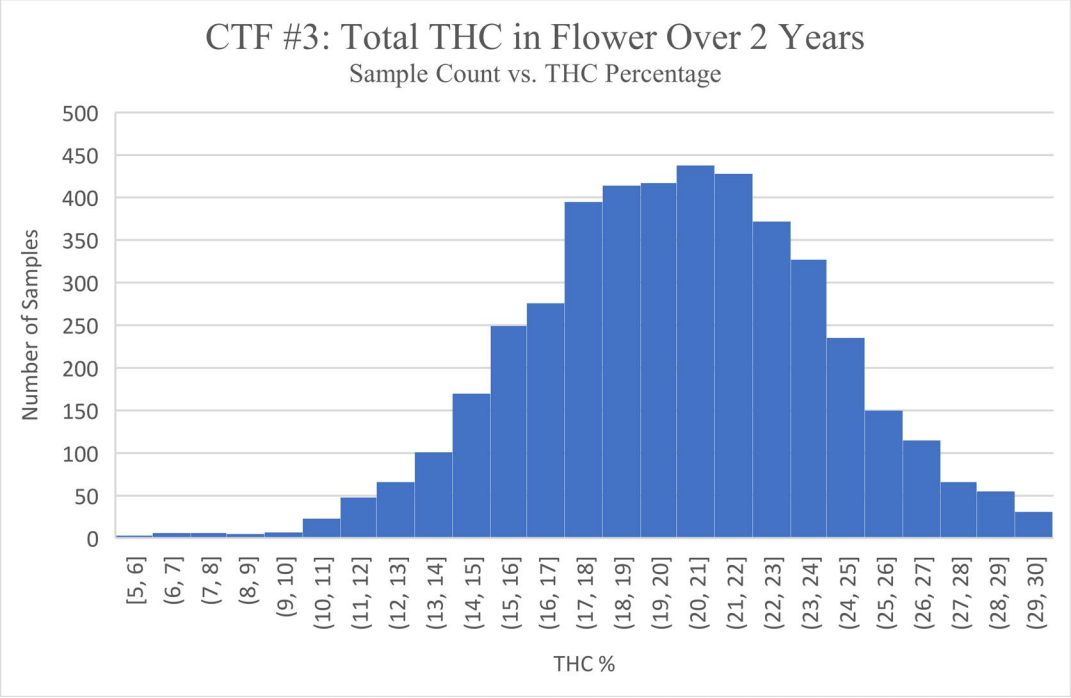
The histograms shown below for the three CTFs are all consistent with a normal distribution and indicate no bias and a high degree of comparability between the three facilities.

In addition, a two-way Analysis of Variance (ANOVA) was run on this data set to address the question of whether there were statistically significant differences in the overall potency values produced by each of the CTFs. This test measures whether there is a significant difference between the testing facilities or between growers that submitted samples to all three facilities over the course of the two-year data set. Results show that there is no significant difference in Total THC values between the testing facilities (p-value of .96) and that there *is* a significant difference in Total THC values depending on the grower (p-value of .004).[15]



[14] OCP was unable to conduct this analysis for MCR Labs because that facility is new and did not begin operations within the state's program until August 24, 2023, substantially limiting the data from that testing facility available for these analyses. Future analyses of accuracy, reliability, and validity among all four cannabis testing facilities will occur as data become available.
[15] Note: p-values close to 0 indicate that the observed difference is unlikely to be due to chance, whereas a p-value close to 1 suggests no difference between the groups other than due to chance.





These analyses suggest that differences in potency are not due to differences among cannabis testing facilities. Instead, cannabis cultivators and the strains submitted drive differences. It is true that some cannabis cultivators produce cannabis that is more potent—or has a higher percentage of total THC—than do others. If a cultivator that generally produces more potent cannabis tends to submit to a given cannabis testing facility, it could artificially appear as if that facility reports higher potency. One could then argue that such a cultivator submits to that cannabis testing facility *because* that facility reports higher potency;

however, that argument is demonstrably false, and the data demonstrate as such. The analyses presented here examine reported potency values from cultivators who submitted samples to all three cannabis testing facilities across a two-year period. Those analyses demonstrate the variation in potency is explained by the cultivator and not the cannabis testing facility.

These analyses of potency highlight the importance of OCP licensure and CDC certification standards and underscore the data-driven approach taken by the State in ensuring the validity, reliability, and consistency of the state's licensed and certified testing facilities. Taken together with the rigorous annual recertification and review of these facilities by the CDC, Maine's cannabis testing program has, thus far, avoided many of the challenges presented in other state's cannabis testing programs.

Policy Challenges in the Medical Cannabis Space and Recommended Solutions

A lack of mandatory medical cannabis testing creates multiple, serious challenges for Maine's medical cannabis patients, for the public health community, and for the Office of Cannabis Policy (OCP). In 2022, there were over 106,000 Mainers registered as medical cannabis patients. Those Mainers use cannabis to treat a host of medical conditions including cancer, HIV/AIDS, multiple sclerosis (MS), chronic pain, epilepsy, and symptoms associated with spinal cord injuries, just to name a few. OCP supports the rights of Maine's vulnerable medical patients to have access to cannabis as medicine. At the same time, it is essential for these patients to have complete information about their medicine, and for that medicine to be free from harmful contaminants that can be risky for even healthy individuals to ingest. There are a number of reasons why this is not the current standard in Maine's Medical Use of Cannabis Program (MMCP).

First, when Maine legalized medical cannabis in 1999, mandatory testing was not the norm and practice in this policy space. State programs were nascent, and largely being conducted by individuals who had previously been operating in legacy markets. Certified labs designated to test cannabis did not exist, nor did cannabis testing standards, and existing labs would not risk the legal liability of testing a federally illegal substance. Today, however, cannabis testing is the standard practice in the industry. Mandatory medical cannabis testing is the policy supported by doctors and other scientists as well as leading medical cannabis advocacy organizations such as Americans for Safe Access and Doctors for Cannabis Regulation.

A second reason Maine lacks medical cannabis testing stems from the design of Maine's initial medical caregiver model. For more than a decade from its inception, Maine's medical program was one of individual caregivers, cultivating and producing cannabis and cannabis products for a small number of patients with whom the caregiver had an individual relationship. Over time, however, the program has evolved into a large-scale commercial industry. While there are still some caregivers who serve a small number of patients on an individual basis, the vast majority of program participants regularly engage in arm's length retail transactions with hundreds of patients, wholesale an unlimited amount of untracked cannabis to and from other program participants, grow hundreds or thousands of square feet of cannabis plants, and/or operate retail stores or dispensaries. These changes in the market have meant that more patients are being served across the state; however, other areas of medical cannabis policy, like testing, have not kept pace with the changes in the program's size, scope, and operation. Regardless of size, medical cannabis operators have a moral obligation to protect their patients from contaminants in their medicine. They should also have a legal obligation.

Another reason Maine lacks the safety standards that mandatory medical testing provides is that a vocal minority of medical program business owners vehemently oppose such standards. Among the many false

arguments is that the costs of testing would be burdensome and unnecessary, and that the cost of patients' medicine would increase as a result. They also argue that the supply chain is free of contaminants because businesses are focused on patients and that the testing facilities and processes are inaccurate. This report demonstrates through the use of data that these claims are not true. On the first point, focused on cost, mandatory testing was introduced in the Adult Use Cannabis Program upon the program's rollout and expanded to include mandatory pesticide testing in late 2022. Market forces in that program saw prices decline even with the addition of more analyte categories to the mandatory testing panel. With respect to the latter claim, OCP has received calls for a need to test medical cannabis because of concerns about contaminants from medical cannabis business owners, employees, and patients. Through efforts like this report, OCP is actively working to educate the public about what is in the supply chain and combat misconceptions around cannabis testing.

Unfortunately, in the national landscape of cannabis reform, Maine's regulated medical cannabis program now stands out as a concern because it lacks mandatory testing. There has not been significant legislative appetite to institute mandatory testing in Maine's medical cannabis program. Furthermore, some testing skeptics have actively worked to stymie efforts by regulators and cannabis scientists to engage in substantive discussions about testing and patient safety.

Maine's vulnerable medical patients deserve better, and they (and their medical providers) need to be empowered with information about what they are putting or potentially putting into their bodies. **A significant percentage of medical cannabis patients in Maine are consuming contaminated cannabis that would not be eligible for sale in the state's adult use program, nor in other states' medical cannabis programs.** This reality comes with individual and public health risks, and it fails ill patients who are using cannabis and cannabis products in an effort to get relief from the illnesses and conditions that affect them. The information and findings in this report will inform policy discussions involving medical cannabis testing by bringing data and science to the discussion.

As previously mentioned, multiple reforms are necessary to modernize Maine's medical cannabis program. The medical cannabis statute in Maine is woefully out of date relative to the commercialized nature of Maine's medical cannabis program today and the standards that have developed across the country since Maine initially legalized medical cannabis in 1999. Identifying harmful contaminants in the medical cannabis supply chain is important, but absent the tools to do anything about such findings and/or remove them from the supply chain, the impacts of testing are limited at best. Thus, in addition to mandatory testing, medical cannabis must be subject to a comprehensive inventory tracking program.

An inventory tracking program complements the testing program so that businesses and regulators can identify precisely which products in the supply chain are in need of testing, or which products are or are not contaminated. Inventory tracking strengthens the wholesale market for medical cannabis by providing proof positive to retail stores that the products they are purchasing have passed testing. In Maine's adult use program, adult use programs across the United States, and medical programs across the United States, inventory tracking programs allow regulators to protect patients and consumers by identifying and isolating products that are contaminated, keeping those products out of the hands of the public. Currently in Maine, OCP is unable to provide any such protections to medical cannabis patients because OCP lacks an ability to know how much of a contaminated product is on shelves or has already been sold to patients due to the lack of an inventory tracking system.

Unlike in the state's Adult Use Cannabis Program, which does utilize an inventory tracking system, OCP is unable to place administrative restrictions on the sale or transfer of contaminated medical cannabis

products or order destruction of tainted product. Without inventory tracking, the Office cannot even identify how widespread contamination might be, even in the face of a failed test.

Another area needing comprehensive overhaul is the confidentiality provisions. Confidentiality protections are important for patients, but the current confidentiality structure does not protect patients; it protects businesses. In fact, they harm medical cannabis patients in demonstrable ways.

The confidentiality protections that harm patients are nowhere more obvious than the medical supply chain testing that motivated this report. For example, under 22 MRS § 2425-A(12), OCP is unable to notify patients, the public generally, or even other state agencies which caregivers and caregiver retail stores failed for having contaminated cannabis. OCP staff are subject to fines if they notify Maine CDC about a biological contaminant in the supply chain that potentially threatens patient and public health. OCP is barred from notifying the Board of Pesticides Control if a caregiver is using a banned pesticide or using a pesticide without a pesticide applicator license. OCP has, under statute, a limited number of regulatory actions it can take against those operators, all while lacking the statutory authority to notify patients as to the risks. Such policies perpetuate the potential harm to Maine's medical cannabis patients.

Not only do the medical cannabis confidentiality protections in statute protect businesses over patients, but those confidentiality provisions also protect businesses selling contaminated cannabis over both patients and businesses selling uncontaminated cannabis.

Conclusion

Historically, public discussions in Maine about mandatory testing have lacked data and information about contamination within the supply chain. OCP's recent audit testing of medical cannabis aimed to help fill that gap and bring sound, reliable data to the conversation. The fact that 42% of medical cannabis samples taken at random contained at least one contaminant at levels that would have failed testing in Maine's adult use program cannot be taken lightly, as these very same products are being offered to patients with serious medical conditions every day. The harmful effects of these cannabis contaminants are discussed at length in this report, and their known prevalence within the supply chain must serve to reset discussions around medical cannabis testing.

Maine's Medical Use of Cannabis Program (MMCP) has evolved dramatically since Maine legalized medical cannabis in 1999 and established the program's statutory framework in 2010. Early on in the program, Maine's registered caregivers were each cultivating and producing cannabis and cannabis products for a small number of patients with whom they had individual relationships. Today, however, medical program participants are serving more than 106,000 patients statewide rather than a handful of patients each. Similarly, at the inception of Maine's medical program, mandatory testing was not a universal best practice; while today, mandatory cannabis testing in medical and adult use programs (including Maine's adult use program) is a national standard—a standard Maine's medical program fails to meet. Maine's medical cannabis laws have not kept up with these state and national changes, and they do not go far enough in protecting the state's vulnerable patients who use cannabis as medicine.

Arguments against mandatory testing have historically included misinformation and criticism about Maine's certified cannabis testing facilities (CTFs). For a testing facility to accept and analyze cannabis samples in Maine's Adult Use Cannabis Program, they must go through a lengthy and rigorous

accreditation and certification process with the state, plus they must attain accreditation from an independent, third-party accreditor, ISO/IEC, an international standard for demonstrating competent facility operation and valid results. In its own analysis to investigate claims of inconsistent potency test results by Maine CTFs, OCP found there to be no bias and a high degree of comparability between the three CTFs operating throughout the two-year period analyzed. The rigorous standards set for Maine CTFs are detailed throughout this report so that accurate information is available for future discussions about mandatory testing. Maine's reliable and accurate certified testing facilities have the capacity and expertise to keep Maine's medical cannabis supply chain free of harmful contaminants.

Implementing mandatory medical cannabis testing is but one part of protecting Maine's medical cannabis patients as multiple reforms are necessary to modernize Maine's medical cannabis program. Identifying harmful contaminants in the medical cannabis supply chain is important, but absent an inventory tracking system and changes to the confidentiality protections for program registrants, the impacts of such mandatory testing are limited at best. Maine's 106,000+ medical cannabis patients deserve a comprehensive solution that prioritizes their health and safety, and the primary goal of future policy conversations around mandatory medical cannabis testing must be to keep Maine's patients safe.

Appendix A – Analytes Tested by Product Type

The Office of Cannabis Policy conducted audit testing for the following analytes by product type.

Medical Cannabis/Cannabis Product	Analytes
Flower (n=101)	• Filth & Foreign Materials • Harmful Microbes (including Yeast & Mold) • Heavy Metals • Pesticides • Potency • Water Activity
Concentrate (Vape Cartridges, n=18)	• Heavy Metals • Pesticides • Residual Solvents
Edible (n=1)	• Filth & Foreign Materials • Harmful Microbes (including Yeast & Mold) • Heavy Metals • Potency • Water Activity

Appendix B – Deidentified Certificate of Analysis Examples

- **Pages 19-34:** Deidentified certificate of analysis from CATLAB
- **Pages 35-41:** Deidentified certificate of analysis from Nelson Analytical
- **Pages 42-44:** Deidentified certificate of analysis from Nova Analytic Labs

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19 Levesque Dr. #3
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ME OCP: MTF368

CATLAB, LLC

Certificate of Analysis

Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Summary of Results

Water Activity Profile	
All Results	Pass

Filth and Foreign Materials Screening	
All Results	Pass

Microbiological Screening	
All Results	Fail

Heavy Metals Screening	
All Results	Pass

Pesticides Screening	
All Results	Pass

Potency Profile	
Cannabinoid	Result mg/g
CBDV	< RL
THCV	0.145
CBDA	0.609
CBD	< RL
CBG	1.07
CBN	< RL
CBGA	11.3
CBC	< RL
exoTHC	< RL
Δ9-THC	7.80
Δ8THC	< RL
THCA	220
Total Cannabinoids %	24.1
Total CBD mg/g	0.534
Total THC mg/g	201
Total CBD %	0.0534
Total THC %	20.1

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		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Potency

Date Analyzed: 8/21/23 **Prep Date:** 8/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** KB

Potency	Result %	Result (mg/g)	Result (mg/package)	RL (%)	RL (mg/g)
CBDV	< RL	< RL	N/A	0.0101	0.101
THCV	< RL	< RL	N/A	0.0101	0.101
CBDA	0.0609	0.609	N/A	0.0101	0.101
CBD	< RL	< RL	N/A	0.0101	0.101
CBG	0.107	1.07	N/A	0.0101	0.101
CBN	< RL	< RL	N/A	0.0101	0.101
CBGA	1.13	11.3	N/A	0.0101	0.101
CBC	< RL	< RL	N/A	0.0101	0.101
exoTHC	< RL	< RL	N/A	0.0101	0.101
Δ9-THC	0.780	7.80	N/A	0.0101	0.101
Δ8THC	< RL	< RL	N/A	0.0101	0.101
THCA	22.0	220	N/A	0.0101	0.101

CRM failure, CBDA > 120% expected. CCV failures due to evaporation of stock solution. Fresh CCV aliquots of new stock solution pass, indicating that the calibration is unaffected.

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Certificate of Analysis

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		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Pesticides

Date Analyzed: 08/21/23 **Prep Date:** 08/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** AC

Analyte	Finding (PPB)	LOQ (PPB)	Limit (PPB)	Pass/ Fail	Analyte	Finding (PPB)	LOQ (PPB)	Limit (PPB)	Pass/ Fail
Abamectin	< RL	403	500	Pass	Dimethoate	< RL	39.9	200	Pass
Acephate	< RL	55.6	400	Pass	Ethoprophos	< RL	33.9	200	Pass
Acequinocyl	< RL	1150	2000	Pass	Etofenprox	< RL	78.1	400	Pass
Acetamiprid	< RL	31.2	200	Pass	Etoxazole	< RL	61.2	200	Pass
Aldicarb	< RL	31.2	400	Pass	Fenoxycarb	< RL	89.9	200	Pass
Azoxystrobin	< RL	33.2	200	Pass	Fenpyroximate	< RL	83.1	400	Pass
Bifenazate	< RL	31.2	200	Pass	Fipronil	< RL	112	400	Pass
Bifenthrin	< RL	96.5	200	Pass	Flonicamid	< RL	31.2	1000	Pass
Boscalid	< RL	42.9	400	Pass	Fludioxonil	< RL	62.5	400	Pass
Carbaryl	< RL	37.0	200	Pass	Hexythiazox	< RL	54.3	1000	Pass
Carbofuran	< RL	31.2	200	Pass	Imazalil	< RL	87.3	200	Pass
Chlorantraniliprole	< RL	92.2	200	Pass	Imidacloprid	< RL	39.8	400	Pass
Chlorfenapyr	< RL	919	1000	Pass	Kresoxim-methyl	< RL	53.6	400	Pass
Chlorpyrifos	< RL	74.5	200	Pass	Malathion	< RL	66.0	200	Pass
Clofentezine	< RL	56.7	200	Pass	Metalaxyl	< RL	56.4	200	Pass
Cyfluthrin	< RL	798	1000	Pass	Methiocarb	< RL	31.2	200	Pass
Cypermethrin	< RL	196	1000	Pass	Methomyl	< RL	31.2	400	Pass
Daminozide	< RL	329	1000	Pass	Methyl parathion	< RL	193	200	Pass
DDVP (Dichlorvos)	< RL	31.2	1000	Pass	MGK-264 [2]	< RL	70.2	200	Pass
Diazinon	< RL	55.3	200	Pass	Myclobutanil	< RL	37.3	200	Pass
					Naled	< RL	42.2	500	Pass

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Certificate of Analysis

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Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Pesticides

Date Analyzed: 08/21/23 **Prep Date:** 08/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** AC

Analyte	Finding (PPB)	LOQ (PPB)	Limit (PPB)	Pass/Fail
Oxamyl	< RL	31.2	1000	Pass
Paclobutrazol	< RL	52.5	400	Pass
Permethrin [3]	< RL	199	200	Pass
Phosmet	< RL	55.8	200	Pass
Piperonyl butoxide	< RL	59.0	2000	Pass
Prallethrin	< RL	103	200	Pass
Propiconazole	< RL	59.5	400	Pass
Propoxur	< RL	31.2	200	Pass
Pyrethrins [1]	< RL	248	1000	Pass
Pyridaben	< RL	59.8	200	Pass
Spinosad [4]	< RL	62.4	200	Pass
Spiromesifen	< RL	62.5	200	Pass
Spirotetramat	< RL	37.5	200	Pass
Spiroxamine	< RL	37.9	400	Pass
tebuconazole	< RL	69.2	400	Pass
Thiacloprid	< RL	31.2	200	Pass
Thiamethoxam	< RL	62.6	200	Pass
Trifloxystrobin	< RL	59.3	200	Pass

Disclaimer:

1. Pyrethrin is measured as cumulative residues of Pyrethrin, Cinerin, and Jasmolin (CAS # 8003-34-7).
2. MGK-264 is measured as cumulative residue of MGK-264 A and MGK-264 B (CAS # 113-48-4).
3. Permethrin is measured as cumulative residue of cis- and trans- permethrin isomers. (CAS # 54774-45-7 and 51877-74-8, respectively).
4. Spinosad is a measured as cumulative residue of Spinosad A and Spinosad D (CAS # 168316-95-8 and 131929-60-7, respectively).
5. Abamectin is measured as cumulative residues of Abamectin B1a and Abamectin B1b (CAS #71751-41-2)

Note: QC presented analytes outside criteria in a CCV (Methomyl), LCS (Abamectins, Prallethrin), and Spiked matrix Sample.

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Certificate of Analysis

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Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Heavy Metals

Date Analyzed: 8/18/23 **Prep Date:** 8/17/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** ITG

Metals	Result (ug/kg)	RL (ug/kg)	Action Level (ug/kg)	Pass/Fail
Arsenic	< RL	84.7	200	Pass
Cadmium	< RL	55.9	200	Pass
Lead	< RL	24.7	500	Pass
Mercury	< RL	4.89	100	Pass

Microbial Analysis

Prep Date Bacteria: 8/15/23 **Prep Date Ecoli/SLM:** 8/15/23 **Prep Date Yeast and Mold:** 8/15/23
Date Analyzed Bacteria: 8/16/23 **Date Analyzed Ecoli/SLM:** 8/16/23 **Date Analyzed Yeast and Mold:** 8/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** KW

Contaminants	Result (CFU/g)	RL (CFU/g)	Action Level (CFU/g)	Pass/Fail
Total Aerobic	< RL	100	100,000	Pass
Total Yeast/Mold	27000	100	10,000	Fail
Total Enterobacter	< RL	100	1,000	Pass
Total Coliform	< RL	100	1,000	Pass
Escherichia Coli (E. Coli)	< RL	1	1	Pass
Salmonella spp	< RL	1	1	Pass

The bacteria incubator was 0.3 degrees C outside of acceptance criteria for a portion of the incubation period.

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		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Filth and Foreign Materials

Date Analyzed: 08/16/23 **Prep Date:** 08/16/23
Instrument: Visual Inspection **Method:** [redacted] **Analyst:** JG

Analyte	Result	Action Level	Pass/Fail
Sand, Soil, Cinders, Dirt, and Mold (%)	0	25	Pass
Embedded Foreign Material (%)	0	25	Pass
Insect Fragment	0	1	Pass
Hair	0	1	Pass
Mammalian Excreta	0	1	Pass

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Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 10:15 AM	**Date Generated**	08/21/2023

Water Activity

Date Analyzed: 08/16/23 **Prep Date:** 08/16/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** JG/IG

Analyte	Finding (Aw)	RL (Aw)	Action Level (Aw)	Pass/Fail
Water Activity	0.59	0.11	0.65	Pass

Deisy Peña-Romero Lab Director

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Certificate of Analysis

Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Summary of Results

Water Activity Profile	
All Results	Pass

Filth and Foreign Materials Screening	
All Results	Pass

Microbiological Screening	
All Results	Fail

Heavy Metals Screening	
All Results	Pass

Pesticides Screening	
All Results	Pass

Potency Profile	
Cannabinoid	Result mg/g
CBDV	< RL
THCV	1.10
CBDA	0.573
CBD	< RL
CBG	0.560
CBN	< RL
CBGA	9.21
CBC	< RL
exoTHC	< RL
Δ9-THC	7.56
Δ8THC	< RL
THCA	241
Total Cannabinoids %	26.0
Total CBD mg/g	0.503
Total THC mg/g	219
Total CBD %	0.0503
Total THC %	21.9

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Certificate of Analysis

Client Name	Maine OCP	**License Number**	
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		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Potency

Date Analyzed: 8/21/23 **Prep Date:** 8/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** KB

Potency	Result %	Result (mg/g)	Result (mg/package)	RL (%)	RL (mg/g)
CBDV	< RL	< RL	N/A	0.0101	0.101
THCV	0.110	1.10	N/A	0.0101	0.101
CBDA	0.0573	0.573	N/A	0.0101	0.101
CBD	< RL	< RL	N/A	0.0101	0.101
CBG	0.0560	0.560	N/A	0.0101	0.101
CBN	< RL	< RL	N/A	0.0101	0.101
CBGA	0.921	9.21	N/A	0.0101	0.101
CBC	< RL	< RL	N/A	0.0101	0.101
exoTHC	< RL	< RL	N/A	0.0101	0.101
Δ9-THC	0.756	7.56	N/A	0.0101	0.101
Δ8THC	< RL	< RL	N/A	0.0101	0.101
THCA	24.1	241	N/A	0.0101	0.101

CRM failure, CBDA > 120% expected. CCV failures due to evaporation of stock solution. Fresh CCV aliquots of new stock solution pass, indicating that the calibration is unaffected.

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Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Pesticides

Date Analyzed: 08/21/23 **Prep Date:** 08/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** AC

Analyte	Finding (PPB)	LOQ (PPB)	Limit (PPB)	Pass/ Fail	Analyte	Finding (PPB)	LOQ (PPB)	Limit (PPB)	Pass/ Fail
Abamectin	< RL	403	500	Pass	Dimethoate	< RL	39.9	200	Pass
Acephate	< RL	55.6	400	Pass	Ethoprophos	< RL	33.9	200	Pass
Acequinocyl	< RL	1150	2000	Pass	Etofenprox	< RL	78.1	400	Pass
Acetamiprid	< RL	31.2	200	Pass	Etoxazole	< RL	61.2	200	Pass
Aldicarb	< RL	31.2	400	Pass	Fenoxycarb	< RL	89.9	200	Pass
Azoxystrobin	< RL	33.2	200	Pass	Fenpyroximate	< RL	83.1	400	Pass
Bifenazate	< RL	31.2	200	Pass	Fipronil	< RL	112	400	Pass
Bifenthrin	< RL	96.5	200	Pass	Flonicamid	< RL	31.2	1000	Pass
Boscalid	< RL	42.9	400	Pass	Fludioxonil	< RL	62.5	400	Pass
Carbaryl	< RL	37.0	200	Pass	Hexythiazox	< RL	54.3	1000	Pass
Carbofuran	< RL	31.2	200	Pass	Imazalil	< RL	87.3	200	Pass
Chlorantraniliprole	< RL	92.2	200	Pass	Imidacloprid	< RL	39.8	400	Pass
Chlorfenapyr	< RL	919	1000	Pass	Kresoxim-methyl	< RL	53.6	400	Pass
Chlorpyrifos	< RL	74.5	200	Pass	Malathion	< RL	66.0	200	Pass
Clofentezine	< RL	56.7	200	Pass	Metalaxyl	< RL	56.4	200	Pass
Cyfluthrin	< RL	798	1000	Pass	Methiocarb	< RL	31.2	200	Pass
Cypermethrin	< RL	196	1000	Pass	Methomyl	< RL	31.2	400	Pass
Daminozide	< RL	329	1000	Pass	Methyl parathion	< RL	193	200	Pass
DDVP (Dichlorvos)	< RL	31.2	1000	Pass	MGK-264 [2]	< RL	70.2	200	Pass
Diazinon	< RL	55.3	200	Pass	Myclobutanil	< RL	37.3	200	Pass
					Naled	< RL	42.2	500	Pass

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Eliot, ME 03903
207-200-9950
ME OCP: MTF368

Certificate of Analysis

Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Pesticides

Date Analyzed: 08/21/23 **Prep Date:** 08/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** AC

Analyte	Finding (PPB)	LOQ (PPB)	Limit (PPB)	Pass/Fail
Oxamyl	< RL	31.2	1000	Pass
Paclobutrazol	< RL	52.5	400	Pass
Permethrin [3]	< RL	199	200	Pass
Phosmet	< RL	55.8	200	Pass
Piperonyl butoxide	< RL	59.0	2000	Pass
Prallethrin	< RL	103	200	Pass
Propiconazole	< RL	59.5	400	Pass
Propoxur	< RL	31.2	200	Pass
Pyrethrins [1]	< RL	248	1000	Pass
Pyridaben	< RL	59.8	200	Pass
Spinosad [4]	< RL	62.4	200	Pass
Spiromesifen	< RL	62.5	200	Pass
Spirotetramat	< RL	37.5	200	Pass
Spiroxamine	< RL	37.9	400	Pass
tebuconazole	< RL	69.2	400	Pass
Thiacloprid	< RL	31.2	200	Pass
Thiamethoxam	< RL	62.6	200	Pass
Trifloxystrobin	< RL	59.3	200	Pass

Disclaimer:

1. Pyrethrin is measured as cumulative residues of Pyrethrin, Cinerin, and Jasmolin (CAS # 8003-34-7).
2. MGK-264 is measured as cumulative residue of MGK-264 A and MGK-264 B (CAS # 113-48-4).
3. Permethrin is measured as cumulative residue of cis- and trans- permethrin isomers. (CAS # 54774-45-7 and 51877-74-8, respectively).
4. Spinosad is a measured as cumulative residue of Spinosad A and Spinosad D (CAS # 168316-95-8 and 131929-60-7, respectively).
5. Abamectin is measured as cumulative residues of Abamectin B1a and Abamectin B1b (CAS #71751-41-2)

Note: QC presented analytes outside criteria in a CCV (Methomyl), LCS (Abamectins, Prallethrin), and Spiked matrix Sample.

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207-200-9950
ME OCP: MTF368

Certificate of Analysis

Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Heavy Metals

Date Analyzed: 8/18/23 **Prep Date:** 8/17/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** ITG

Metals	Result (ug/kg)	RL (ug/kg)	Action Level (ug/kg)	Pass/Fail
Arsenic	< RL	84.7	200	Pass
Cadmium	< RL	55.9	200	Pass
Lead	< RL	24.7	500	Pass
Mercury	10.6	4.89	100	Pass

Microbial Analysis

Prep Date Bacteria: 8/15/23 **Prep Date Ecoli/SLM:** 8/15/23 **Prep Date Yeast and Mold:** 8/15/23
Date Analyzed Bacteria: 8/16/23 **Date Analyzed Ecoli/SLM:** 8/16/23 **Date Analyzed Yeast and Mold:** 8/18/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** KW

Contaminants	Result (CFU/g)	RL (CFU/g)	Action Level (CFU/g)	Pass/Fail
Total Aerobic	< RL	100	100,000	Pass
Total Yeast/Mold	23000	100	10,000	Fail
Total Enterobacter	< RL	100	1,000	Pass
Total Coliform	< RL	100	1,000	Pass
Escherichia Coli (E. Coli)	< RL	1	1	Pass
Salmonella spp	< RL	1	1	Pass

The bacteria incubator was 0.3 degrees C outside of acceptance criteria for a portion of the incubation period.

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207-200-9950
ME OCP: MTF368

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Certificate of Analysis

Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Filth and Foreign Materials

Date Analyzed: 08/16/23 **Prep Date:** 08/16/23
Instrument: Visual Inspection **Method:** [redacted] **Analyst:** JG

Analyte	Result	Action Level	Pass/Fail
Sand, Soil, Cinders, Dirt, and Mold (%)	0	25	Pass
Embedded Foreign Material (%)	0	25	Pass
Insect Fragment	0	1	Pass
Hair	0	1	Pass
Mammalian Excreta	0	1	Pass

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207-200-9950
ME OCP: MTF368

CATLAB, LLC

Certificate of Analysis

Client Name	Maine OCP	**License Number**	
Address	162 State House Station Augusta, ME 04333	**Phone**	207-287-3282
		Sample Type	Dried Flower
Order ID	2240	**Strain**	[redacted]
Sample ID	[redacted]	**Serving Mass (g)/ Package**	/
METRC Sample ID		**Collected Sample Weight**	7g
Date Received	08/14/2023	**Collected By**	OCP
Date/Time of Collection	08/14/2023 12:30 PM	**Date Generated**	08/21/2023

Water Activity

Date Analyzed: 08/16/23 **Prep Date:** 08/16/23
Instrument: [redacted] **Method:** [redacted] **Analyst:** JG/IG

Analyte	Finding (Aw)	RL (Aw)	Action Level (Aw)	Pass/Fail
Water Activity	0.60	0.11	0.65	Pass

Deisy Peña-Romero Lab Director

CATLAB, LLC CHAIN OF CUSTODY RECORD

Order 2240

Page ___ of ___

CATLAB, LLC
19 Levesque Drive
Eliot, Maine 03903
207-200-9950
MTF368
ISO #112380

OCP

Report To: Chris Giesecke / Michael Field

Cultivator or Mfg Name:

Email Address (for results): chris.giesecke@maine.gov michael.field@maine.gov

Submital Type

Adult Use: ___ R&D: X Medical: ___

Personal/Other: ___

New Customer Information Diane McKenzie

Address:

City, State:

Zip Code:

Phone:

Billing Address (if different): OCP

Cultivator or Mfg License or Reg Number:

Sample Number (lab use only)	Sample Identification (as found on container)	Sample Type*	Date Collected	Time Collected	Sample Size	Serving Size**	Servings per Package**	Potency***	Homogeneity	Terpene Profile	Residual Solvents	Filth and Foreign Material	Microbiological Impurities	Water Activity	Mycotoxins	Metals	Pesticides	Yeast & Mold ONLY	Gender ID	Hop Latent Viroid (HLVd)	Percent Moisture (optional)
Analyses Requested																					
8196	[redacted]	Flower	8-14-23	1015	7g			✓				✓	✓	✓		✓	✓				
8197		Flower	8-14-23	1230	7g			✓				✓	✓	✓		✓	✓				

Comments, special Instructions, or temperature requirements:

*Sample types: flower, wet/frozen flower, trim, concentrate, CO_2/solvent based concentrate, edible, capsule, tincture, or 'other'

**For edibles, tinctures, and capsules please include serving size and servings per package information

***Potency analysis tests Δ-9-THC, THCA, CBD, CBG, CBN, CBDA, THCV, CBDV, CBC, CBGA, exoTHC, Δ-8-THC

Samples collected by (print): Chris Giesecke

Signature: [signature] Date: 8-14-23

Received in field by (print): Date:

Signature: Time:

Received at Lab by (print): Joe Caddis Date: 8/14/23

Signature: [signature] Time: 1:10

CATLAB, LLC

Sample Receipt Condition Report

Order ID: 2240

Samples Received Via: ___ CATLAB Sampler/Courier ___ Licensee ✓ Certified Sampler

Custody Seals Present and Intact on Transport Container: ✓ Yes ___ No ___ N/A Comments:

Custody Seals Present and Intact on Sample Containers: ___ Yes ___ No ___ N/A Comments:

Type of submittal: ✓ Medical ___ Adult Use ___ Other Comments:

Receipt Temp:_____ Humidity:_____ If needed, ice present? Y / N Ambient:

Samples Received

	# of Samples	# of Containers	Notes:
Flower	2	2	
Trim			
Pre-Roll			
Infused Pre-Roll			
Retail Units			
Concentrate			
Infused Edibles			
Solid Batch			
Liquid Batch			

Proper Sample Containers/Enough Sample?	(Y) / N / NA	Comments:
Analysis Marked on COC Match Bottles Rec'v?	(Y) / N / NA	Comments:
Date/Time/ID on Samples Match COC?	(Y) / N / NA	Comments:
Rushes Communicates to analyst in writing?	Y / N / (NA)	Comments:
Sample tampered, manipulated, adulterated or contaminated?	Y / (N) / NA	Comments:
AUMP Sample size by Batch Size OK?	Y / N / (NA)	Comments:
Samples collected in the manner required by OMP?	Y / N / (NA)	Comments:
Transport Manifest Received?	Y / N / (NA)	Comments:
Samples Received in Metrc?	Y / N / (NA)	Comments:

Notes/Comments:

Initials/Date: JG 8/14/23

Reviewer's Checklist

- ✓ Client ID/Contact
- ✓ Reporting Instructions
- ✓ Rushes Communicated
- ✓ Temp, Condition OK
- ✓ Sample ID/Date/Time
- ✓ Matrix
- ✓ TAT Correct
- ✓ Correct Analyses

If Adult Use:
- ___ Logged in Metrc
- ___ Transfer Manifest

If CATLAB Samples:
- ___ Sampling Form
- ___ Attestation Form

Initials: JG Date: 8/14/23

RP230815017

120 York Street
Kennebunk, ME 04043
(207) 467-3478

NELSON ANALYTICAL LAB

ISO 17025:2017 Accreditation
ANAB Certificate Number: AT-2169
Maine CDC Accreditation MTF001
Office of Marijuana Policy MTF328

Report Date: 15 August 2023

Office of Cannabis Policy:
162 State House Station:

Enclosed are the results of analytical testing performed on the following samples:

Laboratory ID	Sample Location	Date sampled	Date received
C23080289.01	**Case #2023-MCP-990**	10-Aug-23 12:40	10-Aug-23 15:06

If you have any questions concerning this report, please feel free to contact the laboratory at 207-467-3478.

Note: Imicladoprid was above the calibration range of the method. The original results are reported for all compounds except of Imicladoprid. The sample extract was diluted and re-analyzed. Not enough sample was submitted for re-extraction of the sample.\fs15

Lorri Maling
Laboratory Director

ANAB ACCREDITED TESTING LABORATORY

120 York Street
Kennebunk, ME 04046
(207) 467-3478

NELSON ANALYTICAL LAB

RP230815017

ISO 17025:2017 Certification
ANAB Certificate Number AT-2169
Maine CDC Accreditation # MTF001
Office of Marijuana Policy MTF328

Amount Received: 7.1g
Collected by: W. Brocher
[redacted]

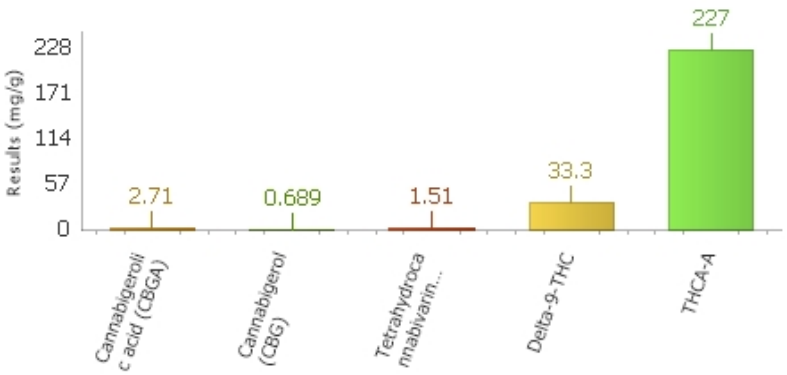
REPORT OF ANALYSIS

Office of Cannabis Policy

[redacted]

Case #2023-MCP-990(Plant Material-Marijuana)

Date sampled : 08/10/2023
Reported Date: 08/15/2023
Temp Received: 24.3



Cannabinoids by HPLC

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Cannabidivarin (CBDV)	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Cannabidiolic acid (CBDA)	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Cannabigerolic acid (CBGA)	**2.71**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Cannabigerol (CBG)	**0.689**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Cannabidiol (CBD)	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Tetrahydrocannabivarin (THCV)	**1.51**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Cannabinol (CBN)	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Delta-9-THC	**33.3**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Delta-8-THC	ND	0.2	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Cannabichromene (CBC)	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
THCA-A	**227**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	

Total Cannabinoids by HPLC (Calculated)

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
CBD+CBDA- Calculated	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Total CBD-(Max CBD) Calculated	ND	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
THC+THCA- Calculated	**261**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Total THC-(Max THC) Calculated	**233**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Total THC-(Max THC+D8) Calculated	**233**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Total Cannabinoids- Calculated	**266**	0.1	mg/g		08/14/2023 16:09	[redacted]	NRS	N/A	
Analysis preparation date	ND				08/11/2023 16:20	[redacted]	NRS	N/A	

Results as reported above relate only to samples as submitted, unless specifically noted otherwise.

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Kennebunk, ME 04046
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NELSON ANALYTICAL LAB

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ISO 17025:2017 Certification
ANAB Certificate Number AT-2169
Maine CDC Accreditation # MTF001
Office of Marijuana Policy MTF328

Amount Received: 7.1g
Collected by: W. Brocher
[redacted]

REPORT OF ANALYSIS

Office of Cannabis Policy

[redacted]

Case #2023-MCP-990(Plant Material-Marijuana)

Date sampled : 08/10/2023
Reported Date: 08/15/2023
Temp Received: 24.3

Microbiological Testing

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Aerobic Plate Count	**100**	100	cfu/g		08/13/2023 10:15	[redacted]	RC	100000	Pass
Total Coliform	ND	100	cfu/g		08/12/2023 11:10	[redacted]	RC	1000	Pass
E. coli	**Pass**	1	per gram	1	08/13/2023 09:15	[redacted]	RC	Pass	Pass
Salmonella	**Pass**	1	per gram	1	08/13/2023 09:15	[redacted]	RC	Pass	Pass
Enterobacteriacaea	ND	100	cfu/g		08/12/2023 11:10	[redacted]	RC	1000	Pass
Yeast	ND	100	cfu/g		08/13/2023 10:15	[redacted]	RC	N/A	
Mold	ND	100	cfu/g		08/13/2023 10:15	[redacted]	RC	N/A	
Total Yeast and Mold	ND	100	cfu/g		08/13/2023 10:15	[redacted]	RC	10000	Pass
Microbiological Preparation Time	**N/A**				08/11/2023 10:05	[redacted]	RC	N/A	

Visual Inspection

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Visual Inspection	**Pass**		NA	1	08/10/2023 15:36	[redacted]	BB	Pass	Pass

Water Activity

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Water Activity	**0.56**	0.2	Aw	1	08/11/2023 10:13	[redacted]	BB	0.65	Pass

Metals by ICP MS

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Metals preparation	ND				08/11/2023 11:31	[redacted]	BB	N/A	
Arsenic	ND	100	ug/kg		08/12/2023 11:17	[redacted]	LAM	200	Pass
Cadmium	ND	100	ug/kg		08/12/2023 11:17	[redacted]	LAM	200	Pass
Lead	ND	100	ug/kg		08/12/2023 11:17	[redacted]	LAM	500	Pass
Mercury	ND	80	ug/kg		08/12/2023 11:17	[redacted]	LAM	100	Pass

pesticides by LCMSMS

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Abamectin	ND	400	ug/kg		08/10/2023 22:21	[redacted]	LAM	500	Pass

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Kennebunk, ME 04046
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NELSON ANALYTICAL LAB

RP230815017

ISO 17025:2017 Certification
ANAB Certificate Number AT-2169
Maine CDC Accreditation # MTF001
Office of Marijuana Policy MTF328

Amount Received: 7.1g
Collected by: W. Brocher
[redacted]

REPORT OF ANALYSIS

Office of Cannabis Policy

[redacted]

Case #2023-MCP-990(Plant Material-Marijuana)

Date sampled : 08/10/2023
Reported Date: 08/15/2023
Temp Received: 24.3

pesticides by LCMSMS

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Acephate	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Acequinocyl	ND	500	ug/kg		08/10/2023 22:21	[redacted]	LAM	2000	Pass
Acetamiprid	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Aldicarb	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Azoxystrobin	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Bifenazate	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Bifenthrin	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Boscalid	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Carbaryl	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Carbofuran	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Chlorantraniliprole	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Chlorfenapyr	ND	500	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Chlorpyrifos	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Clofentezine	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Cyfluthrin	ND	500	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Cypermethrin	ND	500	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Daminozide	ND	400	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
DDVP (Dichlovos)	ND	400	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Diazinon	ND	150	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Dimethoate	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Ethoprophos	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Etonfenprox	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Etoxazole	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Fenoxycarb	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Fenpyroximate	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Fipronil	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Flonicamid	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Fludioxonil	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Hexythiazox	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Imazalil	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Imidacloprid	**17800**	1000	ug/kg		08/12/2023 17:06	[redacted]	LAM	400	**Fail**

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Kennebunk, ME 04046
(207) 467-3478

NELSON ANALYTICAL LAB

RP230815017

ISO 17025:2017 Certification
ANAB Certificate Number AT-2169
Maine CDC Accreditation # MTF001
Office of Marijuana Policy MTF328

Amount Received: 7.1g
Collected by: W. Brocher
[redacted]

REPORT OF ANALYSIS

Office of Cannabis Policy

[redacted]

Case #2023-MCP-990(Plant Material-Marijuana)

Date sampled : 08/10/2023
Reported Date: 08/15/2023
Temp Received: 24.3

pesticides by LCMSMS

Analyte	Result	Reporting Limit	Units	Q	Analyzed	Method	Analyst	Pass/Fail Limit	Test Remarks
Kresoxim-methyl	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Malathion	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Metalaxyl	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Methiocarb	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Methomyl	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Methyl Parathion	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
MGK-264	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Myclobutanil	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Naled	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Oxamyl	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Paclobutrazol	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Permethrins (Cis and Trans)	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Phosmet	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Piperonylbutoxide	ND	500	ug/kg		08/10/2023 22:21	[redacted]	LAM	2000	Pass
Prallethrin	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
propiconazole	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Propoxur	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Pyrethrins (Cumulative Residues)	ND	500	ug/kg		08/10/2023 22:21	[redacted]	LAM	1000	Pass
Pyridaben	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Spinosad	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Spiromesifen	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Spirotetramat	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Spiroxamine	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Tebuconazole	ND	200	ug/kg		08/10/2023 22:21	[redacted]	LAM	400	Pass
Thiacloprid	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Thiamethoxam	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Trifloxystrobin	ND	100	ug/kg		08/10/2023 22:21	[redacted]	LAM	200	Pass
Pesticide Extraction Date	ND				08/10/2023 17:00	[redacted]	LAM	N/A	

Results as reported above relate only to samples as submitted, unless specifically noted otherwise.

120 York Street
Kennebunk, ME 04043
(207)467-3478

ANAB Certificate Number: AT-2169
www.Testedlabs.com

Notes and Definitions

Note: All sample results are based on samples as they are received. Not all potential/existing hazards were evaluated. Unless otherwise noted below, analyses were performed without significant modifications and QC met the quality standards outlined in the methods reported. For purposes of reporting the terms marijuana and cannabis are used interchangeably. The Pass/Fail column on the report references Maine Adult Use acceptance limits. The State of Maine does not require Medical Marijuana or Hemp to meet these acceptance limits currently.

Results for the Maine Adult Use program are entered into the Metrc system. Due to reporting requirements some results are entered in Metrc as Zero. This is not scientifically accurate. Please refer to the final pdf report for the accurate reporting information and reporting limits.

Heat activation of cannabis products converts THCA to THC and CBDA to CBD in a time and temperature dependent manner. This conversion is known as decarboxylation and results from the loss of CO2 during heating.
Total THC (Max THC) = Delta 9 THC + (THCA x 0.877)- Calculation required for Maine Adult Use program
Total THC (Max THC+D8) = Delta 8 THC + Delta 9 THC + (THCA x 0.877)
Total CBD (Max CBD) = CBD + (CBDA x 0.877)

Nelson Analytical is accredited for testing by ISO/IEC 17025:2017 and certified by ME CDC for the following parameters only:
Cannabinoids: Cannabinol (CBN), Cannabidiol (CBD)*, Cannabidiolic Acid (CBDA)*, Cannabigerol (CBG), Cannabigerolic Acid (CBGA), Cannabichromene (CBC), delta-9-THC*, delta-8-THC, THCA-A*, Tetrahydrocannabivarin (THCV), Cannabidivarin (CBDV) by High Pressure Liquid Chromatography (HPLC).
Internal SOP-1/SOP-7 Analysis of Cannabinoids *NOTE: ME CDC certification for CBD, CBDA, Delta 9 THC and THCA-A, Total THC and Total CBD. Edible samples for Maine Adult use may not exceed 10 mg/serving or 100 mg/package.

Homogeneity ([redacted] samples for edibles and concentrates must be within 15% for Maine Adult Use.

Visual Inspection - Foreign Material Testing ([redacted] Visual Inspection)

% Moisture (Loss on drying) ([redacted] - % Moisture)
Metals Preparation and Analysis: Arsenic, Cadmium, Lead and Mercury ([redacted]

Water Activity ([redacted]) For Maine Adult Use the water activity should be <0.65 for plant and <0.85 for edibles or other products.

Mycotoxins: Total Aflatoxin and Ochratoxin by [redacted]. For Maine Adult Use Total Mycotoxins are only evaluated after a yeast and mold failure. They must be 20 ppb or less for a passing result.

Yeast and Mold [redacted] Total Coliform and E. [redacted] E. Coli P/A [redacted] , Aerobic Plate Coun [redacted] , Enterobacteriaceae ([redacted] Salmonella (t [redacted]

Microbial limits for Maine Adult Use are as follows for all but concentrate samples:
Yeast and Mold 10,000cfu/g or less, Total Aerobic Bacteria 100,000 cfu/g or less, Total Coliform 1000 cfu/g or less, Enterobacteriaceae 1000 cfu/g or less, E. coli and Salmonella must be negative per gram.
For concentrates the microbial limits are as follows:
Yeast and Mold 1000 cfu/g or less, Total Aerobic Bacteria 10,000 cfu/g or less, Total Coliform 100 cfu/g or less, Enterobacteriaceae 100 cfu/g or less, E. coli and Salmonella must be negative per gram

Residual Solvents: [redacted]) The acceptance limits are in mg/kg in () next to the compound: Acetone(5000), Acetonitrile(410), Butanes(5000), Ethanol(5000), Ethyl Acetate(5000), Ethyl Ether(5000), Heptanes(5000), Hexane(290), Isopropyl alcohol(5000), Methanol(3000), Pentane(5000), Propane(5000), Toluene(890), Total Xylenes(2170), 1,2 Dichloroethane(1), Benzene(1), Chloroform(1), Ethylene Oxide(1), Methylene Chloride(1), Trichloroethylene(1).

< or ND - Analyte result not detected above the method reporting limit.
All sample results are reported on an "as received" basis.
Edibles are reported in mg/serving. The serving size is defined by the customer for Adult Use testing.
If the serving size is not defined by the customer (for R&D or Medical testing), the number reported is based on the weight of one unit of the product or as defined on the customer label.
The mg/serving reported are based on weights of the serving size taken at the laboratory or supplied by the customer. The mg/package results reported are based on information supplied by the customer.
Edible conversion calculation: mg/g in serving x weight of serving = mg per serving
Mg/package conversion: mg/serving x servings per package = mg/package
Laboratory uncertainty is calculated and updated on a regular basis and will be reported with lab results as needed or requested.
Samples are extracted and analyzed on the same day unless otherwise noted.
Cannabinoids, Residual Solvents and Terpene Analysis are based on laboratory developed methods. All other test methods are based on established EPA, USP or FDA methods.
Matrix matched quality control check samples for marijuana are available for microbiological analysis in a hemp-based QC. Other matrix matched quality control samples for most matrices may be available for hemp but do not currently exist in marijuana. Due to this unavailability, even ISO/IEC validated methods cannot be fully verified for the efficiency and accuracy of the marijuana extraction and analysis in any current Maine Testing facility.
To convert mg/ml to a % percentage move the decimal place one to the left.

Note: Imicladoprid was above the calibration range of the method. The original results are reported for all compounds except of Imicladoprid. The sample extract was diluted and re-analyzed. Not enough sample was submitted for re-extraction of the sample.

Results as reported above relate only to samples as submitted, unless specifically noted otherwise.

QUALIFIER DEFINITION

NELSON ANALYTICAL LAB

120 York Street, Kennebunk, ME 04043
www.nelsonanalytical.com
(207)467-3478 phone

REPORT OF ANALYSIS

Laboratory ID: [redacted]

NH ELAP Accreditation #NH2018
Maine State Certification # ME00015
Maine Radon Certification # ME17500

Qualifier Definition	
1	Passes Maine Adult Use

Sampling performed by the lab is according to the lab document "Water Sampling Instructions". EPA standards list pH & Chlorine as field parameters which should be tested immediately upon sample collection. Samples tested for pH after submission are beyond the hold time. Samples will be analyzed as quickly as laboratory operations allow. Metals samples preserved and analyzed on the same day do not meet the method criteria. #-Sample(s) received at laboratory do not meet method specified temperature criteria. #L-Sample(s) received in lobby and it was unable to be verified if they were in a cooler or on ice at receipt.
Solid samples are reported on a dry weight basis unless noted otherwise.
Subcontract Laboratories: SUB1: Nelson Analytical Manchester (NH1005) ME-NH01005 SUB 2: (NH 2136) (ME-CT00007),SUB3: (NH2001) (ME00019), SUB 4: NH2073 SUB5: (NH2530) (ME FL00117), SUB7: EAI Analytical (NH 1007),SUB 8: ME00002 SUB9: (NH2516) (MA00100)

Date: 08/15/2023 11:46

NOVA ANALYTIC LABS
Tomorrow's Testing, Today.

NOVA ANALYTIC LABS // 65 MILLIKEN STREET, UNIT C PORTLAND ME 04103 // PH: 2074664661
EMAIL: INNOVATION@NOVA-ANALYTICLABS.COM
ME LICENSE #: TF284

CERTIFICATE OF ANALYSIS

** FOR QUALITY ASSURANCE PURPOSES. NOT A MAINE COMPLIANCE CERTIFICATE.*

2023-MCP-968 (FLOWER) // PRODUCED: AUG 18, 2023

CLIENT: MAINE OFFICE OF CANNABIS POLICY // BATCH: PASS

[redacted]

MATRIX: FLOWER [1]
SAMPLE ID: [redacted]
COLLECTED ON: AUG 14, 2023
RECEIVED ON: AUG 14, 2023
SAMPLE SIZE: 7 G [1]
SAMPLED BY: MAINE OFFICE OF CANNABIS POLICY
RECEIVED BY: CHRISTOPHER COLE

[1] ENTERED BY CLIENT

CANNABINOID OVERVIEW

THCA:	24.4 %
CBGA:	0.881 %
TOTAL CANNABINOIDS:	25.7 %

BATCH RESULT: PASS

POTENCY	TESTED
FOREIGN	PASS
METALS	PASS
MICROBIAL	PASS
PESTICIDES	PASS
WATER	PASS

CAN.1: POTENCY & CANNABINOID PROFILE [redacted]
PREPARATION: AUG 15, 2023 // ANALYSIS: AUG 16, 2023

ANALYTE	LIMIT	AMT	AMT	LOD/LOQ (%)	PASS/FAIL	ANALYTE	LIMIT	AMT	AMT	LOD/LOQ (%)	PASS/FAIL
CBC		ND	ND	0.0449/0.225	N/A	CBNA		ND	ND	0.0449/0.225	N/A
CBCA		0.390 %	3.90 mg/g	0.0449/0.225	N/A	Δ^8-THC		ND	ND	0.0449/0.225	N/A
CBD		ND	ND	0.0449/0.225	N/A	Δ^8-THCA		ND	ND	0.0449/0.225	N/A
CBDA		ND	ND	0.0449/0.225	N/A	Δ^9-THC		ND	ND	0.0449/0.225	N/A
CBDV		ND	ND	0.0449/0.225	N/A	Δ^{10}-THC		ND	ND	0.0449/0.225	N/A
CBDVA		ND	ND	0.0449/0.225	N/A	EXO-THC		ND	ND	0.0449/0.225	N/A
CBG		ND	ND	0.0449/0.225	N/A	THCA		24.4 %	244 mg/g	0.0449/0.225	N/A
CBGA		0.881 %	8.81 mg/g	0.0449/0.225	N/A	THCV		ND	ND	0.0449/0.225	N/A
CBL		ND	ND	0.0449/0.225	N/A	THCVA		< LOQ	< LOQ	0.0449/0.225	N/A
CBLA		ND	ND	0.0449/0.225	N/A	TOTAL THC**		21.4 %	214 mg/g		N/A
CBN		ND	ND	0.0449/0.225	N/A	TOTAL CBD**		ND	ND		N/A

** TOTAL CBD = (CBDA X 0.877) + CBD
** TOTAL THC = (THCA X 0.877) + THC
Reported on an as received basis
1000 µg/g = 1 mg/g

[redacted]

AUTHORIZED BY:
ZACHARY SMITH
LABORATORY MANAGER, NOVA ANALYTIC LABS
AUG 18, 2023

PST.2: PESTICIDES, INSECTICIDES, FUNGICIDES AND GROWTH REGULATORS BY [redacted]
PREPARATION: AUG 15, 2023 // ANALYSIS: AUG 18, 2023

ANALYTE	LIMIT	AMT (µg/kg)	LOD/LOQ (µg/kg)	PASS/FAIL
ABAMECTIN	500 µg/kg	ND	136/181	PASS
ACEPHATE	400 µg/kg	ND	136/181	PASS
ACEQUINOCYL	2000 µg/kg	ND	136/903	PASS
ACETAMIPRID	200 µg/kg	ND	136/136	PASS
ALDICARB	400 µg/kg	ND	136/181	PASS
AZOXYSTROBIN	200 µg/kg	ND	136/136	PASS
BIFENAZATE	200 µg/kg	ND	136/136	PASS
BIFENTHRIN	200 µg/kg	ND	136/136	PASS
BOSCALID	400 µg/kg	ND	136/181	PASS
CARBARYL	200 µg/kg	ND	136/136	PASS
CARBOFURAN	200 µg/kg	ND	136/136	PASS
CHLORANTRANIL-IPROLE	200 µg/kg	ND	136/136	PASS
CHLORFENAPYR	1000 µg/kg	ND	136/452	PASS
CHLORPYRIFOS	200 µg/kg	ND	136/136	PASS
CLOFENTEZINE	200 µg/kg	ND	136/136	PASS
CYFLUTHRIN	1000 µg/kg	ND	136/452	PASS
CYPERMETHRIN	1000 µg/kg	ND	136/452	PASS
DAMINOZIDE	1000 µg/kg	ND	136/452	PASS
DIAZINON	200 µg/kg	ND	136/136	PASS
DICHLORVOS	1000 µg/kg	ND	136/452	PASS
DIMETHOATE	200 µg/kg	ND	136/136	PASS
ETHOPROPHOS	200 µg/kg	ND	136/136	PASS
ETOFENPROX	400 µg/kg	ND	136/181	PASS
ETOXAZOLE	200 µg/kg	ND	136/136	PASS
FENOXYCARB	200 µg/kg	ND	136/136	PASS
FENPYROXIMATE	400 µg/kg	ND	136/181	PASS
FIPRONIL	400 µg/kg	ND	136/181	PASS
FLONICAMID	1000 µg/kg	ND	136/452	PASS
FLUDIOXONIL	400 µg/kg	ND	136/181	PASS
HEXYTHIAZOX	1000 µg/kg	ND	136/452	PASS
IMAZALIL	200 µg/kg	ND	136/136	PASS
IMIDACLOPRID	400 µg/kg	ND	136/181	PASS
KRESOXIM-METHYL	400 µg/kg	ND	136/181	PASS
MALATHION	200 µg/kg	ND	136/136	PASS
METALAXYL	200 µg/kg	ND	136/136	PASS

ANALYTE	LIMIT	AMT (µg/kg)	LOD/LOQ (µg/kg)	PASS/FAIL
METHIOCARB	200 µg/kg	ND	136/136	PASS
METHOMYL	400 µg/kg	ND	136/181	PASS
MGK-264	200 µg/kg	ND		PASS
MGK-264 I		ND	82.7/82.7	N/A
MGK-264 II		ND	52.8/52.8	N/A
MYCLOBUTANIL	200 µg/kg	ND	136/136	PASS
NALED	500 µg/kg	ND	136/181	PASS
OXAMYL	1000 µg/kg	ND	136/452	PASS
PACLOBUTRAZOL	400 µg/kg	ND	136/181	PASS
PARATHION-METHYL	200 µg/kg	ND	136/136	PASS
PERMETHRIN	200 µg/kg	ND		PASS
PERMETHRIN CIS		ND	58.3/58.3	N/A
PERMETHRIN TRANS		ND	77.2/77.2	N/A
PHOSMET	200 µg/kg	ND	136/136	PASS
PIPERONYLBUTO-XIDE	2000 µg/kg	ND	136/903	PASS
PRALLETHRIN	200 µg/kg	ND	136/136	PASS
PROPICONAZOLE	400 µg/kg	ND	136/181	PASS
PROPOXUR	200 µg/kg	ND	136/136	PASS
PYRETHRINS	1000 µg/kg	ND		PASS
PYRETHRINS CINERIN I		ND	90.2/90.2	N/A
PYRETHRINS CINERIN II		ND	92.1/92.1	N/A
PYRETHRINS JASMOLIN I		ND	73.2/73.2	N/A
PYRETHRINS JASMOLIN II		ND	56.9/56.9	N/A
PYRETHRINS PYRETHRIN I		ND	420/420	N/A
PYRETHRINS PYRETHRIN II		ND	248/248	N/A
PYRIDABEN	200 µg/kg	ND	136/136	PASS
SPINOSAD	200 µg/kg	ND	136/136	PASS
SPIROMESIFEN	200 µg/kg	ND	136/136	PASS
SPIROTETRAMAT	200 µg/kg	ND	136/136	PASS
SPIROXAMINE	400 µg/kg	ND	136/181	PASS
TEBUCONAZOLE	400 µg/kg	ND	136/181	PASS
THIACLOPRID	200 µg/kg	ND	136/136	PASS
THIAMETHOXAM	200 µg/kg	ND	136/136	PASS
TRIFLOXYSTROB-IN	200 µg/kg	ND	136/136	PASS

HME.1: HEAVY METALS BY [redacted]
PREPARATION: AUG 15, 2023 // ANALYSIS: AUG 16, 2023

ANALYTE	LIMIT	AMT (µg/kg)	LOD/LOQ (µg/kg)	PASS/FAIL
ARSENIC	200 µg/kg	ND	5.51/46.3	PASS
CADMIUM	200 µg/kg	< LOQ	2.39/46.3	PASS

ANALYTE	LIMIT	AMT (µg/kg)	LOD/LOQ (µg/kg)	PASS/FAIL
LEAD	500 µg/kg	< LOQ	2.55/55.5	PASS
MERCURY	100 µg/kg	ND	8.51/37.0	PASS

FMT.1: FILTH AND FOREIGN MATERIAL BY VISUAL INSPECTION
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 14, 2023

ANALYTE	LIMIT	AMT (%)	PASS/FAIL
CINDERS	25 %	ND	PASS
DIRT	25 %	ND	PASS
IMBEDDED FOREIGN MATERIAL	25 %	ND	PASS
INSECT FRAGMENTS	Any amt	ND	PASS
MAMMAL EXCREMENT	Any amt	ND	PASS

ANALYTE	LIMIT	AMT (%)	PASS/FAIL
MOLD	25 %	ND	PASS
RODENT HAIR	Any amt	ND	PASS
SAND	25 %	ND	PASS
SOIL	25 %	ND	PASS

WATER ACTIVITY BY WATER ACTIVITY METER
PREPARATION: AUG 16, 2023 // ANALYSIS: AUG 16, 2023

ANALYTE	LIMIT	AMT (Aw)	LOD/LOQ (Aw)	PASS/FAIL
WATER ACTIVITY	0.65 Aw	0.543	0.0300/0.0300	PASS

[redacted]

[redacted]

MIC.3: TOTAL COLIFORM BY [redacted]
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 15, 2023

ANALYTE	LIMIT	AMT (CFU/g)	LOD/LOQ (CFU/g)	PASS/FAIL
COLIFORMS	1000 CFU/g	ND	100/100	PASS

MIC.6: TOTAL ENTEROBACTER BY [redacted]
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 15, 2023

ANALYTE	LIMIT	AMT (CFU/g)	LOD/LOQ (CFU/g)	PASS/FAIL
ENTEROBACTERIACEAE	1000 CFU/g	ND	100/100	PASS

TOTAL AEROBIC BACTERIA BY [redacted]
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 15, 2023

ANALYTE	LIMIT	AMT (CFU/g)	LOD/LOQ (CFU/g)	PASS/FAIL
AEROBIC BACTERIA	100000 CFU/g	ND	100/100	PASS

MIC.5: SALMONELLA [redacted]
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 16, 2023

ANALYTE	LIMIT	AMT (CFU/g)	LOD/LOQ (CFU/g)	PASS/FAIL
SALMONELLA SPP.	Any amt in 1 gram	ND	1.00/1.00	PASS

MIC.4: PATHOGENIC E. COLI [redacted]
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 16, 2023

ANALYTE	LIMIT	AMT (CFU/g)	LOD/LOQ (CFU/g)	PASS/FAIL
SHIGA TOXIN-PRODUCING E. COLI	Any amt in 1 gram	ND	1.00/1.00	PASS

TOTAL YEAST AND MOLD BY [redacted]
PREPARATION: AUG 14, 2023 // ANALYSIS: AUG 17, 2023

ANALYTE	LIMIT	AMT (CFU/g)	LOD/LOQ (CFU/g)	PASS/FAIL
YEAST & MOLD	10000 CFU/g	ND	1000/1000	PASS

NOTES

ZACHARY SMITH
AUG 18, 2023

POTENCY & CANNABINOID PROFILE BY [redacted]
THE STANDARD LAB UNCERTAINTY FOR POTENCY IS 5% OF THE REPORTED VALUE.

PRODUCT IMAGES

[redacted]

** FOR QUALITY ASSURANCE PURPOSES. NOT A MAINE COMPLIANCE CERTIFICATE.*

END OF REPORT

[redacted] [redacted]

Appendix C – OCP Receipt & Letter to Businesses

Maine Office of Cannabis Policy

Medical Cannabis Sample Collection

User	Form start	Form complete	Location

Medical Cannabis Sample Collection Receipt

In accordance with the Office of Cannabis Policy's mission to ensure the health and safety of all Mainers accessing the state's regulated cannabis programs, OCP will periodically collect samples of cannabis cultivated for medical use and products containing cannabis for medical use as part of an onsite assessment.

Collecting of samples is authorized by 18-691 Code of Maine Rules Chapter 2 – Maine Medical Use of Cannabis Program Rule, Section 10 (B), the purpose of this sample collection is to perform testing for the presence of harmful contaminants and to validate any labeling claims related to contaminants, cannabinoid profiles, or potency. OCP will share test results with the registrant and use the resulting data to help inform future policy recommendations.
The registrant is not responsible for testing costs.

18-691 Code of Maine Rules Chapter 2 – Maine Medical Use of Cannabis Program Rule, Section 10 (B).
On-site assessment. The Department may initiate an on-site assessment, in accordance with the statute and this rule to ensure compliance prior to issuing a registry identification card, as a routine review, in response to an allegation of non-compliance or as part of a plan of correction.
1. During an on-site assessment, the primary focus of the Department will be:
a. Verifying information submitted in an application;
b. Reviewing records for all required documents, including, but not limited to designation forms, registration, and licenses, labeling and employee records, as applicable;
c. Conducting interviews;
d. Entering areas used for conduct authorized by this rule and the statute to ensure any marijuana, including plants, usable marijuana and incidental marijuana cultivated for medical use, is within the specified limit and is identifiable and maintained as required;
e. Taking samples of marijuana cultivated for medical use and products containing marijuana for medical use; and
f. Assessing conduct for compliance with the rule and statute.

This document serves as a receipt for all cannabis or products containing cannabis collected today.

JANET T. MILLS
GOVERNOR

STATE OF MAINE
OFFICE OF CANNABIS POLICY
162 STATE HOUSE STATION
19 UNION STREET
FIRST FLOOR
AUGUSTA, MAINE 04333-0162

ADMINISTRATIVE & FINANCIAL SERVICES

KIRSTEN LC FIGUEROA
COMMISSIONER

OFFICE OF CANNABIS POLICY

JOHN HUDAK
DIRECTOR

Failed Medical Testing Notice

In accordance with the Office of Cannabis Policy's mission to ensure the health and safety of all Mainers accessing the state's regulated cannabis programs, we recently collected a sample of cannabis cultivated for medical use or products containing cannabis for medical use as part of an onsite assessment.

Results of testing have indicated the presence of harmful contaminants. We have included a copy of the laboratory certificate of analysis (COA). The COA is a detailed list of the analytes tested for and the results. Please refer to it for the specific failed analytes.

The presence of harmful contaminants at the levels indicated may cause short-term, medium-term, and/or long-term harmful effects if consumed. Medical cannabis patients with underlying health conditions may develop side effects, complications, or other health effects from consuming contaminated cannabis. Americans for Safe Access recently released this report detailing the health risks associated with cannabis containing harmful contaminants.

In the interest of public health, we strongly recommend the following steps:

Isolate all remaining product associated with the failed test.
Remove the product from stores and cease sales of those products to patients immediately.
Cease wholesale transfers of affected product, unless transferred for remediation.
Consider testing other products that may be affected.

This product is not suitable for consumption in its current condition without risking harm and potentially jeopardizing patient health. Remediation may be an option, except in cases of pesticide or heavy metal contamination. If remediation is pursued, we urge retesting to ensure the process was effective.

OCP believes that as a member of Maine's medical cannabis community you are a critical link to the wellbeing of medical cannabis patients. They are using cannabis to seek relief from myriad illnesses, injuries, and medical conditions. Patients rely on businesses like yours to provide products that are free of harmful contaminants that endanger their health. Thank you for taking prompt action and removing tainted products from sale to consumers.

Sincerely,

Michael W. Field
Director of Compliance

Appendix D – Table 4 Sources

SOLVENTS	
Analyte	**Source**
Acetone	https://www.atsdr.cdc.gov/toxfaqs/tfacts21.pdf
Acetonitrile	https://www.epa.gov/sites/default/files/2016-09/documents/acetonitrile.pdf
Butanes	https://www.ncbi.nlm.nih.gov/books/NBK201460/
Ethanol	https://pubmed.ncbi.nlm.nih.gov/15941013/
Ethyl Acetate	https://www.cdc.gov/niosh/npg/npgd0260.html
Ethyl Ether	https://www.cdc.gov/niosh/pel88/60-29.html
Heptane	https://www.cdc.gov/niosh/npg/npgd0312.html
Hexane (NEUROTOXIN)	https://www.epa.gov/sites/default/files/2016-09/documents/hexane.pdf
Isopropyl Alcohol	https://www.cdc.gov/niosh/pel88/67-63.html
Methanol (NEUROTOXIN)	https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750029.html#:~:text=Methanol
Pentane	https://www.cdc.gov/niosh/pel88/109-66.html
Propane	https://www.ncbi.nlm.nih.gov/books/NBK201461/
Toluene (NEUROTOXIN)	https://www.cdc.gov/niosh/topics/toluene/
Xylenes	https://wwwn.cdc.gov/TSP/MMG/MMGDetails.aspx?mmgid=291&toxid=53
Dichloroethane	https://nj.gov/health/eoh/rtkweb/documents/fs/0652.pdf
Benzene (CARCINOGEN)	https://emergency.cdc.gov/agent/benzene/basics/facts.asp
Chloroform	https://www.cdc.gov/niosh/topics/chloroform/
Ethylene Oxide (REPRODUCTIVE HAZARD)	https://www.epa.gov/sites/default/files/2016-09/documents/ethylene-oxide.pdf
Methylene chloride (REPRODUCTIVE HAZARD)	https://www.epa.gov/sites/default/files/2016-09/documents/methylene-chloride.pdf
Trichloroethylene (CARCINOGEN)	https://wwwn.cdc.gov/TSP/MMG/MMGDetails.aspx?mmgid=168&toxid=30
HEAVY METALS	
Arsenic (CARCINOGEN)	https://www.cdc.gov/niosh/topics/arsenic/default.html#:~:text=Arsenic%20can%20be%20harmful%20to,duration%2C%20and%20work%20being%20done
Cadmium (CARCINOGEN)	https://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html#:~:text=Breathing%20high%20levels%20of%20cadmium,considered%20a%20cancer%2Dcausing%20agent
Lead	https://www.nyc.gov/site/doh/health/health-topics/lead-poisoning-adults-and-lead-poisoning.page#:~:text=Lead%20exposure%20can%20cause%20high,and%20loss%20of%20sex%20drive
Mercury (NEUROTOXIN)	https://www.epa.gov/mercury/health-effects-exposures-mercury
OTHER ANALYTES	
E. coli	https://epi.dph.ncdhhs.gov/cd/diseases/ecoli.html#:~:text=Each%20year%20in%20the%20United,caused%20by%20the%20strain%20E
Enterobacteriaceae	https://www.cdc.gov/hai/organisms/cre/index.html

Mycotoxins	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6354945/
Salmonella	https://www.cdc.gov/salmonella/index.html#:~:text=CDC%20estimates%20Salmonella%20bacteria%20cause,for%20most%20of%20these%20illnesses
PESTICIDES *This list includes pesticides that have been detected either in the adult use program or in the medical audit testing*	
Abamectin	http://npic.orst.edu/RMPP/rmpp_ch8.pdf
Bifenazate	https://kernred.co.kern.ca.us/kern-agcomm/products/VIGILANT%204SC.pdf
Bifenthrin	https://newsomseed.com/resources/QP%20Bifenthrin%20IT%207.9F%20SDS%2010-20-15.pdf
Cypermethrin	https://www.merck.com/docs/product/safety-data-sheets/ah-sds/Cypermethrin%20Formulation_AH_BR_EN.pdf
Dichlorvos	http://download.ceris.purdue.edu/file/3193
Etoxazole	https://gcrec.ifas.ufl.edu/static/docs/pdf/strawberry-pathology/MSDS-pesticides/zeal.pdf
Fludioxonil	https://www.syngentaornamentals.co.uk/sites/g/files/kgtney951/files/migration/f/media/2020/05/18/switch_v19.pdf
Imazalil	https://www.sigmaaldrich.com/US/en/sds/SIAL/32007
Imidacloprid	https://www.sigmaaldrich.com/US/ko/sds/sial/68694
Malathion	https://www.sigmaaldrich.com/US/en/sds/sial/34541
Metalaxyl	https://www.sigmaaldrich.com/US/en/sds/sial/32012
Methyl parathion	http://cdn.chemservice.com/product/msdsnew/External/English/N-12452%20English%20SDS%20US.pdf
Myclobutanil	https://www.sigmaaldrich.com/US/en/sds/sial/34360
Permethrin	https://www.sigmaaldrich.com/US/en/sds/sial/45614
Piperonylbutoxide	https://www.fishersci.com/store/msds?partNumber=AC334165000&countryCode=US&language=en
Propiconazole	https://www.sigmaaldrich.com/US/en/sds/sial/45642
Pyrethrins	https://cdn.caymanchem.com/cdn/msds/25814m.pdf
Spinosad	https://www.fishersci.com/store/msds?partNumber=AC467190010&productDescription=SPINOSAD+1GR&vendorId=VN00032119&countryCode=US&language=en
Spiromesifen	https://www.sigmaaldrich.com/US/en/sds/sial/33599