

Understanding Lab Testing Methods



Officer Dick Downey's Re-education Protocol

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Understanding Cannabis Lab Testing Methods and Results

This document will explain the different methods used by licensed laboratories to analyze the compounds in your medical cannabis products. You'll also learn about how to interpret these lab results to calculate the true, net levels of THC and CBD in your products.

Types of Laboratory Analysis Methods

There are two common types of methods used by laboratories to analyze the chemical make-up of medical cannabis products. This testing is used to identify any contaminants (mold, pesticides, etc.) and to measure the levels of certain cannabinoids in cannabis products.



Source: jupiterscientificco.com

Method 1: Gas Chromatography (GC)

When using GC, heat is applied to the sample. This heat is at a high enough temperature completely [decarboxylate](#) all the cannabinoids in the sample. The oven it happens in decarboxylates THCA before passing on to the detector, so it only picks up THC. This makes GC almost useless for testing edibles, because you need to be able to tell the difference between orally inactive THCA and active THC. GC also causes many pesticides to change their structure, rendering them impossible to detect. Therefore, this machine is only able to tell you the amount of neutral cannabinoids in a sample.

The amount of acidic cannabinoids is extremely important and should not be forgotten, especially in products such as edibles and tinctures. This is because acidic cannabinoids have not been activated yet in these products; that is left for your digestive system to do. For this reason, most reputable labs do NOT use Gas Chromatography as their core testing method. (Source: *High Times*)

Method 2: Liquid Chromatography (LC)

Liquid Chromatography separate, identify, and quantify each component in a sample by using pumps to pass a pressurized liquid solvent containing the sample through a column filled with a solid [adsorbent material](#). Each compound in the sample interacts slightly differently with the adsorbent material, causing different flow rates for the different components and leading to the separation of the compounds as they flow out the column.

Unlike Gas Chromatography, LC does not apply heat in the testing process, allowing cannabinoids to be measured in their naturally occurring forms. Therefore, LC is the preferred method of testing in most labs.

Mass Spectrometers and Real-time Polymerase Chain Reaction Testing

Many labs also use Mass Spectrometers (MS) to test for pesticides. MS machines are able to detect many other types of particles through a heating process similar to Gas Chromatography. Some GC machines are also equipped with mass spectrometers. (Source: www.medicaljane.com)

Another method that some labs use to test cannabis is called Real-Time Polymerase Chain Reaction (PCR), which can be used to quantify the amount of certain molecules in a sample. The machine pinpoints precise quantities of fungus, yeast, mold or bacteria in a sample, while simultaneously quantifying targeted DNA molecules. When used correctly, these machines are able to determine strain lineage, or even count the number of specific terpenes present in a sample. And, while other methods of testing may take days or weeks to produce results, real-time PCR machines provide test results in less than an hour. (Source: www.medicaljane.com)