How to Buy an ICP-MS for a Laboratory Analyzing Cannabis Products

A checklist for buyers

There are some important considerations when deciding which instrument to buy.

Use this checklist to purchase an instrument that's perfect for your lab—both now and in the future.

Purchasing checklist

☐ Can your sample types be measured?

Can the ICP-MS analyze the acid concentrations and sample matrices you'll be measuring? Can it remove likely interferences? How long will it maintain calibration? Can you quickly determine approximate concentrations and dissolved solids content? Does the instrument have sufficient dynamic range to measure both low and high concentration elements at the same time? Having a wide dynamic range means you only have to do one analysis instead of diluting samples to run them a second time to measure high concentration elements. If you can, prepare samples and take them to a demonstration—to be analyzed live.

☐ Can you get support for your applications?

How familiar is the instrument vendor with metals testing in cannabis? Do they have a robust method, specific to cannabis? For example, the AOAC method for Heavy Metals in Cannabis and Cannabis—Derived Products? How many application scientists can provide support? Where are they located? How soon after instrument delivery would they be available?

☐ How much instrument downtime will you experience?

Does the ICP-MS suffer from frequent downtime? Check independent online reviews such as those on Selectscience.net. Ask for references or call a local agronomy lab to review their experiences. Ask the vendor about the cleaning and maintenance requirements. What tasks are required, how long do they take to complete, and how frequently would they be needed for your sample types? Are the tasks scheduled on a calendar basis or by the number of samples measured? Does the ICP-MS prompt when cleaning or maintenance tasks are required? What instructions are provided? How are parts ordered?

☐ How complex is method setup?

Do you want to test the "big four" heavy metal contaminants as well as nutrient elements? Find out if you have to change instrument settings, swap hardware, or change sample preparation when the sample type or the analytes change. Does the instrument come with predefined methods so there's minimal batch setup and the analysis is tailored to your specific requirements?

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☐ How good is the technical support for the instrument?

Ask who will be helping you with the installation and commissioning. How many other ICP-MS instruments have they installed for cannabis analysis? If something goes wrong, how quickly can you get technical support? Can they provide references of customers doing similar analyses? Ask on online forums and at industry meetings for feedback on the support given by different vendors. Ask the instrument vendor about service response time, service contract options, and how long it takes to get parts. Can you order parts and consumables online?

☐ Can you get your analysts trained?

Ongoing training for your analysts will keep your lab running smoothly. Ask for detailed descriptions of training options—are the locations convenient or can training be done online or in your lab? Who provides the training? How much experience do they have and do they have experience with your sample types?

☐ Does the software suit the way your lab works and can it support remote monitoring of the analysis?

Does the person who sets up the batch template have the ability to monitor the analysis remotely and, if needed, change the analytical sample order without having to go into the lab? Does the software prevent "click-happy" technicians from altering any settings that could compromise results?

☐ What is the cost-per-sample?

As well as the capital cost, consider the cost-per-sample (running costs). These costs include gases and electricity, but also the cost of instrument downtime, analyst intervention, and sample reruns. Use the answers to some of the previous questions to work out the cost of labor and consumables for analyzing your sample types. Cannabis samples are much more difficult to measure than clean water samples. If samples have to be frequently remeasured, or the sample preparation procedure changed for each sample type, labor costs can really add up.

☐ What are the requirements for instrument installation?

Ask for site preparation guides and check that you can meet the power, exhaust, and gas supply requirements. Can you physically get the instrument to the lab and will it fit through the door? Ask about a preinstallation site consultation. Such a consultation may avoid installation delays, costly last-minute changes, and potential analysis failures due to incorrect lab conditions.

☐ What financing and trade-in options are available?

Ask about flexible payment plans and trade-in options. What about warranty periods and conditions?

Resources

Methods

AOAC method "Heavy Metals in a Variety of Cannabis and Cannabis-Derived Products" (membership required)

Application of the AOAC method using an Agilent ICP-MS (includes details of the sample preparation for four different cannabis-based products: hemp flower, hemp butter, pain relief cream, and CBD crude extract)

Webinars

Agilent offers free webinars on a range of topics, including:

Four Things You Shouldn't Be Experiencing When doing Heavy Metal Analysis In Cannabis

Instruments

The Agilent ICP-MS Cannabis Analyzer

Agilent financial solutions

www.agilent.com/chem/icpms

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