

Cannabis Moisture Content and Potency: A Comparative Review of Methods

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INTRODUCTION

- The 2018 Farm Bill established a federal framework for hemp commercialization, and codified dry weight as the basis for THC determination.
- Crop yield, potency, and contamination in hemp and cannabis are all tied to dry weight, but how is dry weight accurately determined?
- The USDA defines dry weight as the weight of a substance “after excluding moisture from the item,” but many common techniques for moisture content determination fail to produce accurate results due to the high level of volatile compounds found in cannabis in addition to water.
- At present, there is no widely accepted standard method for determining moisture content in dry cannabis flower.

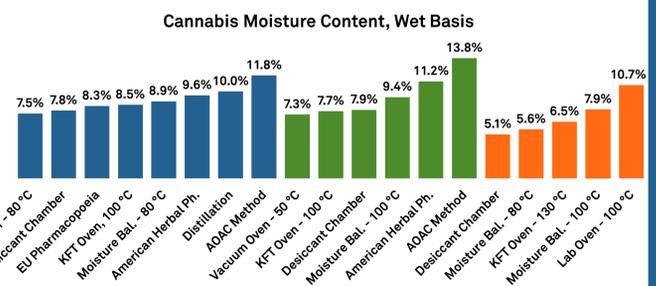
METHODS

Three cannabis flower lots were homogenized and placed in humidity chambers to equilibrate to the desired water activities (0.43, 0.57). These sample lots were held stable at these water activities over the entire course of the sampling process.

Moisture content methods were chosen from a variety of commonly used methods as well as methods developed in-house.

RESULTS

Strain, Water Activity
 Shiatsu, 0.57 a_w Whitecap, 0.57 a_w Whitecap, 0.43 a_w



Water content = potency

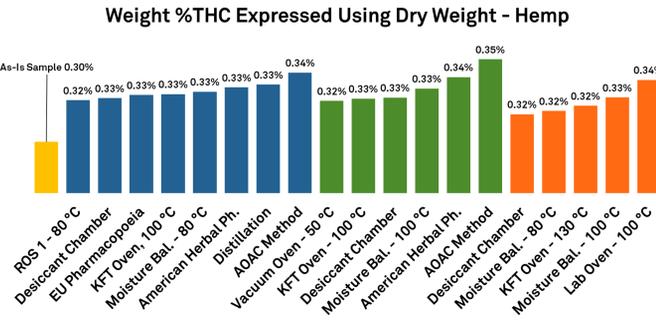
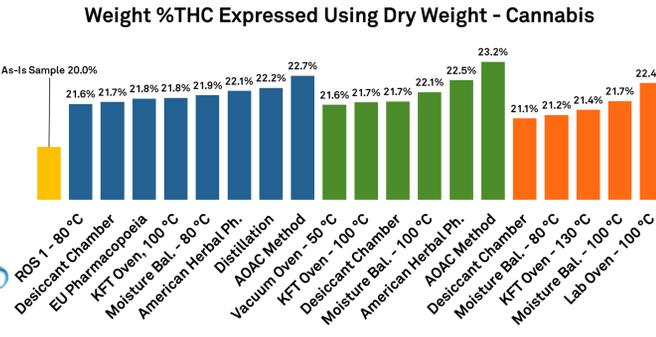
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The following graphs show the calculated weight percent THC using the dry weight from each moisture content method. The “As-is Sample” represents a typical weight percent THC as determined without factoring in dry weight.

Strain, Water Activity
 Shiatsu, 0.57 a_w Whitecap, 0.57 a_w Whitecap, 0.43 a_w



DISCUSSION

With no standard dry weight method used by the cannabis industry, THC content will continue to be reported across a wide range for a given sample.

We acknowledge the difficulty in determining a true value for moisture content, and hope to spur discourse among producers, regulators, and scientists for the need to establish a standardized method for determining dry weight.

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METER

