

XTR Laboratories

Standard Operating Procedure

M-001.01

Tetrahydrocannabinol Content by Gas Chromatography

Commented [AM1]: If you have a graphic, I would put it up in the header instead of doing this.

Commented [AM2]: A sample SOP format. M is for Method (versus QC, for example), 001 is the internal SOP number, and .01 is the version number.

1. Scope

This method is intended for the determination of tetrahydrocannabinol (THC) content of marijuana dried bud and trim, marijuana extracts (oil, shatter, etc.), and marijuana-infused products (MIPs) via extraction and analysis by gas chromatograph.

2. Background & Significance

THC is a cannabinoid found in marijuana and marijuana by-products. It exists in raw marijuana bud as its precursor compound, tetrahydrocannabinolic acid (THCA), which itself is not psychoactive. After exposure to heat, i.e., during bud smoking or oven drying, THCA is decarboxylated to THC, allowing binding to neural cannabinoid receptors and producing the “high” for which marijuana is known. The potency of differing strains and associated extracts and by-products of marijuana is a function of THC content as a percentage of total composition, and is of vital importance for manufacturers, consumers, and regulatory bodies.

This method is intended to measure the concentration of THC in stuff. The process by which this is possible includes decarboxylation of THCA via oven drying, extraction with organic solvents, derivatization (? not for THC proper?), and analysis by gas chromatograph.

3. Apparatus

- 3.1 GC model, manufacturer, part # (or equivalent)
- 3.2 GC column type, manufacturer, part # (or equivalent)
- 3.3 Computer

3.4 Glassware

3.5 Utensils

3.6 Etc.

4. Materials

4.1 Solvents/reagents

4.2 Consumables

4.3 Etc.

5. Sources of Error

5.1 Inaccurate weighing of sample.

5.2 Inadequate extraction

5.3 Etc.

6. Safety Precautions

6.1 Turn fan on when working

6.2 Don't be stupid.

6.3 Etc.

7. Quality Control

7.1 A THC internal standard (1 mg/mL in methanol) will be analyzed with each run.

7.2 This other thing also happens.

7.3 Etc.

8. **Procedure**

8.1 Weigh 2 ± 0.2 g thing into other thing, recording weight to nearest 0.0000 g.

8.2 Dry at 100 ± 1 °C for ≥ 60 mins.

8.3 Introduce organic solvent to sample however you do that.

8.4 Centrifuge at 3000 rpm for a bit.

8.5 Add 500 μ L silylating reagent.

8.6 Run on GC.

8.6.1 Open the software.

8.6.2 Do the next part.

8.6.3 Begin the run.

8.7 Another thing.

9. **Calculations**

Total THC content is determined by math.

10. **Results & Reporting**

Total THC content will be reported as a percentage of the total weight and included in the final report to the client.

11. Bibliography

Guy. Year. Title. Journal. Volume, etc.

12. Revision History

12.1 Initiated by Adam Mundy on 2/18/17.

12.2 Section 11 updated with a thing on 3/18/17.

Initiated by: _____

Approved by: _____

Date: _____

Effective date: _____