

# THC AND THC-COOH FROM ORAL FLUID BY LC-MS/MS OR GC-MS STYRE-SCREEN® POLYMERIC QAX EXTRACTION COLUMN



## UCT Featured Products

**SSQAX056**  
Styre Screen® QAX  
50 mg, 6 mL Tube

**SMSTFA-1-1**  
SELECTRA-SIL® MSTFA  
w/ 1% TMCS

**SBSTFA-1-1**  
SELECTRA-SIL® BSTFA  
w/ 1% TMCS

**SLDA100ID21-5UM**  
Selectra® DA HPLC Column,  
100 x 2.1 mm, 5 µm

## Procedure:

### 1) Prepare Sample

To 1 mL of oral fluid specimen (diluted in Quantisal buffer), add appropriate internal standards.  
Mix/vortex for 30 seconds.

### 2) Apply Sample

Load at 1 to 2 mL/minute.  
Dry column (2 minutes at full vacuum or pressure).

### 3) Wash Column

1 x 750 µL of 85:15:1 D.I. H<sub>2</sub>O: ACN: NH<sub>4</sub>OH.  
Dry Column at full vacuum or pressure for 10 minutes.

### 4) Elute Analytes

1 x 750 µL Hexane/: Ethyl Acetate/ Glacial Acetic Acid (90:10:2).  
Collect eluate at 1 to 2 mL/minute.  
**NOTE:** Before proceeding, insure there are no water droplets at the bottom of the collection tube. This may increase drying time and decrease BSTFA derivatizing efficiency.

### 5) Dry Eluate

Evaporate to dryness at < 40 °C.

### 6) Reconstitute / Derivatize

**LC-MS/MS:** Reconstitute sample in 100 µL of mobile phase. Inject 20 µL.

**GC-MS:** Dissolve residue in 50 µL of Ethyl Acetate and 50 µL BSTFA w/ 1% TMCS.  
Overlay with N<sub>2</sub> and cap. Mix/vortex.  
React 30 minutes at 70 °C; Cool and inject 1 µL.

#### Alternate Derivatization

Form TMS Derivatives by adding 50 µL MSTFA w/ 1% TMCS and 50 µL of Ethyl Acetate;  
React 45 minutes at 70 °C.



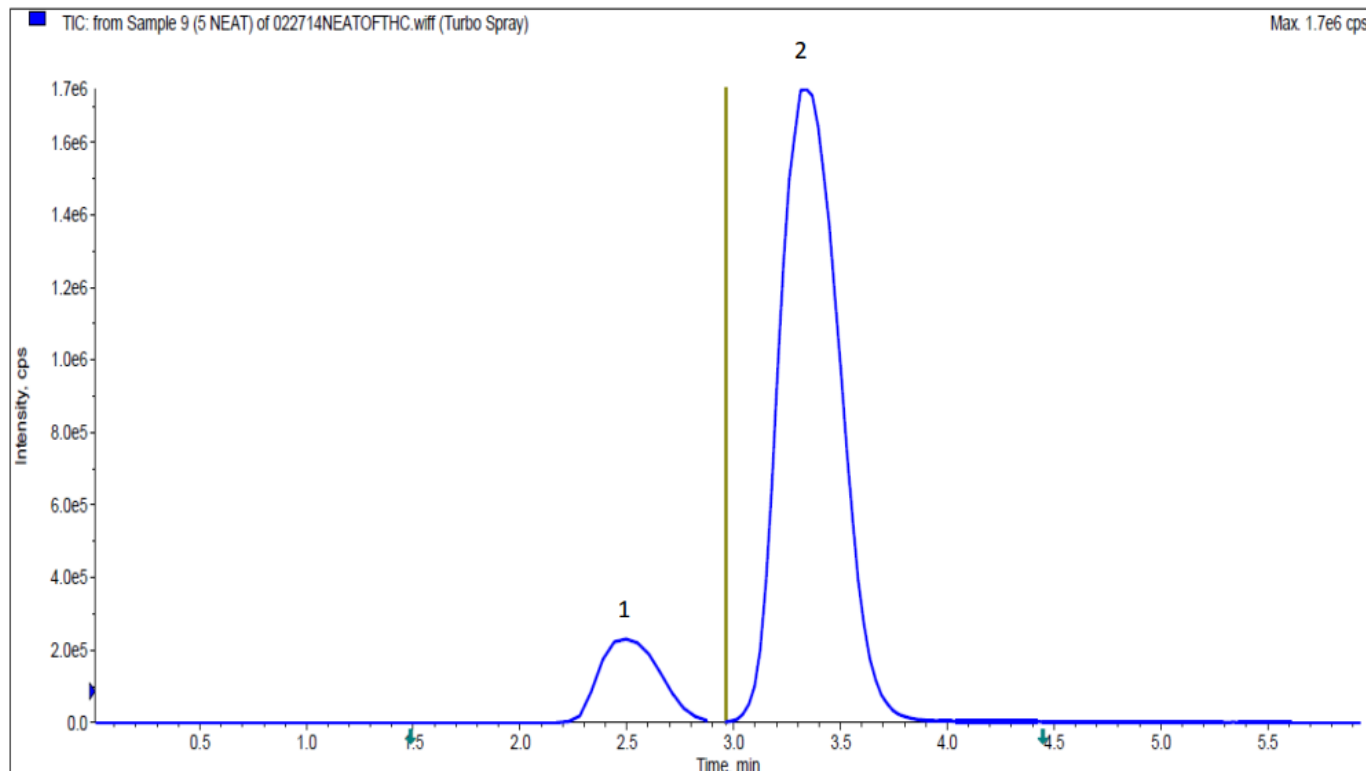
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## INSTRUMENT CONDITIONS (LC-MS/MS):



| Analyte                         | MRM Transitions |     | Relative Retention Time (min) |
|---------------------------------|-----------------|-----|-------------------------------|
|                                 | Q1              | Q3  |                               |
| THC-DELTA 9-COOH D <sub>9</sub> | 352             | 254 | 2.50                          |
| THC-DELTA 9-COOH                | 343             | 299 | 2.52                          |
| DELTA 9-THC D <sub>3</sub>      | 318             | 196 | 3.34                          |
| DELTA 9-THC                     | 315             | 193 | 3.37                          |

| LC-MS/MS Parameters |                                                       |
|---------------------|-------------------------------------------------------|
| Mobile Phase A      | 0.1% Formic Acid in D.I. H <sub>2</sub> O             |
| Mobile Phase B      | 0.1% Formic Acid in Methanol                          |
| Flow Rate           | 0.4 mL/minute                                         |
| Reconstitute        | 100 µL                                                |
| Instrument          | API 4000 Qtrap MS/MS with Agilent 1200 Binary Pump SL |
| LC Column           | Selectra® DA HPLC Column 100 x 2.1 mm 5 µm            |
| Polarity            | Negative MRM (-): 2.995   Positive MRM (+): 3.018     |
| Injection Volume    | 20 µL                                                 |

| Gradient |      |      |
|----------|------|------|
| Time     | %A   | %B   |
| 0.00     | 20   | 80   |
| 7.00     | STOP | STOP |



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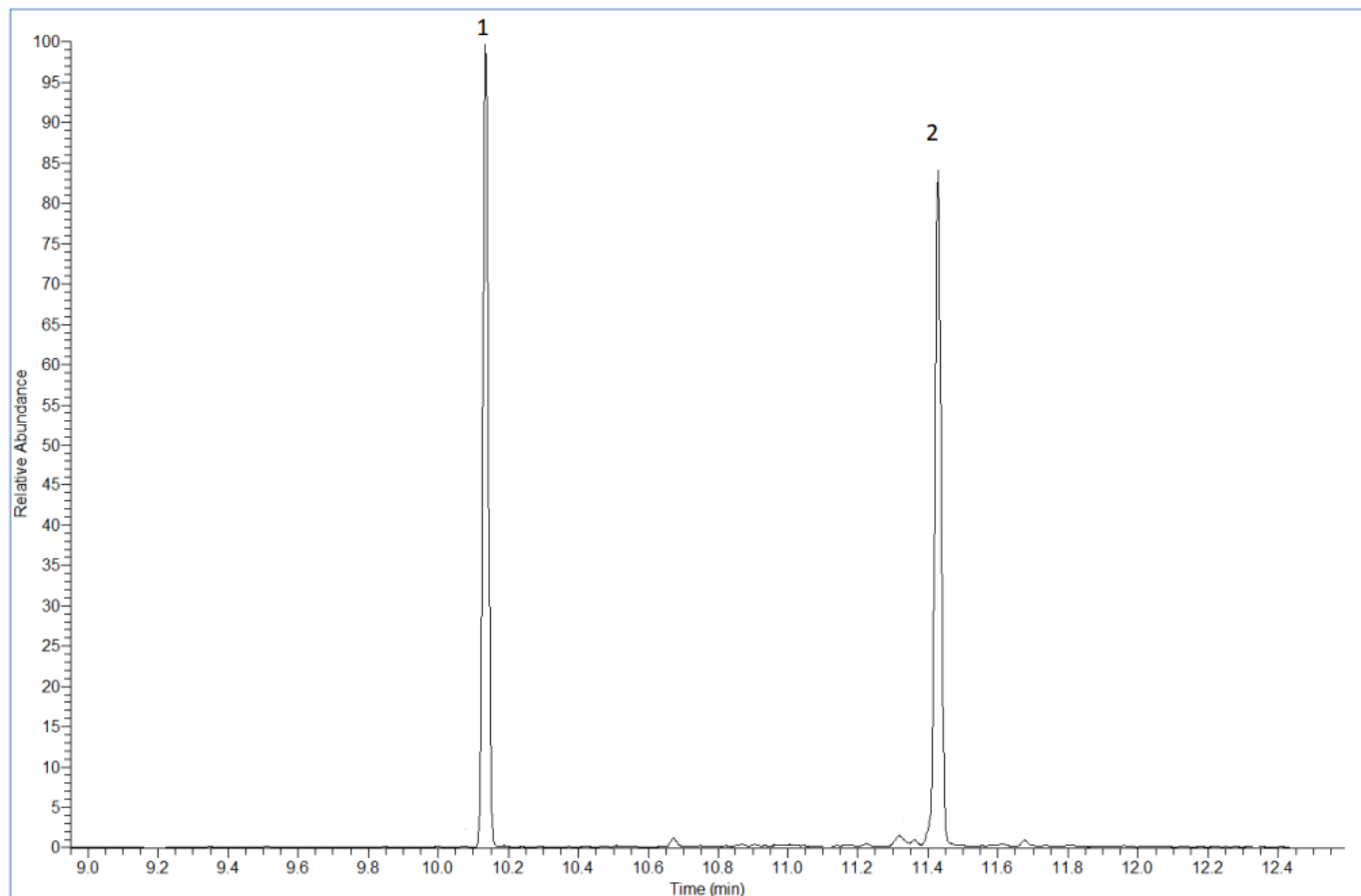
## INSTRUMENT CONDITIONS (GC/MS):

| GC/MS Parameters         |                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------|
| GC/MS                    | Thermo ISQ Trace 1300                                                                     |
| GC capillary column      | 30 m x 0.25 mm (0.25 $\mu$ m) TG-1MS                                                      |
| Injector                 | 1 $\mu$ L Splitless, 250 $^{\circ}$ C                                                     |
| Oven temperature program | 70 $^{\circ}$ C (0.5) to 320 $^{\circ}$ C (25 $^{\circ}$ C/ minute): hold (2 minutes)     |
| Carrier gas              | Helium (1.2 mL/ minute)                                                                   |
| MSD condition            | Aux temperature: 280 $^{\circ}$ C, MS Source: 350 $^{\circ}$ C, MS Quad: 150 $^{\circ}$ C |

## MSTFA/BSTFA TMS IONS:

| Analyte               | Quantify Ion | Qualifier Ion 1 | Qualifier Ion 2 | Relative Retention Time (min) |
|-----------------------|--------------|-----------------|-----------------|-------------------------------|
| DELTA $_9$ THC-D $_3$ | 374          | 346             | 389             | -                             |
| DELTA $_9$ THC        | 371          | 343             | 386             | 10.14                         |
| THC-COOH D $_3$       | 374          | 476             | 491             | -                             |
| THC-COOH              | 371          | 473             | 488             | 11.43                         |

## CHROMATOGRAM:



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