



LABORATOIRE D'ÉTUDES ET
D'ANALYSES DES FLUIDES

CERTIFICATE OF ANALYSIS

PRODUCT IDENTIFICATION

CLIENT: Spectrums Europe SAS

PRODUCT NAME : WSP 20%

BATCH: COWSPA19-29

PHYSICO-CHEMICAL ANALYSIS

HPLC ANALYSIS:

50 mg of the sample is weighed and 10 mL of distilled water is added. The mixture is stirred one hour and 40 mL of ethanol is added and all is stirred for 15 minutes. The limpid solution is injected into HPLC apparatus.

Estimation of the quantity of **CBD** in the sample by HPLC: **23.40 % ± 0.03 %** by mass.

GC-FID ANALYSIS :

Preparation of the sample:

Extraction solution: Ethanol. 1 sample of 100 mg is weighed and 5 mL of extraction solvent is added. Everything is immersed for 20 minutes in an ultrasonic bath. The solution is injected into the following apparatus.

Equipment: GC-FID Shimadzu

Injection parameters

- *Mode:* Split
- *Split ratio:* 5.0
- *Volume injection:* 1µL
- *Temperature:* 250°C

Column parameters

- *Type:* DB5
- *Characteristics:* 60m ; 0.25mm ; 0.50µm
- *Mode:* Vitesse constante
- *Velocity:* 30.0 cm/sec
- *Vector gas:* Hélium

Oven parameters

- *Initial temperature:* 40°C during 2 min
- *Step 1:* 7.0 °C/min until 230 °C
- *Step 2:* 20.0 °C/min until 300 °C

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N° SIRET : 818 276 651 00028 – Au capital de 15 000€

- **Final temperature: 300 °C during 15 min**
- **Total duration: 47.64 min**

Detector parameters

- **Type: FID**
- **Model: GC-2010 Plus**
- **Temperature: 350°C**
- **Solvent cut time: 0min**

Dosing of Delta-9-tetrahydrocannabinol (THC)* from calibration curve doing with commercial analytical standard of cannabinoil (CBN): < 0.03 %.

* As described in the literature in *Poortman-van der Meer A. J. et Huizer H. (1999), A contribution to the improvement of accuracy in the quantitation of THC, Forensic Sci. Int., 101, 1-8.*

LOQ (limit of quantification) = 0,03%.

LOD (limit of detection) = 0,0025%.

GC-MS ANALYSIS:

Extraction solution: Ethanol. 100 mg of the sample is weighed and 5 mL of extraction solvent is added. Everything is immersed for 20 minutes in an ultrasonic bath. The solution is injected into the following apparatus.

Equipment : GCMS QP2010 SE Shimadzu

Injection parameters

- **Mode : Split**
- **Split ratio : 10:0**
- **Volume injection : 1µL**
- **Temperature : 250°C**

Column parameters

- **Type : Rtx-VMS**
- **Characteristics: 30m ; 0.25mm ; 1.40µm**
- **Mode : Vitesse constante**
- **Velocity : 44.2 cm/sec**
- **Vector gas : Hélium**

Oven parameters

- **Initial temperature : 40°C**
- **Level : 2 min**
- **Ramp 1: 4°C/min jusqu'à 230°C**
- **Ramp 2: 20°C/min**
- **Final temperature : 250°C**
- **Final level : 25min**
- **Total duration : 75min**

Detector parameters

- **Type : MS**
- **Model : GCMS QP2010 SE**
- **Source temperature : 260°C**
- **Solvent cut time : 15min**

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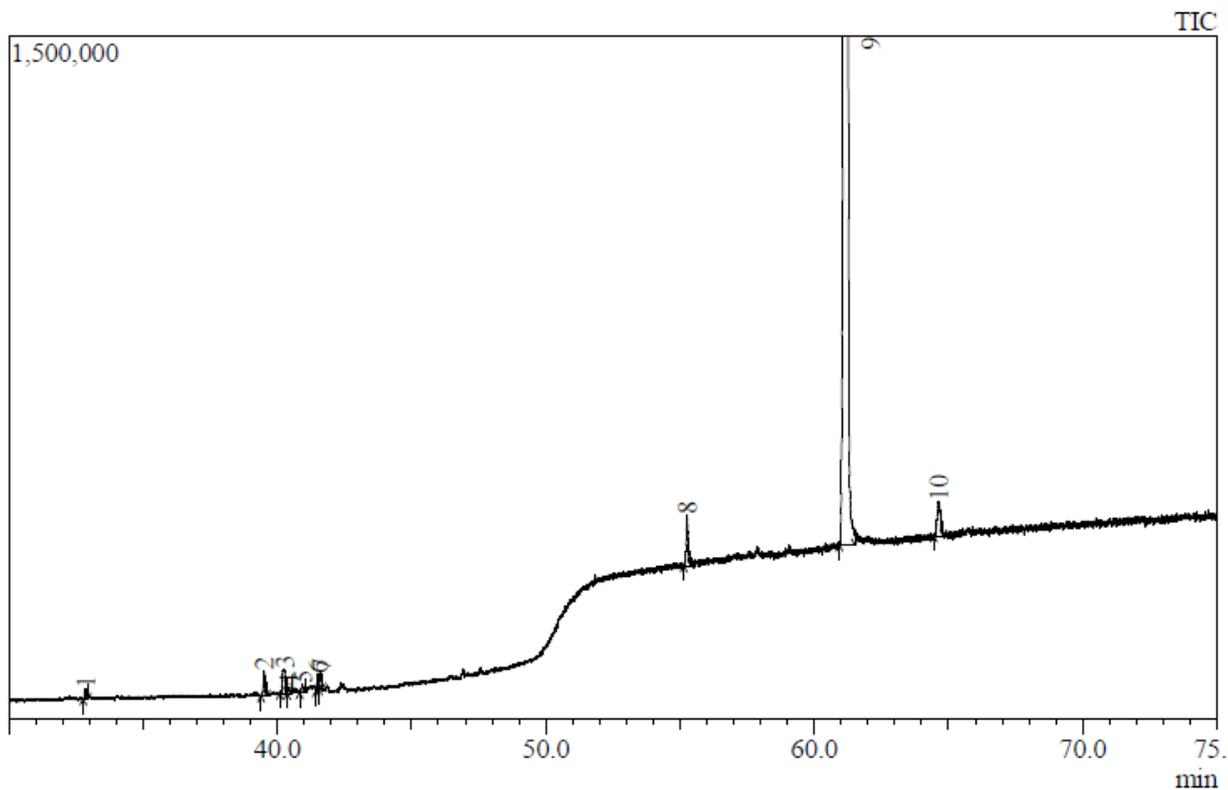


Figure 1 : GC/MS chromatogram of the sample.

Peak	Ret.Time (min)	Name	Type of compound
1	32.862	Caryophyllene <(E)->	Terpene
2	39.51	Guaiol	Terpene
3	40.259	Caryophyllene oxide	Terpene
4	40.42	Selin-6-en-4.alpha.-ol	Terpene
5	40.926	Humulene epoxide II	Terpene
6	41.511	Bulnesol	Terpene
7	41.607	Eudesmol <beta->	Terpene
8	55.265	Cannabidivarine (CBDV)	Cannabinoide
9	61.193	Cannabidiol (CBD)	Cannabinoide
10	64.627	Cannabielsoin (CBE)	Cannabinoide

Table 1: Detected molecules with the retention time

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SEARCH FOR PESTICIDES:

The automatic pointing of the equipment is based on a very large database of organic molecules in the field of cosmetics or food. No peak corresponding to a pesticide molecule (of natural or synthetic origin) was identified in the study of the product in question.

The databases used are the following:

- NIST Library (267,376 general compounds);
- FFNSC Library (Flavor and Fragrance Natural and Synthetic Compounds), which contains more than 3,000 cosmetic compounds.

Report written on : June, 17th 2019

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