

SECTION III. PHYSICAL & CHEMICAL PROPERTIES

Test		Specifications	Result
III.I	Odour:	According to standard	Conforms
III.II	Apearance:	Tawny, transparent liquid	Conforms
III.III	Refractive Index @ 25°C:	1.5015 - 15155	1.5063 ± 0.003
III.IV	Specific Gravity @ 25°C:	0.9350 0.9650	0.9620 ± 0.004
III.V	Solubility in water:	Insoluble	Conforms
III.VI	Solubility in other solvents:	Soluble in diethyl-phthalate, ethyl alcohols, essential oils	Conforms

SECTION IV. GC-MS ANALYSIS OF COMPONENTS

Equipment: Shimadzu GC-14A (capillary column: Supelcowax 10; carrier gas: helium at 0.6 ml/min flow rate) and Shimadzu MS-QP2000 (detector: quadropolar system with ionization energy of 70eV). Injector and detector temperature: 240° C. Initial column temperature: 70°C.

Origanum Oil Procedure: column temperature remained at initial level for 10 min. then increased at a rate of 2°C/min. up to 180°C, then isothermal for 35 min.

Component		Specifications	Result
IV.I	Carvacrol [C ₁₀ H ₄ O]:	75.0 95.0 %	88.86 %
IV.II	Thymol [C ₁₀ H ₄ O]:	0.7 4.0 %	1.90 %
IV.III	γ-Terpinene [C ₁₀ H ₁₆]:	1.0 – 5.0 %	1.55 %
IV.IV	p-Cymene [CH ₃ C ₆ H ₄ CH(CH ₃) ₂]:	2.0 – 6.0 %	2.12 %
IV.V	β-Caryophyllene [C ₁₅ H ₂₄]:	0.2 1.8 %	1.63 %
IV.VI	Other Terpenes & Phenols:	0.1 – 18.0 %	3.94 %
IV.VII	Residual Solvents:	< 0.001 %	No Detectable (< 0.001 %)

Remarks:

- (1) Specifications are based on international literature data, revised according to manufacturer's index.
- (2) All components detected are known "Origanum Oil" components, according to international literature.
- (3) No component foreign to "Origanum Oil" synthesis was detected, according to international literature.



Date Issued: **18/12/2019**
Doc Info: **SGS Report No:4604403**



CERTIFICATE OF ANALYSIS

SECTION I. PRODUCT INFORMATION

- I.I Product Name:** **Natural essential oil of *Origanum heracleoticum***
- I.II Product Identification:**
- >99% natural essential oil derived from *Origanum heracleoticum*: food-grade.
 - Steam-distilled product; no solvents, preservatives or additives are used in the production of this essential oil.
 - Not Genetically Modified / NON-GMO / GMO-free product.
- I.III Synonyms:**
- Essential oil of Greek oregano
 - *Origanum heracleoticum* extract
- I.IV CAS #:** 91721-63-0
- I.V EINECS #:** 294-363-4
- I.VI FEMA #:** 2660
- I.VII Manufacturer:** **Ecopharm Hellas S.A.**
4th km N.R. Kilkis-Thessaloniki
GR-61100 Kilkis, Greece.
Hellenic Business Registration No #: **14498735000**
DUNS No: **50-317-9098**
FDA FIRM #: **17473644444**
FAMI-QS Reg. #: **FAM084**

SECTION II. PRODUCT SPECIFICATIONS

- II.I Composition:** Pure, natural, *Origanum heracleoticum* essential oil >99%.
- II.II Main Ingredients:**
- Carvacrol: 75.0-95.0 %
 - Thymol: 0.7 – 4.0 %
- II.III Batch Number:** **0619 (O2019111100199)**
- II.IV Manufactured Date:** **Nov 2019**
- II.V Expired Date:** **Nov 2022**
- II.VI Safety Data:** *See relevant product's MSDS.*