

Date: 2016-05-11  
 (YYYY-MM-DD / AAAA-MM-JJ)

## Certificate of Analysis / *Certificat d'analyse*

|                                            |                                                                        |
|--------------------------------------------|------------------------------------------------------------------------|
| <b>Product code / Code du produit:</b>     | <b>VHE0012C</b>                                                        |
| <b>Batch No. / No. de lot:</b>             | <b>MP-07-0038</b>                                                      |
| <b>Trade name / Nom commercial:</b>        | <b>Essential Oil of Ajowan/ Huile essentielle d'ajowan</b>             |
| <b>Botanical name / Nom botanique:</b>     | <b>Trachyspermum ammi</b>                                              |
| <b>INCI name / Nom INCI:</b>               | <b>TRACHYSPERMUM AMMI OIL</b>                                          |
| <b>Use of product / Utilisation:</b>       | <b>Cosmetics / Cosmétique</b>                                          |
| <b>Country of origin / Pays d'origine:</b> | <b>India / Inde</b>                                                    |
| <b>Certification:</b>                      | <b>None (Conventional crop) / Aucune (agriculture conventionnelle)</b> |

### 1. Method of production / *Méthode d'obtention*

Essential Oil obtained by steam distillation of the fruit & seed of Trachyspermum ammi. / Huile essentielle obtenue par distillation à la vapeur d'eau du fruit et de la semence de Trachyspermum ammi.

### 2. Certificate of Purity and Origin / *Certificat de pureté et d'origine*

- 100% pure and natural without any additive, and not sprayed with chemicals. / 100% pur et naturel sans aucun additif, et sans arrosage chimique.
- Certified India origin / Origine Inde certifiée.

### 3. Organoleptic and Physical Properties / *Caractéristiques organoleptiques et physiques*

| <u>Requirements / Spécifications</u>                                  |                                                                                                          | <u>Results / Résultats</u>            |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------|
| <b>Physical appearance / Aspect physique:</b>                         | <b>Liquid with risk of precipitation at &lt; 20 °C</b><br>/ Liquide. À < 20 °C : risque de précipitation | <b>Compliant / Conforme</b>           |
| <b>Colour / Couleur:</b>                                              | <b>Pale yellow to yellow-orange</b><br>/ Jaune pâle à jaune orangé                                       | <b>Compliant / Conforme</b>           |
| <b>Odor / Odeur:</b>                                                  | <b>Aromatic, animal and zesty</b><br>/ Aromatique, animale et zestée                                     | <b>Compliant / Conforme</b>           |
| <b>Specific Gravity at 68°F (20°C) / Densité à 20°C:</b>              | <b>0,890 to/à 0,938</b>                                                                                  | <b>Not Available / Non disponible</b> |
| <b>Refractive Index at 68°F (20°C) / Indice de réfraction à 20°C:</b> | <b>1,491 to/à 1,505</b>                                                                                  | <b>1,501</b>                          |
| <b>Optical Rotation at 68°F (20°C) / Pouvoir rotatoire à 20°C:</b>    | <b>0 ° to/à +5 °</b>                                                                                     | <b>Not Available / Non disponible</b> |

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 Lot MP-07-0038

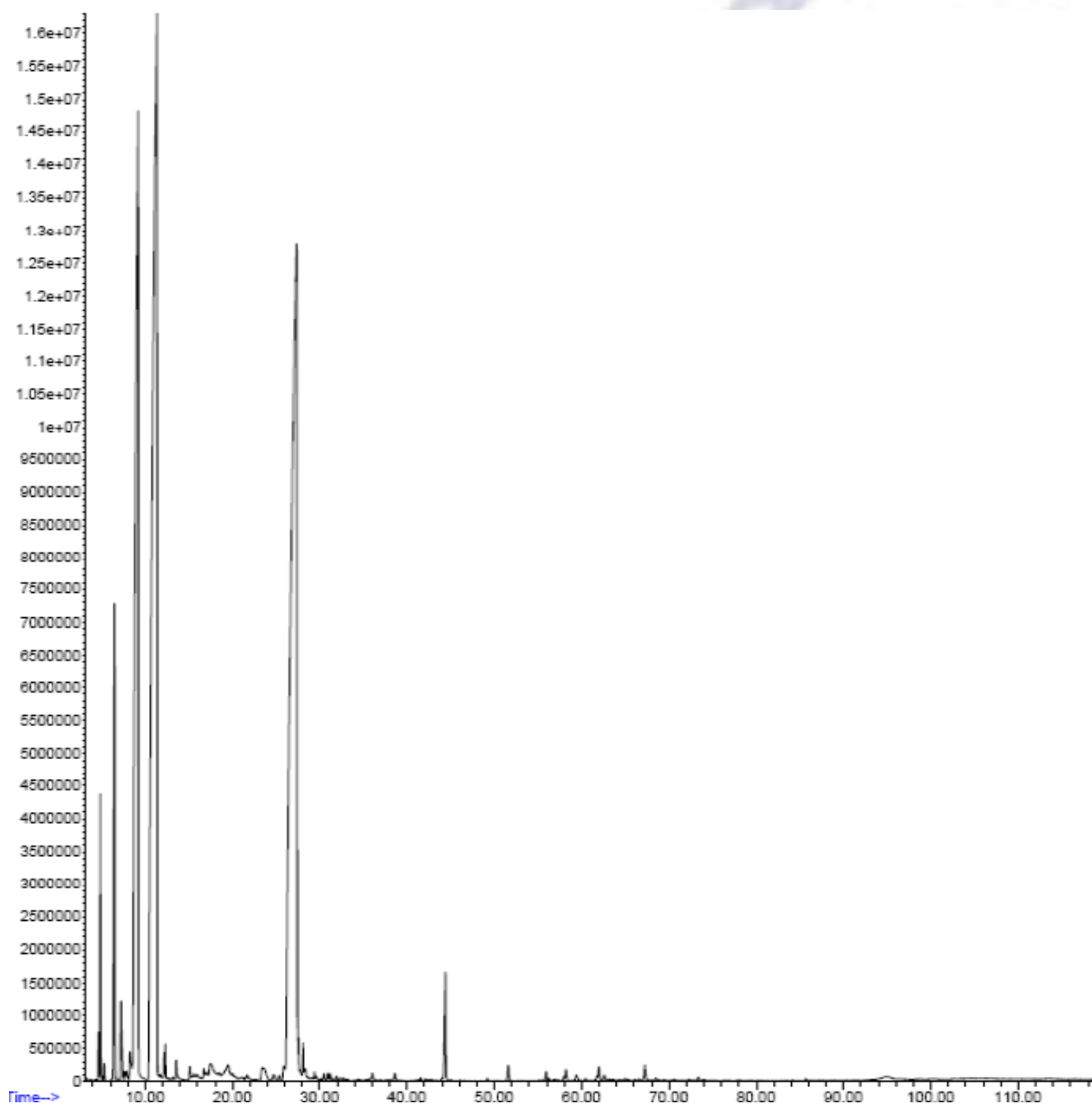
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 Tel: (514) 344-7777 - Fax: (514) 344-8111  
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#### 4. Analysis Properties / Caractéristiques d'analyse

##### 4.1 Analyse de pureté

| Test     | Specification | Test Result | Method | Analyst Date  |
|----------|---------------|-------------|--------|---------------|
| Arsenic  | N/A           | <0.03 ppm   | ICP-MS | GK 2016-02-25 |
| Cadmium  | N/A           | 0.06 ppm    | ICP-MS | GK 2016-02-25 |
| Lead     | N/A           | 0.41 ppm    | ICP-MS | GK 2016-02-25 |
| Mercury  | N/A           | <0.02 ppm   | ICP-MS | GK 2016-02-25 |
| Antimony | N/A           | 0.02 ppm    | ICP-MS | GK 2016-02-25 |

##### 4.2 Chromatographic Profile / Profil chromatographique



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### 4.3 Operating Conditions / Conditions opératoires

|                                 |                                                                              |
|---------------------------------|------------------------------------------------------------------------------|
| <b>MS 5970 Column</b>           | : HP-5MS 5% Phenyl Methyl Silox : 30 m x 250 µm x 0.25 µm                    |
| <b>Oven Program</b>             | 50 °C for 4 min — 3 °C/min to 230 °C for 4min — 10 °C/min to 280 °C for 7min |
| <b>Carrier gas</b>              | He : 12.348 psi / MS                                                         |
| <b>Sample injection / split</b> | 1 µl of 5% solution in solvent                                               |
| <b>Mass range</b>               | 35 to 450                                                                    |

### 4.4 Mass spectra GC-MS / Spectromètre de Masse (CG/MS)

| RT             | Constituents / Constituants             | %             |
|----------------|-----------------------------------------|---------------|
| 4.6570         | Thujene <alpha->                        | 0.1802        |
| 4.8585         | Pinene <alpha->                         | 1.1133        |
| 5.3071         | Camphene                                | 0.1092        |
| 6.4819         | Pinene <beta->                          | 3.0937        |
| 7.2385         | Myrcene                                 | 0.6175        |
| 7.6757         | Phellandrene <alpha->                   | 0.0689        |
| 7.8848         | Ocimene <(Z)->-beta                     | 0.0822        |
| 8.2574         | Terpinene <alpha->                      | 0.3623        |
| 9.1813         | Cymene <para->                          | 19.4645       |
| 11.3484        | Terpinene <gamma->                      | 34.0957       |
| 11.7438        | Terpinene <gamma->                      | 0.0614        |
| 12.1811        | Terpinolene                             | 0.1219        |
| 12.3179        | Cymenene <para->                        | 0.1526        |
| <b>12.4501</b> | <b>Linalool</b>                         | <b>0.0281</b> |
| 13.5536        | Butyraldehyde <3-(5-methyl-, 2-furyl)-> | 0.1198        |
| 15.1124        | Menthatriene <1,3,8-para->              | 0.0835        |
| 15.3101        | Benzeneacetonitrile                     | 0.1240        |
| 15.9602        | Phellandral                             | 0.0946        |
| 16.7282        | Neomenthol                              | 0.1121        |
| 17.0438        | Caryophyllane <4,8-beta-epoxy->         | 0.0953        |
| 17.4924        | Terpinen-4-ol                           | 0.5528        |
| 18.3973        | Terpineol <alpha->                      | 0.0661        |
| 18.5380        | Carvone <(Z)-, dihydro->                | 0.5809        |
| 19.9599        | Carvone <(E)-, dihydro->                | 0.0951        |
| 21.6746        | Verbenyl acetate <trans->               | 0.0503        |
| 23.4577        | Carvone                                 | 0.4284        |
| 24.7086        | Phellandral                             | 0.1014        |
| 25.3625        | Menth-6-en-2,8-diol <trans-p->          | 0.0515        |
| 27.3509        | Thymol                                  | 34.4371       |
| 27.4764        | Carvacrol                               | 1.1354        |

|         |                              |         |
|---------|------------------------------|---------|
| 27.7159 | Carvacrol                    | 0.1300  |
| 28.0885 | Mentha-1,4-dien-7-ol <para-> | 0.2056  |
| 28.3737 | Car-3-en-2-one               | 0.0824  |
| 29.1455 | Thymol acetate               | 0.0414  |
| 29.5903 | Phenol <4-tert-butyl->       | 0.0546  |
| 30.4762 | Damascenone <(E)-, beta->    | 0.0651  |
| 31.9171 | Caryophyllene <(E)->         | 0.0447  |
| 38.6010 | Myristicin                   | 0.0729  |
| 44.3801 | Apiole                       | 1.0909  |
| 49.1895 | Cumene <para-ethyl->         | 0.0253  |
| 55.9303 | Phytone                      | 0.0755  |
| 59.3673 | Fenchyl acetate              | 0.0791  |
| 61.9641 | Carvacryl acetate            | 0.1339  |
| 94.9044 | Octylacetylene               | 0.1644  |
|         | Total                        | 99.9456 |

Note: The allergens are identified in bold / *Les allergènes sont identifiés en caractères gras.*

**Analysis Date** / *Date de l'analyse*: 2015-12

*Seijas*

**Tomas Seijas, Chemist/Chimiste, OCQ #2003-041**