



## CERTIFICATE OF ANALYSIS (COA)

|                       |                                      |
|-----------------------|--------------------------------------|
| <b>Product Name</b>   | <b>BLACK PEPPER OIL</b>              |
| <b>Botanical Name</b> | Piper nigrum                         |
| <b>Product Code</b>   | E233                                 |
| <b>CAS #</b>          | 8006-82-4 ; 84929-41-9               |
| <b>FEMA #</b>         | 2845                                 |
| <b>EINECS #</b>       | 284-524-7                            |
| <b>INCI Name</b>      | Piper Nigrum (Black Pepper) Seed Oil |

|                           |                |
|---------------------------|----------------|
| <b>Batch #</b>            | 10202009       |
| <b>Manufacturing Date</b> | SEPTEMBER 2020 |
| <b>Best Before Date</b>   | AUGUST 2022    |

|                            |                               |
|----------------------------|-------------------------------|
| <b>Part Used</b>           | Dried Peppercorn Fruit        |
| <b>Extraction Method</b>   | Steam Distilled Essential Oil |
| <b>Quality</b>             | 100% Pure and Natural         |
| <b>Note Classification</b> | Middle to Top Note            |

| <u>PROPERTIES</u>              | <u>SPECIFICATIONS</u>                                                                               | <u>RESULTS</u> |
|--------------------------------|-----------------------------------------------------------------------------------------------------|----------------|
| <b>Appearance</b>              | Colorless to pale yellow green colored liquid                                                       | CONFORMS       |
| <b>Odour</b>                   | Dry-woody, warm, spicy aroma with subtle floral and fruit notes, reminiscent of ground black pepper | CONFORMS       |
| <b>Refractive Index</b>        | 1.455 - 1.495 @ 20°C                                                                                | 1.468          |
| <b>Specific Gravity (g/mL)</b> | 0.850 - 0.890 @ 20°C                                                                                | 0.868          |
| <b>Optical Rotation (°)</b>    | -20° to +4°                                                                                         | CONFORMS       |
| <b>Solubility</b>              | Soluble in alcohols and fixed oils; Insoluble in water                                              | CONFORMS       |

|                 |                            |
|-----------------|----------------------------|
| <b>Comments</b> | Odour quality is excellent |
|-----------------|----------------------------|

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| <b><u>MICROBIAL ANALYSIS</u></b>          | <b><u>SPECIFICATIONS</u></b> | <b><u>STANDARDS</u></b> | <b><u>RESULTS</u></b> |
|-------------------------------------------|------------------------------|-------------------------|-----------------------|
| <b>Aerobic Mesophilic Bacterial Count</b> | < 100 CFU/g                  | ISO 21149               | CONFORMS              |
| <b>Yeast and Mould</b>                    | < 10 CFU/g                   | ISO 16212               | CONFORMS              |
| <b>Candida albicans</b>                   | ABSENT / 1g                  | ISO 18416               | CONFORMS              |
| <b>Escherichia coli</b>                   | ABSENT / 1g                  | ISO 21150               | CONFORMS              |
| <b>Pseudomonas aeruginosa</b>             | ABSENT / 1g                  | ISO 22717               | CONFORMS              |
| <b>Staphylococcus aureus</b>              | ABSENT / 1g                  | ISO 22718               | CONFORMS              |

| <b><u>HEAVY METAL TESTS</u></b>   | <b><u>SPECIFICATIONS</u></b> | <b><u>STANDARDS</u></b> | <b><u>RESULTS</u></b> |
|-----------------------------------|------------------------------|-------------------------|-----------------------|
| <b>Lead: Pb (mg/kg or ppm)</b>    | < 10 ppm                     | na                      | CONFORMS              |
| <b>Arsenic: As (mg/kg or ppm)</b> | < 2 ppm                      | na                      | CONFORMS              |
| <b>Mercury: Hg (mg/kg or ppm)</b> | < 1 ppm                      | na                      | CONFORMS              |

#### **STABILITY AND STORAGE:**

Keep in tightly closed container in a cool and dry place, protected from sunlight. When stored for more than 24 months, quality should be checked before use.

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