



Certificate of Analysis

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| Product Name: | Hops Essential Oil | Extraction Method: | Steam Distilled Essential Oil |
| Botanical Name: | <i>Humulus lupulus</i> | Quality: | 100% Pure and Natural |
| Used Part: | Cones | Batch Number: | Varies |
| CAS No.: | 8007-04-3; 8060-28-4 | Manufacture Date: | Varies |
| INCI Name: | Humulus Lupulus (Hops) Oil | Best Before: | Varies |

| IDENTIFICATION | | SPECIFICATION | STANDARDS | RESULT |
|----------------|------------------------------------|---|-----------|----------|
| Physical | Appearance | Colorless to greenish-yellow, slightly viscous liquid | - | Complies |
| | Odour | Woody, floral, herbaceous odour | - | Complies |
| | Refractive Index | 1.470 - 1.494 20°C | - | 1.484 |
| | Specific Gravity (g/mL) | 0.825 - 0.926 20°C | - | 0.875 |
| | Optical Rotation (°) | -2.5° to +2.5° | - | Complies |
| | Solubility | Soluble in alcohols and fixed oils; Insoluble in water | - | Complies |
| Chemical | Lead (Pb) | < 10 ppm | - | Complies |
| | Arsenic (As) | < 2 ppm | - | Complies |
| | Mercury (Hg) | < 1 ppm | - | Complies |
| Microbial | Aerobic Mesophilic Bacterial Count | < 100 cfu/g | ISO 21149 | Complies |
| | Yeast & Mould | < 10 cfu/g | ISO 16212 | Complies |
| | Candida albicans | Negative | ISO 18416 | Complies |
| | Escherichia coli | Negative | ISO 21150 | Complies |
| | P. aeruginosa | Negative | ISO 22717 | Complies |
| | S. aureus | Negative | ISO 22718 | Complies |

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

