

### CERTIFICATE OF ANALYSIS (COA)

|                |                                       |
|----------------|---------------------------------------|
| Product Name   | BRAZIL NUT OIL                        |
| Botanical Name | Bertholletia excelsa                  |
| CAS #          | 356065-50-4 ; 160965-04-8             |
| EINECS #       | -                                     |
| INCI Name      | Bertholletia excelsa (Brazil Nut) Oil |

|                   |                       |
|-------------------|-----------------------|
| Part Used         | Nuts                  |
| Extraction Method | Cold Pressed          |
| Quality           | 100% Pure and Natural |

| <u>PROPERTIES</u>                       | <u>SPECIFICATIONS</u>  | <u>RESULT</u> |
|---|--|---------------|
| Appearance                              | Pale yellow to golden colored liquid                             | CONFORMS      |
| Odour                                   | Characteristic slight nutty odour                                | CONFORMS      |
| Refractive Index                        | 1.460 - 1.480 @ 20°C   | 1.468         |
| Specific Gravity (g/mL)                 | 0.890 - 0.950 @ 25°C   | 0.918         |
| Saponification Value (mgKOH/g)          | 180 - 200  | 193           |
| Peroxide Value (meq O <sub>2</sub> /kg) | Less than 10.0   | CONFORMS      |
| Iodine Value (g I <sub>2</sub> /100g)   | 70 -130  | 101           |
| Free Fatty Acids (% oleic)              | Less than 0.5  | 0.2           |
| Acid Value (mgKOH/g)                    | Less than 1.0  | CONFORMS      |
| Solubility                              | Soluble in cosmetic esters and fixed oils;<br>Insoluble in water | CONFORMS      |

### **FATTY ACID COMPOSITION:**

| <b>FATTY ACID</b>    | <b><u>C-CHAIN</u></b> | <b><u>SPECIFICATIONS (%)</u></b> | <b><u>RESULTS</u></b> |
|----------------------|-----------------------|----------------------------------|-----------------------|
| Lauric Acid          | <u>C12:0</u>          | <u>Maximum 0.50</u>              | <u>0.20</u>           |
| Myristic Acid        | <u>C14:0</u>          | <u>Maximum 0.50</u>              | <u>0.30</u>           |
| Palmitic Acid        | <u>C16:0</u>          | <u>10.00 – 15.00</u>             | <u>11.10</u>          |
| Palmitoleic Acid     | <u>C16:1</u>          | <u>0.10 – 0.50</u>               | <u>0.20</u>           |
| Stearic Acid         | <u>C18:0</u>          | <u>8.00 – 12.00</u>              | <u>8.70</u>           |
| Oleic Acid           | <u>C18:1 (n-9)</u>    | <u>35.00 – 45.00</u>             | <u>42.00</u>          |
| Linoleic Acid        | <u>C18:2 (n-6)</u>    | <u>30.00 – 40.00</u>             | <u>36.00</u>          |
| Alpha-Linolenic Acid | <u>C18:3 (n-3)</u>    | <u>0.50 – 1.50</u>               | <u>0.80</u>           |

| <b>MICROBIAL ANALYSIS</b>          | <b><u>SPECIFICATIONS</u></b> | <b><u>STANDARDS</u></b> | <b><u>RESULTS</u></b> |
|------------------------------------|------------------------------|-------------------------|-----------------------|
| Aerobic Mesophilic Bacterial Count | < 100 CFU/g                  | ISO 21149               | CONFORMS              |
| Yeast and Mould                    | < 10 CFU/g                   | ISO 16212               | CONFORMS              |
| Candida albicans                   | ABSENT / 1g                  | ISO 18416               | CONFORMS              |
| Escherichia coli                   | ABSENT / 1g                  | ISO 21150               | CONFORMS              |
| Pseudomonas aeruginosa             | ABSENT / 1g                  | ISO 22717               | CONFORMS              |
| Staphylococcus aureus              | 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> |
|---------------------------------|------------------------------|-------------------------|-----------------------|
| Lead: Pb (mg/kg or ppm)         | < 10 ppm                     | na                      | CONFORMS              |
| Arsenic: As (mg/kg or ppm)      | < 2 ppm                      | na                      | CONFORMS              |
| Mercury: Hg (mg/kg or ppm)      | < 1 ppm                      | na                      | CONFORMS              |

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