

CERTIFICATE OF ANALYSIS

Product: Clove Bud (Indonesia) Essential Oil  
Lot No.: 11038A401  
Best Before: June, 2022  
Store in tight containers in a cool dry area away from direct sunlight.

<u>Properties</u>	<u>Specifications</u>	<u>Results</u>
Appearance:	Yellowish-brown to dark brown liquid.	Complies
Odor:	Characteristic clove odor.	Complies
Solubility:	Soluble in 1:1.5 ( v/v) 70% ethanol.	Complies
Specific Gravity:	1.0380 - 1.0600 @ 20°C	Complies
Refractive Index:	1.5270 - 1.5350 @ 20°C	Complies
Eugenol Content:	70 - 86 %	Complies

**Disclaimer & Caution**

Please refer to all relevant technical information specific to the product, prior to use. The information contained in this document is obtained from current and reliable sources. New Directions Aromatics Inc. provides the information contained herein, but makes no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose. The user of the product is solely responsible for compliance with all laws and regulations applying to the use of the products, including intellectual property rights of third parties. As the ordinary or otherwise use(s) of this product is outside the control of New Directions Aromatics Inc., no representation or warranty, expressed or implied, is made as to the effect(s) of such use(s), (including damage or injury), or the results obtained. The liability of New Directions Aromatics Inc. is limited to the value of the goods and does not include any consequential loss. New Directions Aromatics Inc. shall not be liable for any errors or delays in the content, or for any actions taken in reliance thereon. New Directions Aromatics Inc. shall not be responsible for any damages resulting from use of or reliance upon this information. In the event of any dispute, the Customer hereby agrees that Jurisdiction is limited to the province of Ontario.

CERTIFICATE OF ANALYSIS

Product: Clove Bud (Indonesia) Essential Oil

Lot No.: 11038A10220

Best Before: February, 2022

Store in tight containers in a cool dry area away from direct sunlight.

<u>Properties</u>	<u>Specifications</u>	<u>Results</u>
Appearance:	Yellowish-brown to dark brown liquid.	Complies
Odor:	Characteristic clove odor.	Complies
Solubility:	Soluble in 1:1.5 ( v/v) 70% ethanol.	Complies
Specific Gravity:	1.042 - 1.063 @ 25°C	1.053
Refractive Index:	1.528 - 1.538 @ 20°C	1.535
Optical Rotation:	-1.5° to 0° @ 25°C	-0.55°
Eugenol Content:	75 - 85 %	82.08%
Eugenyl Acetate:	8 - 15 %	9.17
b-caryophyllene:	2 - 7 %	6.71

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## CERTIFICATE OF ANALYSIS

**Product:** Clove Bud (Indonesia) Essential Oil  
**Lot No.:** 11038A11219  
**Best Before:** December, 2021  
 Store in tight containers in a cool dry area away from direct sunlight.

<u>Properties</u>	<u>Specifications</u>	<u>Results</u>
<b>Appearance:</b>	Yellowish-brown to dark brown liquid.	Complies
<b>Odor:</b>	Characteristic clove odor.	Complies
<b>Solubility:</b>	Soluble in 1:1.5 ( v/v) 70% ethanol.	Complies
<b>Specific Gravity:</b>	1.042 - 1.063 @ 25°C	1.048
<b>Refractive Index:</b>	1.528 - 1.538 @ 20°C	1.535
<b>Optical Rotation:</b>	-1.5° to 0° @ 25°C	-0.34°
<b>Eugenol Content:</b>	75 - 85 %	82.06%
<b>Eugenyl Acetate:</b>	8 - 15 %	8.70
<b>b-caryophyllene:</b>	2 - 7 %	6.94

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CERTIFICATE OF ANALYSIS

Product: Clove Bud (Indonesia) Essential Oil

Lot No.: 11038A10619

Best Before: June, 2021

Store in tight containers in a cool dry area away from direct sunlight.

<u>Properties</u>	<u>Specifications</u>	<u>Results</u>
Appearance:	Yellowish-brown to dark brown liquid.	Complies
Odor:	Characteristic clove odor.	Complies
Solubility:	Soluble in 1:1.5 ( v/v) 70% ethanol.	Complies
Specific Gravity:	1.042 - 1.063 @ 25°C	1.054
Refractive Index:	1.528 - 1.538 @ 20°C	1.535
Optical Rotation:	-1.5° to 0° @ 25°C	-0.80°
Eugenol Content:	75 - 85 %	82.49%
Eugenyl Acetate:	8 - 15 %	8.36
b-caryophyllene:	2 - 7 %	6.62

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CERTIFICATE OF ANALYSIS

Product: Clove Bud (Indonesia) Essential Oil

Lot No.: 11038 - A40

Best Before: November, 2020

Store in tight containers in a cool dry area away from direct sunlight.

<u>Properties</u>	<u>Specifications</u>	<u>Results</u>
Appearance:	Yellowish-brown to dark brown liquid.	Complies
Odor:	Characteristic clove odor.	Complies
Solubility:	Soluble in 1:1.5 ( v/v) 70% ethanol.	Complies
Specific Gravity:	1.0380 - 1.0600 @ 20°C	1.0549
Refractive Index:	1.5270 - 1.5350 @ 20°C	1.5334
Eugenol Content:	70 - 86 %	81.72%

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