



- Natural Liquid Preservative
- Broad Spectrum Activity
- Safe Toxicity Profile
- Anti Oxidant Properties
- Exclusive Cultivated Fields
- Patent Pending
- Reach Compliance
- Dermatologically Tested
- Steam Distilled

## Linatural™ NLP-B



### Natural Liquid Preservative based on Basil, Clove Bud, Lemon Grass, and Sesame Oils

**Linatural™** is the new line of natural and/or naturally derived ingredients that bring value added to personal care, pharmaceutical and household products.

**Linatural™ NLP-B** is a patent pending natural preservative of Basil, Clove Bud, Lemon Grass and Sesame oils that are cultivated from exclusive fields and prepared by supercritical CO<sub>2</sub> extraction and steam distillation process.

**Linatural™ NLP-B** has excellent broad spectrum activity against gram positive and gram negative bacteria and mold and yeast. Basil, Clove Bud, Lemon Grass and Sesame oils are globally accepted and have excellent toxicity profiles.

<b>Typical Properties</b>	Appearance @ 25°C.....	Liquid
	Color .....	Yellowish Brown
	Specific Gravity.....	0.91± 0.01
	INCI Name: Ocimum Sanctum (Basil Extract)	
	Syzgium Aromaticum (Clove Bud Oil)	
	Cymbopogon Citratus (Lemon Grass Oil)	
	Sesamum Indicum (Sesame Oil)	

<b>Typical Use Levels/ pH range</b>	0.75% - 2.0%
	Formulation Optimal pH range 3 – 7

<b>Benefits</b>	» Natural Liquid Preservative	» Broad Spectrum Activity
	» Safe Toxicity Profile	» Anti Oxidant Properties
	» Global Approval	» Heat Stability up to 60°C
	» Effective at a wide pH range	

Preservative Challenge Test Data on Back

## Linatural™ NLP - B

**Human Repeat Insult Patch Test (HRIPT) with 1.00% Linatural NLP-B in skin cream on 50 subjects:**

- Dermatologically Tested
- First 48 hours showed no skin irritation
- No Dermal Irritation or Sensitization

### EFFICACY DATA – PRESERVATIVE CHALLENGE TEST

Shampoo w/addition of Linatural™ NLP-B	Challenge Data – Colony Forming Units per Gram (cfu/g) Mixed Bacteria ( <i>P. aeruginosa</i> , <i>E. coli</i> and <i>S. Aureus</i> )				
	Day 0	Day 7	Day 14	Day 21	Day 28
2.0 % Linatural NLP-B	1-3x10 <sup>6</sup>	<10	<10	<10	<10
Unpreserved Shampoo –pH 5	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>

Shampoo w/addition of Linatural™ NLP-B	Challenge Data – Colony Forming Units per Gram (cfu/g) Mixed Fungi ( <i>A. niger</i> & <i>C. albicans</i> )				
	Day 0	Day 7	Day 14	Day 21	Day 28
2.0% Linatural NLP-B	1-5x10 <sup>5</sup>	<10	<10	<10	<10
Unpreserved Shampoo – pH 5	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>

Cream w/addition of Linatural™ NLP-B	Challenge Data – Colony Forming Units per Gram (cfu/g) Mixed Bacteria ( <i>P. aeruginosa</i> , <i>E. coli</i> and <i>S. Aureus</i> )				
	Day 0	Day 7	Day 14	Day 21	Day 28
1.00% Linatural NLP-B	1-3x10 <sup>6</sup>	<10	<10	<10	<10
Unpreserved Cream – pH 6	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>	1-3x10 <sup>6</sup>

Cream w/addition of Linatural™ NLP-B	Challenge Data – Colony Forming Units per Gram (cfu/g) Mixed Fungi ( <i>A. niger</i> & <i>C. albicans</i> )				
	Day 0	Day 7	Day 14	Day 21	Day 28
1.00% Linatural NLP-B	1-5x10 <sup>5</sup>	<10	<10	<10	<10
Unpreserved Cream – pH 6	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>	1-5x10 <sup>5</sup>

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