



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



Linatural™ NLP-O



Natural Liquid Preservative based on Orange Oil, Lemon Grass Oil, and Sesame Oil

Linatural™ is the new line of all natural ingredients that bring value added to personal care, pharmaceutical and household products.

Linatural™ NLP-O is a patent pending natural preservative of Orange, Lemon Grass and Sesame oils that are cultivated from exclusive fields and individually qualified and packaged in Lincoln's GMP white room.

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

Typical Properties	Appearance @ 25°C	Clear Liquid
	Color	Yellow to Orange
	Specific Gravity.....	0.90 ± 0.01
	INCI Name: Citrus Aurantium (Orange Oil) Cymbopogon Citratus (Lemon Grass Oil) Sesamum Indicum (Sesame Oil)	

Typical Use Levels/ pH range	0.75% - 2.0% Formulation Optimal pH range 3 – 9
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Package Size	440 lb drum, 40 lb. pail
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Benefits	» 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 - O

Human Repeat Insult Patch Test (HRIPT) with 1.00% Linatural NLP-O 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-O	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
1.0 % Linatural NLP-O	1-3x10 ⁶	<10	<10	<10	<10
Unpreserved Shampoo –pH 5	1-3x10 ⁶	1-3x10 ⁶	1-3x10 ⁶	1-3x10 ⁶	1-3x10 ⁶

Shampoo w/addition of Linatural™ NLP-O	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
1.0% Linatural NLP-O	1-5x10 ⁵	<10	<10	<10	<10
Unpreserved Shampoo – pH 5	1-5x10 ⁵	1-5x10 ⁵	1-5x10 ⁵	1-5x10 ⁵	1-5x10 ⁵

Cream w/addition of Linatural™ NLP-O	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
2.00% Linatural NLP-O	1-3x10 ⁶	<10	<10	<10	<10
Unpreserved Cream – pH 6	1-3x10 ⁶	1-3x10 ⁶	1-3x10 ⁶	1-3x10 ⁶	1-3x10 ⁶

Cream w/addition of Linatural™ NLP-O	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
2.00% Linatural NLP-O	1-5x10 ⁵	<10	<10	<10	<10
Unpreserved Cream – pH 6	1-5x10 ⁵	1-5x10 ⁵	1-5x10 ⁵	1-5x10 ⁵	1-5x10 ⁵

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