



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



Linatural™ NLP



Natural Liquid Preservative based on Curry Leaf and Cinnamon Leaf 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 is a patent pending natural preservative of Curry leaf and Cinnamon leaf oils that are cultivated from exclusive fields and individually qualified and packaged in Lincoln's GMP white room.

Linatural™ NLP has excellent broad spectrum activity against gram positive and gram negative bacteria and mold and yeast. Curry and Cinnamon leaf oils are globally accepted and have excellent toxicity profiles.

| | | |
|---------------------------|--|--------------|
| Typical Properties | Appearance @ 25°C..... | Clear liquid |
| | Color | Pale Yellow |
| | Specific Gravity..... | 0.95 ± 0.01 |
| | INCI Name: Murraya Koenigii (Curry Leaf Oil) | |
| | Cinnamomum Zeylanicum (Cinnamon Leaf Oil) | |
| | Alcohol (Ethyl) – from Corn | |

| | |
|---|----------------------------|
| Typical Use Levels/ pH range | 0.3% - 1.2% |
| | Formulation pH range 3 – 9 |
| Package Size | 440 lb drum, 40 lb pail |

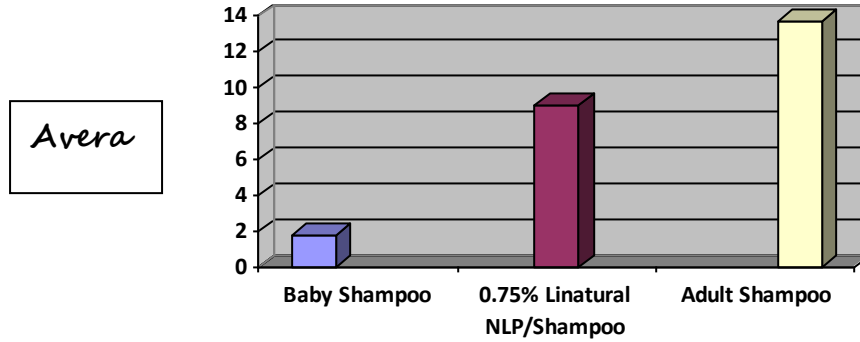
Benefits

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

Preservative Challenge Test Data on Back

Linatural™ NLP

HET-CAM = Eye Irritation Test:



Score

- 0 – 4.9
- 5.0 – 9.9
- 10.0 – 14.9
- 15.0 – 32.0

Irritation Potential

- Practically None
- Slight
- Moderate
- Severe

Human Repeat Insult Patch Test (HRIPT) with 0.75% Linatural NLP 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 | 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 |
| 0.5 % Linatural NLP | 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 | 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 |
| 0.5% Linatural NLP | 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 |

| Facial Wash w/addition of Linatural™ NLP | 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 |
| 0.75% Linatural NLP | 1-3x10 ⁶ | <10 | <10 | <10 | <10 |

| | | | | | |
|---|--|---------------------|---------------------|---------------------|---------------------|
| Unpreserved Facial Wash – pH 6 | 1-3x10 ⁶ | 1-3x10 ⁶ | 1-3x10 ⁶ | 1-3x10 ⁶ | 1-3x10 ⁶ |
| Facial Wash w/addition of Linatural™ NLP | 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 |
| 0.75% Linatural NLP | 1-5x10 ⁵ | <10 | <10 | <10 | <10 |
| Unpreserved Facial Wash – pH 6 | 1-5x10 ⁵ | 1-5x10 ⁵ | 1-5x10 ⁵ | 1-5x10 ⁵ | 1-5x10 ⁵ |

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