

# QUALITY CARES.

QUALITY WORKS.

**LANXESS**  
Energizing Chemistry

## NEOLONE® BioG Preservative – Naturally derived preservative for your personal care formulations

Sustainable broad spectrum preservative based on Ethyl Lauroyl Arginate (LAE®) for personal care characterized by:

### ■ Safety

LAE® is non-irritating and non-sensitizing at recommended use levels for cosmetic applications.

### ■ Acceptance

LAE® is widely approved\* for use in leave-on and rinse-off products.

### Product description

LAE®, the active ingredient of **NEOLONE® BioG Preservative** has a wide spectrum of activity against gram positive and gram negative bacteria, yeast and mold. Due to its cationic molecular structure, LAE® induces the loss of bacterial cell viability by disturbing their cell membrane potential and altering cell permeability. **NEOLONE® BioG Preservative** products provide an excellent preservation activity in cosmetic products formulated with compatible ingredients and their efficacy can be further enhanced with the use of recommended boosters and multifunctional ingredients. LAE® has an excellent Environmental Health and Safety profile. At recommended use levels it is non-irritating and non-sensitizing. LAE® is readily biodegradable and has low toxicity for aquatic organisms.

### ■ Naturally derived ingredients

**NEOLONE® BioG Preservative** meets ISO 16128 definition of a naturally derived ingredient and is COSMOS raw material approved. Raw materials for **NEOLONE® BioG Preservative** LAE® are derived from non-GMO corn, sugar beet sugar cane and sustainably sourced palm oil.

### ■ Effectiveness

Strong antimicrobial activity against molds, yeasts, gram-negative, and gram-positive bacteria.

### Safe for consumers and the environment

#### **NEOLONE® BioG Preservative**

LAE® in Glycerin. Liquid form for ease of formulating. Recommended dose 0.25–2.0%

- **NEOLONE® BioG Preservative** is best added post emulsification when cooling to ~45 °C
- Ensure the formulation is not too basic before LAE® additions pH < 7. Keep final product pH below 6 to minimize LAE® hydrolysis and maintain performance
- Incorporate with sufficient mixing
- Avoid incompatible ingredients

\* Please contact your LANXESS representative to check the specific approval status in your country

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## Naturally derived and certified

### NEOLONE® BioG Preservative is...

- Readily biodegradable and does not bioaccumulate
- Naturally derived (ISO 16128)
- COSMOS raw material approved
- Containing raw materials which are obtained from palm oil. The raw materials are RSPO certified
- Listed as preservative for cosmetics on Annex V of the European Cosmetics Products Regulation
- Non-animal origin: does not contain any animal ingredients, by-products or derivatives

### Regional availability

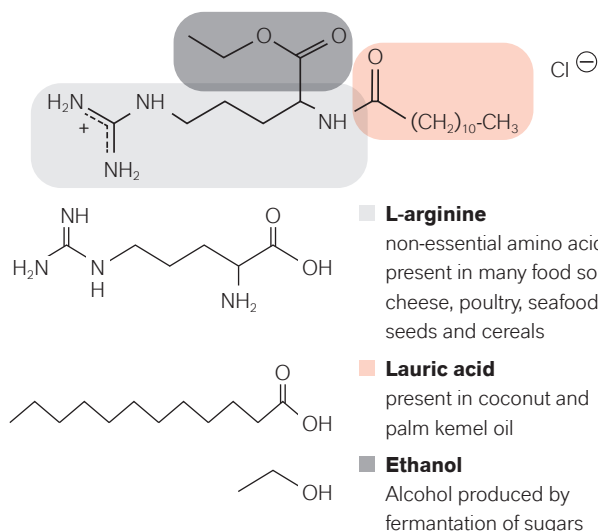
United states, Europe, Southeast Asia.

### Applications

Approved for leave on and rinse off applications, such as creams, lotions, micellar water and conditioners. LAE® safety for consumers at recommended use level has been confirmed by the European Scientific Committee on Consumer Safety based on extensive toxicology and skin irritation data. Use biocides safely. Always read the label and product information before use.

### A preservative derived from natural raw materials

**INCI: Ethyl Lauroyl Arginate HCl, LAE®**



Formula	C <sub>20</sub> H <sub>41</sub> CIN <sub>4</sub> O <sub>3</sub>
CAS	60372-77-2
EINECS/EILNCS	434-630-6
Mw	421 g/mol

## Formulation

We as LANXESS, Business Line CARE, are dedicated to delivering innovative and sustainable preservation solutions with advanced technical and regulatory expertise on a global level.

With our microbiology know-how and our network of global R&D hubs, we are providing our customers with safe, high-quality and effective products in a sustainable way.

For information on the appropriate dosage, possible combinations and formulation specifics of this preservative for your individual application, please contact your LANXESS representative to closely support you.

**ContactCare@lanxess.com**

Characteristics	
INCI	NEOLONE® BioG Preservative: Glycerin and Ethyl lauroyl arginate HCl NEOLONE® BioT Preservative: Ethyl lauroyl arginate HCl
Form/ consistency	NEOLONE® BioG Preservative: Liquid, solution in glycerin NEOLONE® BioT Preservative: powder
Odor	No Odor; No influence on the finished product at recommended use level
Solubility (LAE®)	Soluble in water, glycerin, ethanol
	Solubility in water (OECD 105): 247 g/kg at 20°C
	Critical Micelle Concentration (CMC): 2100–2500 ppm at 20°C, 1900–2000 ppm at 25°C
	Log Pow (octanol/water) (OECD 117): 1.43 at 20°C

# NEOLONE® BioG Preservative

Formulation	
Recommended use level/ dosage	NEOLONE® BioG Preservative: 0.25 – 2% NEOLONE® BioT Preservative: 0.057 – 0.46%
Optimal pH range	3 – 6
Thermostability	Stable at the processing temperature up to 80°C
Point of incorporation	<ul style="list-style-type: none"> <li>■ Add after emulsification (either cold or hot process)</li> <li>■ In hot process, addition after cooling below 45°C</li> </ul>
Incompatibilities	<p><b>Anionic thickeners:</b> Such as: Polyacrylic acid (PAA) based polymers (carbopol, carbomer), Xanthan gum, Carboxymethyl cellulose (CMC), Carrageenan</p> <p><b>Anionic Surfactants:</b> Such as: Sodium laureth or Lauryl sulfate (SLES/SLS), Alkyl phosphates or carboxylates</p>
Compatibilities	<p><b>Compatible Thickeners:</b> <b>Non-ionic gum thickeners</b> (e.g. Tara gum<sup>(1)</sup>, Guar gum<sup>(1)</sup>, Locust bean gum<sup>(1)</sup>, Cellulose ether<sup>(1)</sup>, Zea Mays starch<sup>(1)</sup>, Sclerotium<sup>(1)</sup>) or combination with Xanthan gum Viscosity adjustment with structuring agents (e.g. Cetearyl alcohol<sup>(1)</sup>)</p> <p><b>Cationic thickener</b> (e.g. Polyquaternium (Polyquat 37), modified Cationic guar)</p> <p><b>Compatible Surfactants:</b> <b>Non-ionic surfactants</b> (e.g. Alkyl glucoside<sup>(1)</sup>, Ethoxylated alcohol, Fatty alcohol<sup>(1)</sup>, etc), amphoteric (e.g. Cocamidopropyl betaines) <b>Cationic surfactants</b> (e.g. long chain or dialkyl quaternaries) <b>Anionic active ingredients</b> (e.g.: Sodium hyaluronate<sup>(1)</sup>, Sodium lactate<sup>(1)</sup>) <b>Amphoteric active ingredients</b> (e.g.: Betaine<sup>(1)</sup>) <b>Anionic preservatives</b> (e.g. Sodium benzoate<sup>(1)</sup>, Potassium sorbate<sup>(1)</sup>, Sodium dehydroacetate<sup>(1)</sup>)</p>
Preservatives or multifunctional additives	<p>The following preservatives or multifunctional additives passed the LANXESS Challenge test in a COSMOS compliant cream formulation in combination with 0.55 to 1.15% of NEOLONE® BioG Preservative</p> <ul style="list-style-type: none"> <li>■ 0.3 – 0.5% Sodium benzoate<sup>(1)(2)</sup></li> <li>■ 0.1 – 0.3% Na Dehydroacetate<sup>(1)(2)</sup></li> <li>■ 0.1 – 0.3% Na Anisate<sup>(1)(2)</sup></li> <li>■ 0.5 – 1% 1,2-Hexanediol</li> <li>■ 0.1 – 0.3%</li> <li>■ 0.3 – 0.7% Glyceryl caprylate<sup>(1)(2)</sup></li> <li>■ 0.1 – 0.3% Gluconolactone<sup>(1)(2)</sup></li> <li>■ 0.33 – 0.65% Benzyl alcohol<sup>(1)(2)</sup> + 0.025 – 0.05% Cinnamic acid<sup>(1)(2)</sup></li> </ul> <p><b>Other Options for enhancing performance:</b> Add low dosages of high HLB surfactants (solubilizers to the water phase before emulsification)</p> <p>Examples: PEG-40 hydrogenated castor oil (HLB 12.5) (from 2:1 to 1:2) Polysorbate-20 (HLB 16.7) (from 2:1 to 1:2) Caprylyl glucoside<sup>(1)(2)</sup> (HLB 13 – 14) (from 2:1 to 1:2)</p>

<sup>(1)</sup> Ingredients suitable for COSMOS compliant formulations

<sup>(2)</sup> Dosage levels should be verified with testing due to the variation in personal care formulations and their susceptibility to microbial contamination. Check with your local LANXESS representative for availability and regulatory limits that may apply.



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Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that the results refer exclusively to the specimens tested. Under certain conditions, the test results established can be affected to a considerable extent by the processing conditions and manufacturing process.

**Note:** Information contained in this publication is current as of May, 2023. Please contact LANXESS Deutschland GmbH respectively LANXESS Corporation to determine if this publication has been revised.

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