Neolone® BioT Preservative – Naturally derived preservative for Personal Care

Naturally derived ingredients
Neolone® BioT Preservative contains Ethyl Lauroyl Arginate HCl, is of natural origin, and has been certified as a COSMOS raw material.

Safety
Ethyl Lauroyl Arginate HCl is non-irritating and non-sensitizing at recommended use levels for cosmetic applications.

Acceptance
Ethyl Lauroyl Arginate HCl is widely approved* for use in leave-on and rinse-off products.

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

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

Product description

Neolone® BioT Preservative, based on Ethyl Lauroyl Arginate HCl, has a wide spectrum of activity against gram-positive and gram-negative bacteria, yeast and mold. Due to its cationic molecular structure, Ethyl Lauroyl Arginate HCl induces the loss of bacterial cell viability by disturbing their cell membrane potential and altering cell permeability. Neolone® BioT Preservative provides an excellent preservation activity in cosmetic products formulated with compatible ingredients and the efficacy can be further enhanced with the use of recommended boosters and multifunctional ingredients.
Ethyl Lauroyl Arginate HCl has an excellent Environmental Health and Safety profile. At recommended use levels it is non-irritating, non-sensitizing and readily biodegradable.

Formulation with Neolone® BioT Preservative

Ethyl Lauroyl Arginate HCl is available in powder form. Recommended dose 0.057–0.46%.

- To be used as a pre-made 15–20% solution in water
- Prepared with gentle mixing in hot water (> 50°C). Solution to be used within a day to avoid hydrate formation
- Best added post emulsification when cooling to ~45 °C
- Before adding Ethyl Lauroyl Arginate HCl, make sure the formulation is not too basic (below pH 7). Keep final product pH below 6 to minimize Ethyl Lauroyl Arginate HCl hydrolysis and maintain performance
- Avoid incompatible ingredients
- Incorporate with sufficient mixing

Naturally derived and certified

Neolone® BioT Preservative is…

- COSMOS raw material approved
- Readily biodegradable and does not bioaccumulate
- 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
- Compliant with Halal dietary restrictions

Applications

Approved for leave-on and rinse-off applications, such as creams, lotions, micellar water, conditioners and mouthwash. The safety of Ethyl Lauroyl Arginate HCl 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.

Your partner for preservation

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

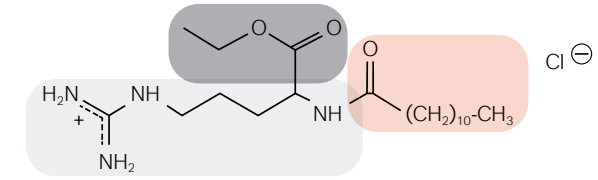
With our microbiology know-how and our network of global R&D hubs, we are providing our customers with safe, high-quality and effective products in a sustainable way.

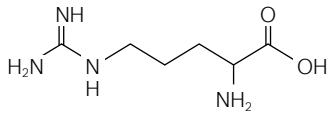
For information on the appropriate dosage, possible combinations and formulation specifics of this preservative for your individual application, please contact your LANXESS representative to closely support you.

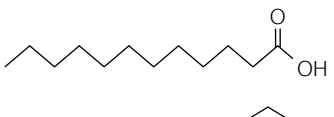
Regional availability

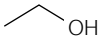
APAC, United States, Europe.

A preservative derived from natural raw materials INCI: Ethyl Lauroyl Arginate HCl









L-arginine
non-essential amino acid, present in many food sources e.g., cheese, poultry, seafood, nuts, seeds and cereals

Lauric acid
present in oils, such as coconut and palm kernel oil

Ethanol
Alcohol produced by fermentation of sugars

Characteristics	
INCI	Ethyl lauroyl arginate HCl
Formula	$C_{20}H_{40}N_4O_3$ x HCl
CAS	60372-77-2
EINECS/ELINCS	434-630-6
MW	421 g/mol
Form /consistency	Powder
Odor	No Odor; No influence on the finished product at recommended use level

Solubility	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 (ocatanol/water) (OECD 117): 1.43 at 20°C

Formulation	
Recommended use level / dosage	0.057– 0.46%
Optimal pH range	3 – 6
Thermostability	Stable at the processing temperature up to 80°C
Point of incorporation	■ Add after emulsification (either cold or hot process) ■ In hot process, addition after cooling below 45°C
Incompatibilities	**Anionic thickeners:** Such as: Polyacrylic acid (PAA) based polymers (carbopol, carbomer), Xanthan gum, Carboxymethyl cellulose (CMC), Carrageenan
	Anionic Surfactants: Such as: Sodium laureth or Lauryl sulfate (SLES/SLS), Alkyl phosphates or carboxylates
Compatibilities	**Compatible Thickeners:** **Non-ionic gum thickeners** (e.g. Tara gum[(1)], Guar gum[(1)], Locust bean gum[(1)], Cellulose ether[(1)], Zea Mays starch[(1)], Sclerotium[(1)]) or combination with Xanthan gum Viscosity adjustment with structuring agents (e.g. Cetearyl alcohol[(1)]) **Cationic thickener** (e.g. Polyquaternium (Polyquat 37), modified Cationic guars) **Compatible Surfactants:** **Non-ionic surfactants** (e.g. Alkyl glucoside[(1)], Ethoxylated alcohol, Fatty alcohol[(1)], etc), **Amphoteric surfactants** (e.g., cocamidopropyl betaine) **Cationic surfactants** (e.g. long chain or dialkyl quaternaries) **Anionic active ingredients** (e.g.: Sodium hyaluronate[(1)], Sodium lactate[(1)]) **Amphoteric active ingredients** (e.g.: Betaine[(1)]) **Anionic preservatives** (e.g. Sodium benzoate[(1)], Potassium sorbate[(1)], Sodium dehydroacetate[(1)])
Preservatives or multifunctional additives	The following preservatives or multifunctional additives passed the LANXESS Challenge test in a COSMOS compliant cream formulation in combination with 0.11 to 0.23% of Neolone® BioT Preservative ■ 0.3 – 0.5% Sodium benzoate[(1)] ■ 0.1 – 0.3% Na Dehydroacetate[(1)] ■ 0.1 – 0.3% Na Anisate[(1)] ■ 0.5 – 1% 1,2-Hexanediol ■ 0.1 – 0.3% Hydroxyacetophenone ■ 0.3 – 0.7% Glyceryl caprylate[(1)] ■ 0.1 – 0.3% Gluconolactone[(1)] ■ 0.33 – 0.65% Benzyl alcohol[(1)] + 0.025 – 0.05% Cinnamic acid[(1)] **Other Options for enhancing performance:** Add low dosages of high HLB surfactants (solubilizers to the water phase before emulsification) 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[(1)] (HLB 13 – 14) (from 2:1 to 1:2)

[(1)] Ingredients suitable for COSMOS compliant formulations

All 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.

LANXESS
Energizing Chemistry

Europe, Middle East, Africa
LANXESS Deutschland GmbH
Business Unit:
Material Protection Products
Kennedyplatz 1
50569 Cologne, Germany

North America and Central America
LANXESS Corporation
111 RIDC Park West Drive Pittsburgh,
PA 15275-1112, USA

Latin America
LANXESS Indústria de Produtos Químicos e Plásticos LTDA
Av. Maria Coelho Aguuiar, 215 ·
Bl. B · 2º Andar
05804-902, Jardim São Luis,
São Paulo-SP Brasil

China
LANXESS Chemical (China) Co., Ltd.
6F,5 Corporate Avenue
150 Hu Bin Road, Huangpu District
Shanghai 200021, P.R. China

Follow us on LinkedIn:
LANXESS Consumer Care

We kindly ask you to send customer inquiries to:
contactcare@lanxess.com – Neolone.com

11417PD-EN

This document contains important information and must be read in its entirety.