

QUALITY GUARDS.



Effective preservation of Home Care products

Discover LANXESS sodium benzoate preservative and multifunctional ingredients for robust, sustainable Home Care products your consumers can trust.

Emerald® Kalama® Kalaguard®

X Purolan®

QUALITY WORKS.

LANXESS
Energizing Chemistry

LANXESS

AT A GLANCE

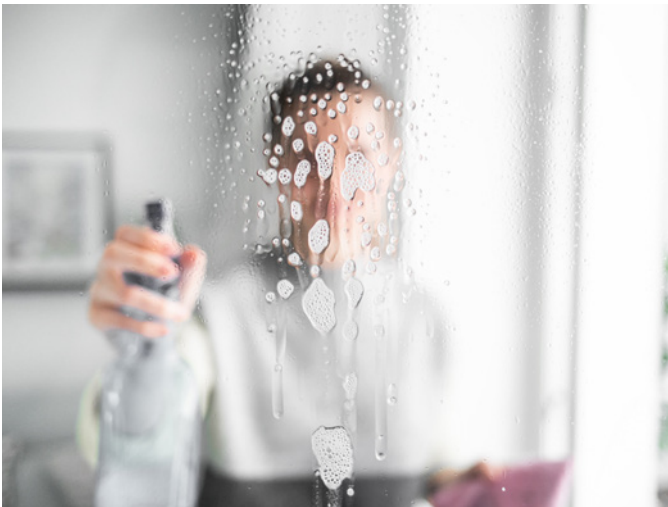
LANXESS is a leading specialty chemicals company based in Cologne, Germany and well-established on the global market. The core business is the development, manufacturing and marketing of chemical intermediates, additives and consumer protection products for a broad range of applications and markets.

LANXESS offers solutions to the challenges faced by our customers. Their requirements drive us to provide innovative product, material and service solutions. We also see sustainability and responsibility as key factors behind our successful business operations.

Committed to Consumer Protection

We understand the importance of providing safer and more sustainable solutions to protect consumers and their environment in many areas of life. We are dedicated to delivering on this commitment with high-quality ingredients and advanced

technical and regulatory expertise on a global scale. For example, our products effectively protect Home Care products from spoilage – so consumers can use them without hesitation.



PARTNER FOR HOME CARE PRESERVATION SOLUTIONS

Recent trends in household care preservation have made preservation more complex and challenging: The preservative toolbox has continued to shrink due to shifting consumer preferences, NGO scrutiny, regulatory pressure, and label requirements.

Formulators must work with considerably fewer available preservatives, while also meeting demand for products that are readily biodegradable, cost effective, non-sensitizing to the skin, and properly preserved against bacteria, yeasts, and molds. In addition, new biocidal registrations are resource-intensive, complex processes, which have substantially limited the number of new antimicrobial actives entering the market.

Cleaning product manufacturers must strategize preservation at the beginning of the formulation process, with consideration to how the entire formulation can impact microbial growth or inhibition.

Rely on highest standards and longstanding expertise

Our ingredients are produced according to the highest industry standards: We prove this through our ISO standard certifications as well as additional certifications such as FSSC 22000 and ISCC Plus, depending on the location.

Elevating product performance and preservation robustness in Home Care products

LANXESS focuses on safe and effective preservation solutions to protect formulations against the hazards of microbial contamination. Our products can be applied in detergents, dishwashing liquid and other cleaning products and can be found in many recognized home care brand products.

■ **Kalaguard® SB Sodium Benzoate** effectively stops bacteria, yeast, and mold at pH values up to 6.5. This preservative stands out for its reliable attributes, as it is non-allergenic and readily biodegradable. Moreover, our sodium benzoate is listed for use by green certification programs, including EPA Safer Choice, EU Ecolabel, Ecocert, and Nordic Swan.

■ **Kalama® and Purolan® Benzyl Alcohol** is produced to a very high minimum purity of 99.9%. It acts as a multi-functional solvent, providing benefits for cleaning products including loosening soils with streak-free performance.

■ **Emerald® X7 multifunctional** provides formulators with the opportunity to reduce the number of ingredients in a formulation while also enhancing a range of critical attributes, such as dissolving soil and masking odors. Formulating with **Emerald® X7** has a favorable regulatory profile, allowing manufacturers to meet consumer demand for cleaner labels without sacrificing performance.



DRIVING SOLUTIONS FOR A SUSTAINABLE TOMORROW



As a responsible supplier, LANXESS is driving leadership in sustainability – aiming to have a net zero value chain by 2050.

LANXESS also specifically supports Home Care manufacturers in achieving their own sustainability goals: **Kalaguard® SB** Sodium Benzoate enables you to formulate with sustainable ingredients that are approved for use in green label programs such as Ecocert, RSPO, NATRUE, Nordic Swan and COSMOS.

Through the use of green electricity and biomass, our sites are ISCC Plus certified, allowing LANXESS to produce mass balance certified renewable product alternatives that help you implement your climate protection and energy efficiency targets.

Talk to LANXESS application chemists who will support you on your individual path to sustainability.

Scopeblue

The LANXESS **Scopeblue®** brand label identifies products that enable climate-friendly solutions and contribute to a circular economy. They must either contain at least 50% sustainable raw materials or have a carbon footprint that is at least 50% lower than that of conventional products.

Kalaguard® SB Sodium Benzoate **Scopeblue®** and **Purolan®** Benzyl Alcohol **Scopeblue®** are manufactured based on mass balance renewable feedstock and provide a measurably improved CO₂ footprint while maintaining premium product quality.

LANXESS PORTFOLIO

OVERVIEW

Discover LANXESS ingredients for Home Care that meet your specific formulation needs. Whether you are looking for traditional technologies or innovative, sustainable solutions – our offerings cover a wide range of application options. We offer many products in conventional formats as well as sustainable versions that are suitable for consumer products with clean and green labels.

Product	Chemical name	Function	CAS	pH range	Typical use level	% solubility	Application examples
Kalaguard® SB	Sodium benzoate	Anti-microbial	532-32-1	2 to 6.5	0.1–1.25 %	at 25°C Water – 38.0 Propylene Glycol – 15.0 Glycerin ≥ 2.0 Mineral Oil – very low	Hand dish soap, bath cleaner, fabric softeners, descalers, laundry detergent
Kalama® Benzyl Alcohol/ Purolan® BA	Benzyl alcohol	Multifunctional solvent	100-51-6	2 to 12	0.1–1.0%	Water (25°C) – 4	Surface cleaners, laundry care, glass care, concentrates
Emerald® X7	3-phenylpropanol	Multifunctional solvent	122-97-4	2 to 12	0.1–0.5%	Water (20°C) – 0.78	Hand dish soap, glass cleaner, liquid laundry

Note: The dosages and applications listed in the above tables are typical dosages and uses for which the biocidal products are suitable. Allowed dosages and applications vary by country, hence please reach out to your LANXESS representative for country specific information on the registration status of each biocidal product.

Ensuring supply security to meet customers' needs

With production sites worldwide, LANXESS owns a unique and safe supply network to serve customers globally. Efficient supply chain processes and reliable product availability are of highest priority.

Our **worldwide sales and distributor network** is ready to serve you.



PRESERVATION AND FORMULATION SOLUTIONS DETAILS

Kalaguard® SB Sodium Benzoate

The only registered sodium benzoate for Home Care applications

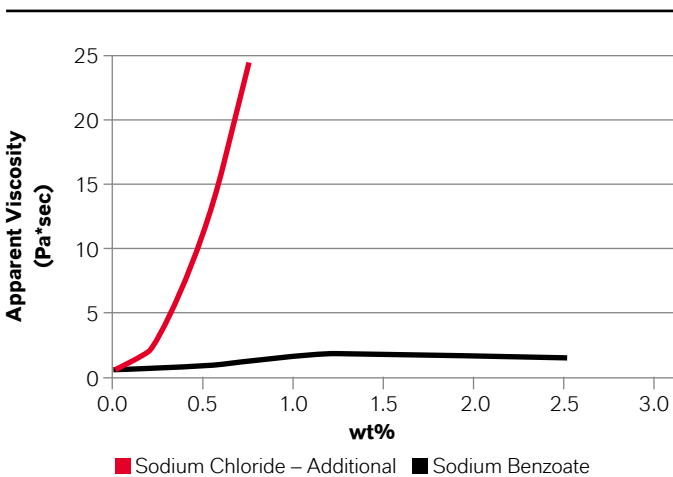
(BPR in the E.U., EPA FIFRA in the U.S.)

Sodium benzoate - well known and trusted as an additive in products such as food or personal care – can also serve as an efficient, economic preservative in home care products.

Sodium benzoate, the active ingredient in Kalaguard® SB is listed as “verified to be of low concern” on the EPA Safer Choice Ingredients List and classified as a low risk substance by the European Commission. Such products are preferred over classical biocides.

- **Globally trusted:** Effective up to pH 6.5 with established history of use in food and personal care.
- **Renowned certifications:** Listed for use by Ecolabel, Nordic Swan, and Ecocert; readily biodegradable.
- **Highest quality available:** Virtually odorless and colorless, and contains the highest quality and purity levels available.
- **Kalaguard® SB** has demonstrated the ability to economically and effectively control bacteria, yeast, and mold at typical use levels of 0.1–1.5%, and pH levels up to 6.5.

Viscosity of Hand Dishwash with 1.0% Sodium Chloride



In dishwash liquid, no undesirable effect on viscosity is observed with typical concentrations of Kalaguard® SB.

pH

The efficiency of Kalaguard® SB is dependent on product acidity. The lower the pH, the more effective Kalaguard® SB will be. At concentrations of 0.1–1.25%, Kalaguard® SB provides broad-spectrum efficacy in most formulations with pH levels up to 6.5.

Use level

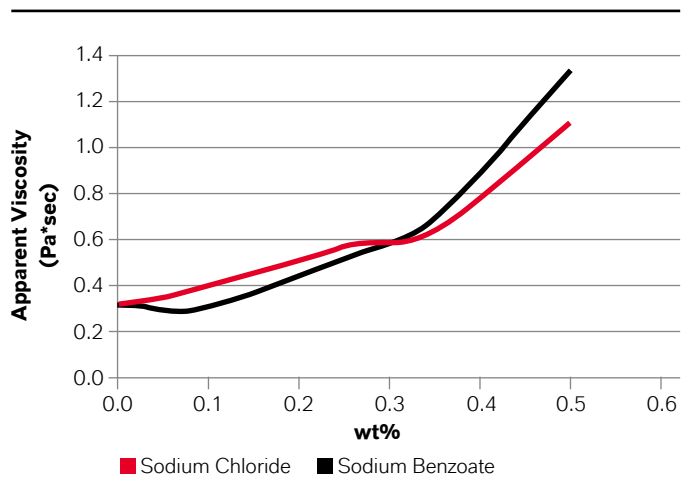
Kalaguard® SB is typically used at 0.1–1.25% (by weight) alone or with other antimicrobials. Kalaguard® SB is approved for use up to 3% under US EPA FIFRA and up to 2.9% under EU BPR.

Stability: Color and viscosity

Kalaguard® SB is virtually colorless and resists yellowing, resulting in minimal impact on color stability in formulations.

Kalaguard® SB generally has a low impact on viscosity. Rheology modifiers used with Kalaguard® SB should be salt-stable. In cationic systems, Kalaguard® SB demonstrates similar impact on viscosity to sodium chloride. In anionic systems, Kalaguard® SB controllably builds viscosity.

Viscosity of Fabric Conditioner, 10% Surfactant Active



In fabric conditioner, Kalaguard® SB has a similar impact on viscosity relative to sodium chloride

Emerald® X7 multifunctional (3-phenylpropanol)

Emerald® X7 is a multifunctional solvent with a low vapor pressure and light, pleasant aroma. Emerald® X7 is capable of enhancing cleaning performance through solubilizing of soils in household care products including cleaners, dishwashing liquids, laundry care, and more.

- Biodegradable, nature identical, non-sensitizing to the skin, and low toxicity
- Listed for use on the EPA Safer Choice Ingredients List (filled green circle)
- TSCA listed, REACH registered, and FDA GRAS
- Categorized as low-vapor pressure VOC (LVP-VOC) by California Air Resource Board – exempt from VOC allowances
- Typical use level: 0.1–0.5%

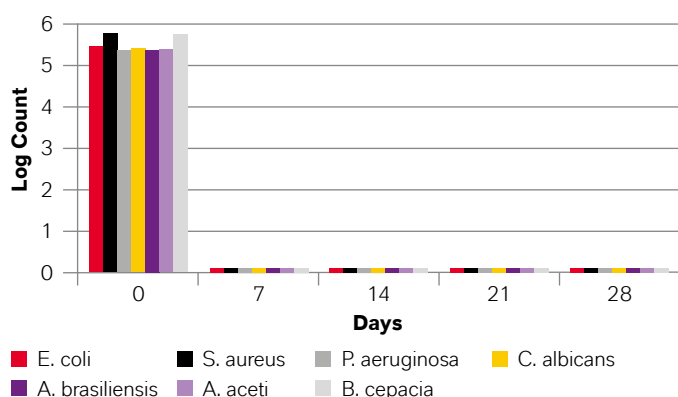
EXAMPLES

Fabric softener preserved with Kalaguard® SB

Ingredient	Purpose	Wt. %
Water	Carrier	Q.S.
Kalaguard® SB sodium benzoate	Preservative	0.1
Methyl bis[ethyl(tallowate)]-2-hydroxyethyl ammonium methyl sulfate	Cationic surfactant	5.0
Phosphoric acid	pH adjuster	to pH 3.0

Preservative efficacy testing was performed according to the PCPC M3 method with two inoculations: at the beginning of the test and at 7 days. Counts at 7, 14, 21, and 28 days.

Fabric Softener, pH 3.0



Kalama® Benzyl Alcohol/Puolan® BA

Benzyl Alcohol is a versatile multifunctional solvent that can support formulation and cleaning in household care products including cleaners, dishwashing liquids, laundry care, and a variety of industrial products.

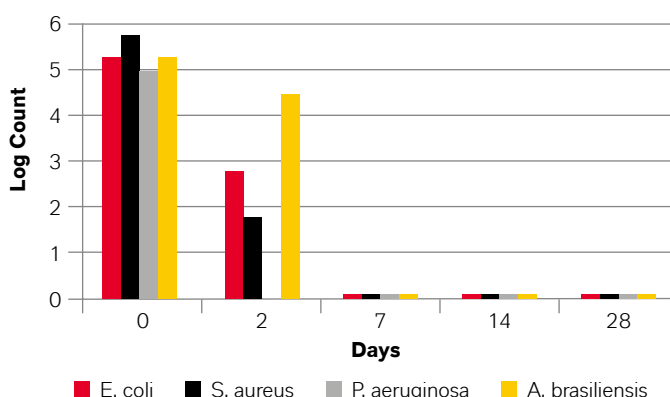
- Biodegradable, nature identical, and low toxicity
- TSCA listed, REACH registered, and FDA GRAS
- Categorized as low-vapor pressure VOC (LVP-VOC) by California Air Resource Board – exempt from VOC allowances
- Typical use level: 0.1–1.0%

Hand dish liquid with Emerald® X7 multifunctional solvent for enhanced cleaning, and preserved with Kalaguard® SB

Ingredient	Purpose	Wt. %
Water	Carrier	Q.S.
Sodium laureth sulfate (2 mol EO)	Surfactant	12.0
Sodium coco fatty alcohol sulfate	Surfactant	3.0
Lauryl/Myristyl glucoside	Surfactant	4.0
Kalaguard® SB sodium benzoate	Preservative	1.0
Emerald® X7	Multifunctional solvent	0.2
Sodium chloride	Viscosity builder	1.0
Citric acid	pH adjuster	varies

Preservative efficacy testing was performed according to the European Pharmacopoeia challenge method. Counts at 2, 7, 14, and 28 days.

Hand Dishwash Liquid, pH 6.5





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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 August 2024. Please contact LANXESS Deutschland GmbH respectively LANXESS Corporation to determine if this publication has been revised.

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