

QUALITY GUARDS.

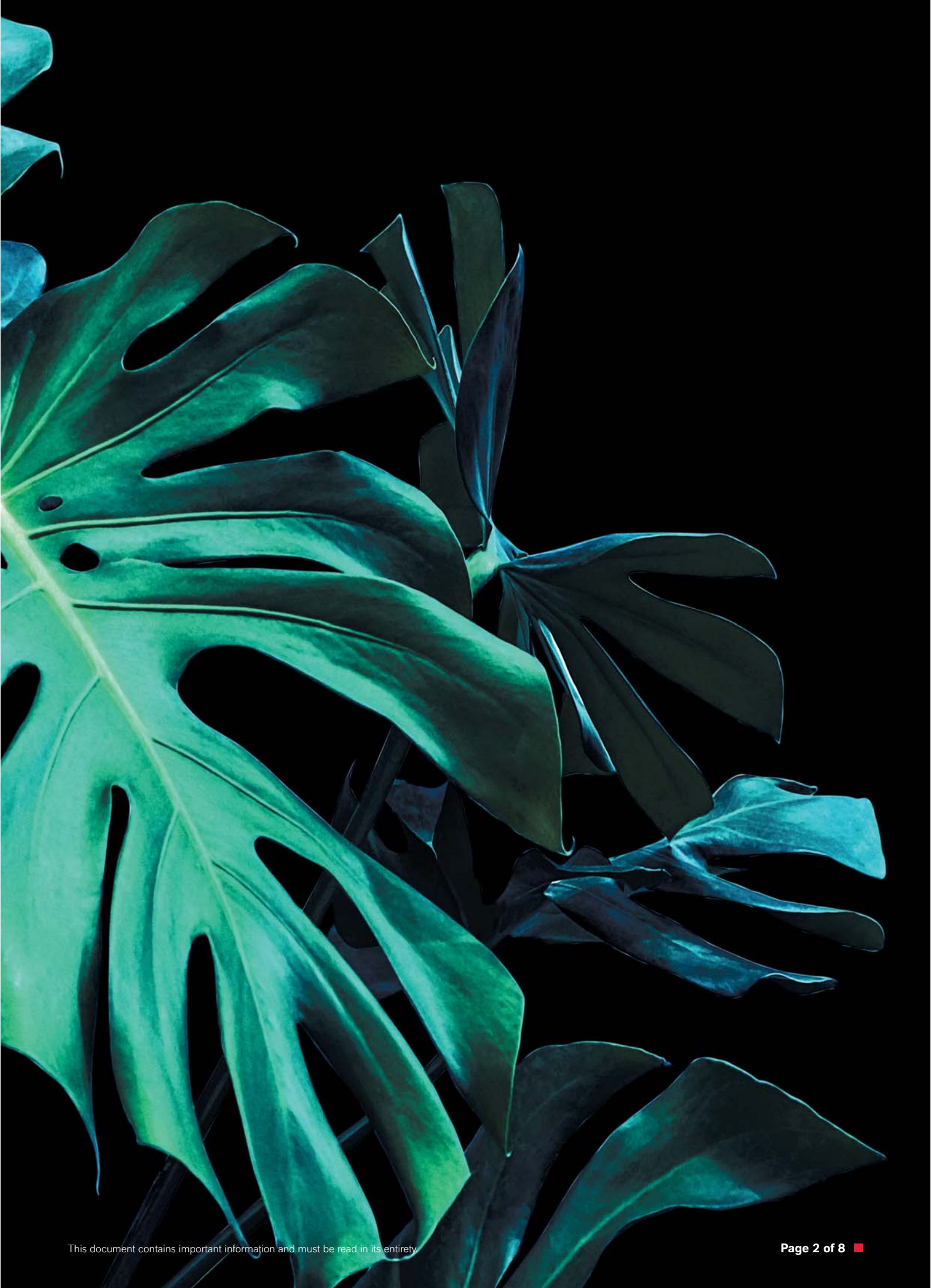


Beverage manufacturers tailor beverages to meet their customers' lifestyles – at LANXESS we tailor the corresponding beverage protection. **Nagardo**® is the natural guardian to secure and prolong the shelf life of your beverage. Safety enabled by nature.

X Nagardo®

QUALITY WORKS.

LANXESS
Energizing Chemistry



THE NATURAL GUARDIAN FOR BEVERAGE QUALITY

Soft drinks come with a promise of refreshment and drinking pleasure. But the most important promise to consumers is their safety when enjoying a beverage. Nagardo® natural beverage protection helps manufacturers to keep this promise by naturally protecting their products from spoilage. **Safety enabled by nature.**

Benefits

- Natural beverage protection that allows new marketing opportunities
- Efficient control of a broad range of spoilage organisms
- Pure sensory experience
- Broad application in various soft drink formulations
- Flexible process integration

NATURAL BEVERAGE PROTECTION

Derived from nature and produced sustainably

With its natural and sustainable properties, Nagardo® delivers additional marketing benefits to beverage manufacturers. Long-desired natural labels and claims can become reality.

Nagardo® is obtained as a purified mixture of glycolipids. The source organism is an edible fungus called Sweet Osmanthus Ear or *Dacryopinax spathularia* that grows in (sub-) tropical climates. A proprietary wild-type strain (not genetically modified) is cultivated using renewable raw materials. Pure Nagardo® is recovered by a food-grade and solvent-free fermentation process without chemical modification.

New opportunities for beverage manufacturers

- Consumer-friendly labeling
- Free from claims
- Natural claims (depending on local legislation)



HIGHLY EFFICIENT

Nagardo® is up to 50 times more efficient than chemical preservatives

Nagardo® natural beverage protection shows very good efficacy against typical beverage spoiling microorganisms including yeasts, molds and bacteria. In addition, it controls microorganisms that have adapted or are less sensitive to currently used persistent preservatives. It works by interacting with the microbial cell membrane and is chemically stable at a pH range between 2.5 to 7 (it is most effective within a pH range of 2.5 to 4.6).

Tailored dosage is key – the recommended dosage needs to be determined individually for each beverage. We support you in finding the optimal quantity to receive reliable antimicrobial protection at balanced costs.

Efficacy data against microorganisms*

Minimum inhibitory concentrations of Nagardo®; inoculation of >500 CFU/mL

	MIC Nagardo® [mg/l]
Yeast	
<i>Saccharomyces cerevisiae</i>	3.1
<i>Zygosaccharomyces bailii</i>	3.1
<i>Zygosaccharomyces rouxii</i>	6.3
<i>Candida parapsilosis</i>	6.3
Mold	
<i>Penicillium roqueforti</i>	12.5
<i>Trichoderma virens</i>	6.3
<i>Aspergillus brasiliensis</i>	6.3
<i>Byssosclamyces nivea</i>	12.5
Bacteria	
<i>Acetobacter aceti</i>	50
<i>Acetobacter pasteurianus</i>	6
<i>Lactobacillus brevis</i>	<10
<i>Lactobacillus plantarum</i>	<3.9

* Information only. Efficacy data are approximate values and are not considered part of the product specifications.



PURE SENSORY EXPERIENCE

Nagardo® gives manufacturers full control over the sensory experience of their beverage

Nagardo® natural beverage protection is taste neutral at recommended concentrations and has no effect on the color. It does not interfere with the sensory experience you desire for your customer.

- Taste neutral
- No influence on color and odor



BROAD APPLICATION

The application scope of **Nagardo®** covers various soft drinks*

- Can be used in pH 2.5 to 7 while being most effective in pH 2.5 to 4.6
- **Nagardo®** powder shows good water solubility
- Non-GMO
- Free of known allergens
- For latest approval status please visit our website

Range of beverages

- Carbonated & still soft drinks
- Isotonic sports drinks
- Ready to drink teas
- Flavored waters
- Juices and juice-based drinks
- Alcohol-free beer
- Kombucha beverages

* As with any product, use of Nagardo® in a given application must be tested (including field testing, etc.) by the user in advance to determine suitability.

FLEXIBLE PROCESS INTEGRATION

Nagardo® can be handled like most other beverage ingredients in powder form. Typically it does not require changes to the process equipment or even the filling line.

- Stable as powder
- Application as aqueous stock solution at mixing stage of the production process
- Stable in typical beverage processing steps, including flash pasteurization and UV treatment
- Can supplement aseptic filling
- No packaging restrictions
- Cost efficient through energy savings
- Safe to handle



ALWAYS ON HAND

Our specialists are always on hand to provide detailed advice and comprehensive support for everything related to the use of **Nagardo®** natural beverage protection:

- Advice on application of **Nagardo®**
- Support in laboratory tests
- Plant assessment
- Onsite production trials
- Regulatory support

What can we do for you? We look forward to each new challenge – and our next conversation with you!

**Sales contact: nagardo@lanxess.com
www.nagardo.com**







Business Unit Material Protection Products

Contact:
nagardo@lanxess.com
www.nagardo.com

Europe, Middle East, Africa:
LANXESS Deutschland GmbH
Kennedyplatz 1
50569 Köln, Germany
Phone: +49 (0) 221 8885-5211

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 Aguiar, 215 - Bl. B - 2º Andar
05804-902, Jardim São Luis, São Paulo-SP Brasil

Southeast Asia, Australia and New Zealand:
LANXESS Thai Co., Ltd.
208, 208 Wireless Road Tower, 5th Floor Unit 502
Wireless Road, Lumpini, Pathumwan, Bangkok 10330
Thailand

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

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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 September, 2022. Please contact LANXESS Deutschland GmbH respectively LANXESS Corporation to determine if this publication has been revised.

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