



Product Information

Preventol[®] O extra / ON extra



Preventol® O extra / ON extra

Use

For the preservation of aqueous products such as glues and adhesives, thickener solutions, concrete additives, filler suspensions, pigment slurries.

As a preservative for the leather industry.

For the preservation of textile auxiliaries.

For the preservation of whole citrus fruit.

As an active ingredient for disinfectants.

For the manufacture of plastics additives such as heat stabilisers.

Chemical and physical data

Preventol O extra

Composition:	2-phenylphenol, ortho-phenylphenol (OPP)
Description:	flakes: almost colourless flakes with a slight phenolic odour fused: colourless to slightly yellow, crystalline mass with slight phenolic odour

Specification*

Assay (GC) :	min. 99.5 %
Solidification point:	min. 56 °C

The product (E 231) fulfills the special purity requirements of the appendix of EU guideline 96/77/EG from 2 December 1996 (definition of specific purity criteria for food additives other than dyes and sweeteners).

*Specification values are subject to constant monitoring. Only data given in the current edition of the "Specification" are binding.

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Characteristic data**

Density (20 °C):	approx. 1.24 g/cm ³
Bulk density (flakes):	approx. 650 kg/m ³
Vapour pressure (20 °C, calc.): (100 °C):	approx. 0.0007 mbar approx. 1 mbar
Boiling point (1013 mbar):	approx. 287 °C
Flash point:	approx. 138 °C (DIN 51758)
pH (0.01 % in water):	approx. 7
Stability range:	pH 1–14

**Characteristic data provide further information about the product and are not subject to constant monitoring. They are therefore not binding.

Solubility (20 °C) in:

water	0.5 - 0.6 g/l
ethanol	5900 g/l
isopropanol	3300 g/l
10 % NaOH	500 g/l

Storage

Provided the product is correctly stored and kept in the original sealed package, the shelf life is 2 years. The product may change its colour slightly when exposed to air, but this does not affect its effectiveness.

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Preventol ON extra

Composition:	sodium-2-phenylphenolate (Na-OPP)
Description:	flakes: white to slightly yellow flakes; the product contains water of crystallisation

Specification*

Assay (potentiometric titration):	min. 97.0 % as $C_{12}H_9NaO \cdot 4 H_2O$ (Na-OPP · 4 H ₂ O)
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The product (E 232) fulfills the special purity requirements of the appendix of EU guideline 96/77/EG from 2 December 1996 (definition of specific purity criteria for food additives other than dyes and sweeteners).

*Specification values are subject to constant monitoring. Only data given in the current edition of the "Specification" are binding.

Characteristic data**

Bulk density (flakes):	approx. 400 – 450 kg/m ³
pH (2 % in water)	11.1 – 11.8
Stability range:	up to pH 14

**Characteristic data provide further information about the product and are not subject to constant monitoring. They are therefore not binding.

Solubility (20 °C) in:

ethanol	2000 g/l
isopropanol	1500 g/l
water	1200 g/l (at 25 °C)

Storage

Provided the product is correctly stored and kept in the original sealed package, its shelf life is 2 years. The product may discolour (turn slightly red) when exposed to air, light, moisture or heat. This does not impair its effectiveness.

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Application

The halogen-free grades Preventol O extra and ON extra have a particularly broad spectrum of activity covering bacteria, yeasts and mould fungi (see Table I).

Before use, Preventol O extra must be dissolved in either caustic soda solution, a low alcohol (e.g. glycol) or a water/alcohol mixture. To produce a 30 % stock solution of Preventol O extra in a caustic soda solution, 1 kg Preventol O extra is dissolved in a solution based on 1.85 l water and 0.5 kg 50 % caustic soda solution. It is not necessary to predissolve Preventol ON extra because this, being a sodium salt, naturally dissolves easily in water.

In aqueous media with a pH below 9, the solubility of Preventol O extra may be too low to create the concentrations necessary for reliable preservation. The same is true for Preventol ON extra which, in solutions with a pH below 9, releases Preventol O extra. In such cases, it is recommended that Preventol CMK or Preventol CMKNa is used, either alone or in combination with Preventol O extra or ON extra. Alternatively, Preventol WB, a combination of active ingredients, can be used.

Preventol O extra and Preventol ON extra have outstanding thermal stability. Nonetheless, the release of active ingredient during the manufacture, for example, of dry glues is unavoidable, since phenolic active ingredients are fairly steam-volatile. The higher the pH of the solution, the lower the release of active ingredient.

Preventol O extra and Preventol ON extra can also be incorporated into solid products such as print thickeners and powdered glues. An even distribution of the active ingredient in the finished product, which is necessary to guarantee a reliable effect, can be achieved by mixing and grinding the product. It is more beneficial, however, to use Preventol ON-S, a finely ground grade of Preventol ON extra, which can be easily mixed with powders.

Applications and guide additions for Preventol O extra and Preventol ON extra are listed in Table II.

Preventol® O extra / ON extra

Spectrum of activity

Minimum inhibitory concentrations (mg/l) of Preventol O extra in nutrient agar

Table I

Bacteria	
Aeromonas punctata	200
Bacillus mycoides	100 - 300
Bacillus subtilis	100 - 200
Desulfovibrio desulfuricans	50
Enterobacter aerogenes	200
Escherichia coli	200
Leuconostoc mesenteroides	100 - 200
Proteus mirabilis	200
Pseudomonas aeruginosa	1500
Pseudomonas fluorescens	1000
Staphylococcus aureus	200 - 300
Yeasts	
Candida albicans	200
Candida krusei	200
Rhodotorula mucilaginosa	100
Saccharomyces cerevisiae	200
Saccharomyces bailii	100
Torula rubra	100
Torula utilis	100 - 200

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Mould fungi			
Alternaria tenuis	100 - 200	Penicillium brevicaulae	50 - 100
Aspergillus flavus	100	Penicillium citrinum	35
Aspergillus niger	50 - 100	Penicillium digitatum	35
Aspergillus terreus	200	Penicillium funiculosum	75
Aspergillus ustus	150	Penicillium glaucum	50
Aureobasidium pullulans	35	Penicillium italicum	85
Cephalosporium fragrans	200	Phanerochaete sanguinea	100
Ceratocystis pilifera	100	Phialophora fastigiata	200
Chaetomium globosum	50 - 100	Coriolus versicolor	65
Cladosporium herbarum	60	Rhizopus stolonifer	200
Cladosporium sphaerospermum	40	Stereum sanguinolentum	100
Gliocladium virens	200	Trichoderma viride	75
Lentinus tigrinus	100	Trichophyton mentagrophytes	50
Mucor racemosus	200		

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Fields of application for Preventol O extra

Table II

Fields of application	Use	Suggested additions*
Disinfectants and cleaning agents Disinfectant concentrates Ready-to-use disinfectant concentrates	Disinfection	10 - 15 % 0.075 - 0.15 %
Timber Sawn timber	Temporary protection	1 - 3 %
Leather Chrome leather	Preservation	0.15 - 0-25 %
Glues and adhesives Dextrine and cellulose glues Starch glues (liquid) Starch glues (dry)	Preservation	0.10 - 0.20 % 0.10 - 0.20 % 0.10 - 1.0 %
Paper Filler suspensions, coating compounds Pigment slurries	Preservation	0.07 - 0.15 % 0.025 - 0.050 %
Textile Auxiliaries Print thickeners (dry)	For the presevation in the ready-to-use dilution	1.0 - 2.0 %
Citrus fruits	Whole fruit preservation	0.15 - 1.3 % in the dipping bath
Various Polishes, wax emulsions Concrete additives	Preservation	0.20 - 0.30 % 0.1 - 0.3 %
Special reprints are available on request		

* Where not indicated otherwise, the additions refer to the total weight. Recommended Preventol ON extra concentrations are 1.6 times the Preventol O extra concentration. Please note that the level of the addition depends on a large number of factors such as the germ content of the material, the formulation and production and storage conditions. The ideal concentration should be determined by on-site tests.



Preventol® O extra / ON extra

Registration / Approval / Recommendation

The products (E 231 and E 232) meet the purity requirements for food additives prescribed by EC Directives. They have been awarded the special purity mark named in the Federal German Regulation on Food Additives of July 10, 1984 (Appendix 2, List 2). Their content of arsenic, lead, copper and zinc do not exceed the maximum levels listed in Appendix 1 (general purity requirements).

11th Federal German Regulation on Cosmetics of 1988, Appendix VI, Part 1: Preventol O extra and its salts are included in the list of approved preservatives. The maximum addition is 0.2 %, calculated as phenol-derivate.

BgVV* Recommendation List XIV: o-phenylphenol and its sodium and potassium salts are listed as preservatives for plastics dispersions.

BgVV* Recommendation List XXXVI: o-phenylphenol and its sodium and potassium salts are listed as preservatives for auxiliaries for the manufacture of paper and cardboard for foodstuff packaging.

* German Federal Institute for Consumer Health and Veterinary Medicine, previously BGA

In the United States, 2-phenylphenol and/or its sodium salt is registered by the EPA and approved for use as a preservative or for other purposes by the Food and Drug Administration (FDA), including in the sections:

- 175.105 adhesives
- 175.300 coatings
- 176.170 paper and cardboard in contact with aqueous and fatty foods (only ON extra)
- 176.180 with dry food (only ON extra)
- 176.210 antifoaming agent for the manufacture of paper and cardboard
- 177.2600 products based on rubber
- 178.1010 disinfectant solutions
- 178.3120 glues based on animal products.

Preventol O extra
EPA Registration 39967-3 (manufacturing-use)
EPA Registration 39967-11 (end-use)

Preventol ON extra
EPA Registration 39967-24 (end-use)

Up-to-date information on the registration status of our products can be obtained from:

LANXESS Deutschland GmbH
Business Unit Material Protection
51369 Leverkusen / Germany
Fax: (+49 214) 30-6 29 95

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Precautions

Preventol O extra and ON extra are solid products which must be prevented from coming into contact with the skin. Care should be taken to prevent the dust being inhaled. The precautions generally recommended for handling chemicals should be observed, e.g. wearing of protective gloves, safety goggles and suitable protective clothing. If the product comes into contact with the skin, the affected area should be washed immediately with large amounts of soap and plenty of water; splashes in the eyes should be rinsed out immediately with plenty of water. If irritation persists, medical attention should be obtained. Contaminated clothing should be changed at once.

The current safety data sheet should be observed. This contains further information on labelling, transport and storage as well as information on handling, product safety, toxicity and ecology.

Use biocides safely. Always read the label and product information before use.

Toxicity and Labelling

Acute toxicity:	Preventol O extra	Preventol ON extra
LD ₅₀ oral:	2980 mg/kg rat	1720 mg/kg rat

The product Preventol O extra is classified as irritant (Xi) and dangerous for the environment (N).

Hazard description and R-phrases:

R 36 / 37 / 38: Irritating to eyes, respiratory system and skin.

R 50: Very toxic to aquatic organisms.

The product Preventol ON extra is classified as harmful (Xn) and dangerous for the environment (N).

Hazard description and R-phrases:

R 22: Harmful if swallowed.

R 37 / 38: Irritating to respiratory system and skin.

R 41: Risk of serious damage to eyes.

R 50: Very toxic to aquatic organisms.