P3-oxonia® active

Description:

Liquid, acidic disinfectant based on hydrogen peroxide/ peracetic acid for the food industry

Product strengths:

- particularly effective against all types of microorganisms, even in cold water
- environmentally-oriented

Properties

Concentrate	**Appearance:**	colourless liquid *
	Storage stability:	-20 to 35 °C, min. one year
	Solubility:	at 20 °C miscible with water in any proportion
	Density:	1.08 - 1.10 g/cm^3 *
	Viscosity (dynamic):	1.7 mPas (20 °C)
	P content:	0.2 %
	N content:	0.0 %
	COD:	not applicable
	Flash point:	not applicable, do not heat above 40 °C
Application solution	**pH:**	3.0 - 3.4 * (1 %, 20 °C, deionized water)
	Conductivity:	0.285 mS/cm (1 %, 20°C, deionized water)
	Foam characteristics:	non foaming, suitable for CIP-systems

* Parameters subject to incoming goods control

pH-values (in relation to water hardness)			
Concentration in %	**0 °d**	**16 °d**	**30 °d**
Water	5.0	7.2	7.6
0.05	4.1	7.1	7.2
0.10	3.8	6.8	7.0
0.30	3.6	6.1	6.5
0.50	3.4	5.4	6.1
1.00	3.2	4.6	5.1
5.00	2.1	3.2	3.6
10.00	2.1	2.3	2.8

Material compatibility:

P3-oxonia active is, under the application conditions described below, compatible with

- **Metals**

aluminium, austenitic CrNi steels (quality at least DIN 1.4301 = AISI 304), tinned iron

Mild steel (St 37/2), copper and its alloys and galvanized iron show surface losses which remain within acceptable limits, but the stability of the sanitizing solution is impaired. Short-term exposure is possible (see table of losses).

As it is the case with all acidic/oxidative disinfectants, static disinfection should not be carried out due to the risk of pitting corrosion. Static solutions, high chloride content in the batch water and high temperatures favor pitting corrosion.

- **Plastics**

PE, PP, rigid PVC, PTFE, PVDF

(application solution)

Higher concentrations and/or other plastic materials should be tested for their suitability in case of need.

- **Seals**

In view of the wide range of different seals, it is advisable to test their suitability in case of need.

Corrosion test according to DIN 50905 Surface losses when using P3-oxonia active expressed in g/m^2 per h at 20 °C and 16 °d			
Material	**0.2 %**	**0.5 %**	**1.0 %**
Aluminium 99.5	0.00	0.00	0.00
Chrome nickel steel 1.4301	0.00	0.00	0.00
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Tinned iron	0.00	0.00	0.00
Galvanized iron	0.05	0.20	0.50
Iron steel 37/2	0.70	1.10	1.60
Copper (discolouration)	0.05	0.10	0.50

Microbiology

EN 1276 Bactericidal Efficacy				
Pass criteria >5 log reduction	Test organisms	Temperature	Clean conditions (0.03% BSA)	Dirty Conditions (0.3% BSA)
	- *Staphylococcus aureus* (ATCC 6538) - *Pseudomonas aeruginosa (ATCC 15442)* - *Escherichia coli (ATCC 10536)* - *Enterococcus hirae (ATCC 10541)*	20°C	0.25% 5min.	0.5% 5min.

EN 1650 Fungicidal and Yeasticidal efficacy				
Pass criteria >4 log reduction	Test organisms	Temperature	Clean conditions (0.03% BSA)	Dirty Conditions (0.3% BSA)
	Yeast - Candida albicans (DSM 1386)	20°C	0.5% 15min.	0.5% 15min
	Fungi - *Aspergilllus brasiliensis (DSM 1988)*	20°C	3.0% 15min.	3.0% 15min.

EN 13697 Bactericidal, Yeasticidal and Fungicidal efficacy			
Pass criteria Bactericidal efficacy >4 log reduction Yeasticidal/ Fungicidal efficacy >3 log reduction	Test organisms	Temperature	Clean conditions (0.03% BSA)
	- Staphylococcus aureus (DSM 799) - Enterococcus hirae (DSM 3320) - Escherichia coli (DSM 682) - Pseudomonas aeruginosa (DSM 939)	20°C	0.5% 5min.
	Yeasts **-** Candida albicans (DSM 1386)	20°C	2.0% 30min.
	Fungi **-** Aspergilllus brasiliensis (DSM 1988)	20°C	2.0% 30min.

Toxicology

The product shows little acute toxicity (LD_{50} = 3.40 (2.83 - 4.08) ml/kg rat p.o.). The product has little irritant effect on

the skin. A 5 % aqueous preparation, applied repeatedly to the skin of experimental animals (hairless mice), was tolerated without reaction, while higher concentrations led to skin reactions when applied repeatedly.

A 2.5 % aqueous preparation was tolerated by human skin without reaction despite repeated application. At higher concentrations or prolonged skin contact, skin reactions must be expected. A 5 % **P3-oxonia active** solution was sprayed in a proportion of 18 g/m³ and was tolerated without reaction of the experimental animals.

Ecology

P3-oxonia active is particularly suitable because only small traces of acetic acid or its salts remain in the waste water after the reaction with organic material.

Application

Typical applications are:

P3-oxonia active is applied in the food industry for a fast sanitizing of surfaces which are in contact with foods.

The contact time of the **P3-oxonia active** solution is dependent on concentration, temperature and specific field of application.

- **General application**

  Concentration: 0.05 - 3 %
  Temperature: 5 - 20 °C

- **Increased disinfecting efficiency / shorter contact time**

  Concentration: 0.2 - 1 %
  Temperature: 50 °C max.

For stabilizing reasons, higher temperatures should generally be avoided, as they do not improve the sterilizing effect **of P3-oxonia active**.

The application indications are assumed values to our experiences and may be corrected, depending on specific application conditions.

Important indications !

- Effluent, containing chemicals, must only be discharged according to the local regulations

- Chemicals containing effluent must only be discharged into the biological treatment station after passing the neutralization- and buffer tank
- When discharging chemically polluted effluent, it is essential to pay specific attention to the bacteria toxicity of this water. This is especially important when dealing with biocide containing effluents and anaerobic sewage plants
- In case of doubt please seek advice from our technical service

Monitoring

Concentration determination

- **Titration** — **See determination method**

Receiving flask:	100 ml application solution
Titration solution:	0.1 n sodium thiosulphate solution + 0.1 n potassium permanganate solution, sulfuric acid
Indicator:	potassium or sodium iodide, starch solution (1 %)

Volume added of potassium permanganate in ml x 17 = concentration hydrogen peroxyde in mg/l (= ppm)

Volume added of sodium thiosulphate in ml x 38 = concentration peracetic acid in mg/l (= ppm)

Please note the **difference between total oxygen- and peracetic acid determination**. To evaluate the efficacy of **P3-oxonia active**, the peracetic acid content in the application solution is of major importance.

A semiquantitative rapid determination can be carried out by means of "Merckoquant Etherperoxid-test"-stripes. This method identifies 0 - 500 ppm peroxide.

A 0.1 % **P3-oxonia active** solution shows 320 ppm peroxide on that teststrip (combination of POAA and H_2O_2).
A selective determination of peracetic acid up to 50 ppm can be carried out by the "Merckoquant peracetic acid-test".

- **Conductivity**

The specific conductivity of **P3-oxonia active** is usually insufficient for control via conductivity. For **conductance control of P3-oxonia active** we recommend the **addition of P3-horolith LF** (see product data sheet P3-horolith LF).

Concentration control

Dosage of **P3-oxonia active** can be volume-proportional to the water flow for CIP-systems and cyclic for continuous systems. We recommend the use of **P3-Elados EMP**-diaphragm pumps for metering and the use of inductive conductivity units, e. g. **P3-LMIT 08** for control and phase separation of the application solution of **P3-oxonia active**.

Our P3-System brochures are available on request.

Safety

The relevant hazards identifications of **P3-oxonia active** are given in the EC Safety Data Sheet. If any questions arise in this context please contact your Ecolab representative.

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LENNTECH
info@lenntech.com Tel. +31-152-610-900
www.lenntech.com Fax. +31-152-616-289

ECOLAB