P3-oxonia® active

Description:

Liquid, acidic disinfectant based on hydrogen peroxide/ peracetic acid for the brewing and beverage industry

Product strengths:

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

Properties

Concentrate	**Appearance:**	colourless liquid *
	Storage stability:	0 to 30 °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 1.430 1 = 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 favour pitting corrosion.

- **Plastics**

(application solution)

PE, PP, rigid PVC, PTFE, PVDF

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
Chrome nickel steel 1.4401	0.00	0.00	0.00
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)
	Bacteria *- Staphylococcus aureus* *- Pseudomonas aeruginosa* *- Escherichia coli* *- Enterococcus hirae*	20°C	0.05% 5min.
		5°C	0.05% 5min.

EN 1650 Fungicidal and Yeasticidal efficacy			
Pass criteria >4 log reduction	Test organisms	Temperature	Clean conditions (0.03% BSA)
	Yeast - Candida albicans	20°C	0.5% 5min.
			0.25% 15min.
		5°C	1.0% 5min.
			0.5% 15min.
	Fungi *- Aspergilllus brasiliensis*	20°C	4.0% 15min.

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 brewing and beverage industry for a fast sanitizing of surfaces which are in contact with beverages as fermentation, storage and bottling tanks, and plant and equipment in filtering and filling cellars.

Brewing industry:

- **Brewhouse/ Cold store**

  Wort path, plate cooler, wort filtration
  Concentration: 1 %
  Temperature: 40 °C max.
  Contact time: 30 minutes

- **Yeast-/Pitching cellar**

  Pipes, yeast tanks
  Concentration: 1 %
  Temperature: 40 °C max.
  Contact time: 30 minutes

- **Fermentation-/ Storage cellar**

  Tanks, cylinder-conical fermenters/storage tanks, pipelines
  Concentration: 1 %
  Temperature: cellar temperature, 40 °C max.
  Contact time: 30 minutes

- **Filter-/ Bright beer tanks**

  Buffer tanks, filters, bright beer tanks, pipelines
  Concentration: 1 %
  Temperature: cellar temperature, 40 °C max.
  Contact time: 30 minutes

- **Cask cellar**

  Casks, steam zone
  Concentration: 0.1 %
  Temperature: steam injection
  Contact time: automatic batch process

  Isobarometer, pipelines, hoses
  Concentration: 0.8 %
  Temperature: room temperature
  Contact time: 30 minutes

- **Keg plant**

  Pipelines
  Concentration: 0.6 %
  Temperature: 40 °C max.
  Contact time: 30 minutes

  Steam zone
  Concentration: 0.1 %
  Temperature: steam injection
  Contact time: automatic batch process

- **Bottling hall**

  Bottle washing machine, rinsing section
  Concentration: 0.01 - 0.04 %
  Temperature: 25 - 35 °C
  Contact time: automatic batch process

Filler, intermediate disinfection (short downtime)

Concentration:	0.3 %
Temperature:	room temperature, 40 °C max.
Contact time:	system-specific

Pipelines, beer channel

Concentration:	0.6 %
Temperature:	room temperature, 40 °C max.
Contact time:	30 minutes

Conveyor belt hygiene

Concentration:	0.2 - 0.3 %
Temperature:	room temperature
Contact time:	every 20 minutes inoculation disinfection for 5 minutes

Beverage industry:

- **Fruit juices**

Presses, filter presses, centrifuges

Concentration:	1 %
Temperature:	40 °C max.
Contact time:	30 minutes

Pasteurizer, evaporator

Concentration:	1 %
Temperature:	cellar temperature, 40 °C max.
Contact time:	30 minutes

Storage tanks, pipelines, hoses

Concentration:	1 %
Temperature:	cellar temperature, 40 °C max.
Contact time:	30 minutes

- **Syrup room**

Water flow

Concentration:	0.5 %
Temperature:	cellar temperature, 40 °C max.
Contact time:	30 minutes

Mixing tanks, concentrate tanks, pipelines, hoses

Concentration:	1 %
Temperature:	steam injection
Contact time:	automatic batch process

- **Vessel-/Container station**

Rinsing sections

Concentration:	0.01 %
Temperature:	40 °C
Contact time:	automatic batch process

Fillers, pipelines

Concentration:	1 %
Temperature:	steam injection
Contact time:	automatic batch process

- **Bottling hall**

Bottle washing machine, rinsing section

Concentration:	0.01 - 0.04 %
Temperature:	25 - 35 °C
Contact time:	automatic batch process

Filler, intermediate disinfection (short downtime)

Concentration:	0.3 %
Temperature:	room temperature, 40 °C max.
Contact time:	system-specific

Pipelines, beverage channel

Concentration:	0.6 %
Temperature:	room temperature, 40 °C max.
Contact time:	30 minutes

P3-oxonia active is added via inoculation disinfection to the application solution of the spraying and distribution system for chain lubricants. The injection spot should be previously prepared with chain lubricants. Corrosion tests may be necessary.

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. With the use as disinfectant to avoid re-infection in bottle washing machines we recommend to install the dosage at the delivery side of the circulating pump of cold water volume-proportional to fresh water. 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.

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

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