ECOLAB®

# P3-hypochloran

## Description:

**Liquid, available chlorine containing disinfectant for the food and beverage industry**

## Product strengths:

- reliable microbiological efficacy
- suitable for CIP- and spraying systems
- surfactant-free

## Properties

| | | |
|---|---|---|
| **Concentrate** | **Appearance:** | yellowish liquid * |
| | **Storage stability:** | -5 to 35 °C |
| | **Solubility:** | at 20 °C miscible with water in any proportion |
| | **Density:** | 1.15 - 1.19 g/cm$^3$ * |
| | **P content:** | 0.03 % |
| | **N content:** | 0.00 % |
| | **COD:** | not applicable |
| | **Flash point:** | not applicable |
| **Application solution** | **pH:** | 11.4 - 11.8 *<br>(1 %, 20 °C, deionized water) |
| | **Foam characteristics:** | non foaming,<br>suitable for CIP-systems |

* Parameters subject to incoming goods control

**Material compatibility:**

**Application solution:** **P3-hypochloran** is, under the application conditions described below, compatible with:

- **Metals** — Mild steel, Austenitic CrNi steels (AISI 304-types; 1.4301; 1.4541), Austenitic CrNi steels (AISI 316-types; 1.4401; 1.4571), Chromium steel, Titanium, Alloy C4 (DIN 2.4610), Ceramic: Al2O3
- **Plastics** — LD-PE, HD-PE, PP, PVC-U (hard, rigid), PTFE, Epoxy coating (e.g. Munkadur, Obrit)

- **Seals** NBR, HNBR, EPDM, PTFE

**Concentrates:** The following material are compatible to handle **P3-hypochloran** in concentrate for storing and dosing:

- **Metals** Austenitic CrNi steels (AISI 316-types; 1.4401; 1.4571)
- **Plastics** HD-PE, PP, PVC-U (hard, rigid), EPDM

**Comments:** Application solution metals: due to the risk of pitting corrosion on stainless steel, pH values < 9 and static disinfections of more than 2 hours at 20°C should be avoided.

Concentrate metals: For dosing pipes which are always filled with products and where product is not able to dry, stainless steel 1.4401 (AISE 316) is possible.

# Microbiology

| **EN 1276 Bactericidal Efficacy** | | | |
|---|---|---|---|
| Pass criteria<br><br>>5 log reduction | Test organisms | Temperature | Clean conditions (0.03% BSA) |
| | **Gram-positive bacteria**<br>- *Staphylococcus aureus* (ATCC 6538)<br>- *Pseudomonas aeruginosa (ATCC 15442)*<br>***Gram-negative bacteria***<br>- *Escherichia coli (ATCC 10536)*<br>- *Enterococcus hirae (ATCC 10541)* | 20°C | 0.3% 5min. |

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

| EN 13697 Bactericidal, Yeasticidal and Fungicidal efficacy | | | |
|---|---|---|---|
| Pass criteria | Test organisms | Temperature | Clean conditions (0.03% BSA) |
| Bactericidal efficacy >4 log reduction<br><br>Yeasticidal/ Fungicidal efficacy >3 log reduction | **Gram-positive bacteria**<br>- Staphylococcus aureus (DSM 799)<br>- Enterococcus hirae (DSM 3320)<br>***Gram-negative bacteria***<br>- Escherichia coli (DSM 682)<br>- Pseudomonas aeruginosa (DSM 939) | 20°C | 3.0%<br>5min. |
| | **Yeasts**<br>- Candida albicans (DSM 1386) | | 2.0%<br>15min. |
| | **Fungi**<br>- Aspergilllus brasiliensis (DSM 1988) | | 4.0%<br>15min. |

# Ecology

With the application of **P3-hypochloran**, the AOX-limits in the waste water have to be considered. Alternatively, disinfectants as chlorine dioxide (P3-oxocid/P3-oxonet) or peracetic acid (P3-oxonia active) should be used for the described application.

# Application

**P3-hypochloran** is a quick-acting, non foaming disinfectant, based on available chlorine.

Typical applications are:

- **CIP-systems**

  Concentration: 0.1 - 0.25 %
  Temperature: 20 - 60 °C
  Contact time: 10 - 20 minutes

- **Dipping of fittings, taps, small pieces**

  Concentration: 0.1 - 0.25 %
  Temperature: cold
  Contact time: 10 - 20 minutes

- **Bottling hall**

  **Bottle washing machine, rinsing section**

  To prevent a reinfection of cleaned bottles, **P3-hypochloran** is added to the rinsing section in the bottle washing machine.

  Concentration: 0.003 - 0.005 %
  3 - 5 ppm available chlorine
  Temperature: 30 - 50 °C
  Contact time: 10 - 20 seconds

- Final rinse with water of drinking water quality, ensuring all soil and product residues are completely removed.

- 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**

| | |
|---|---|
| Receiving flask: | 100 ml application solution |
| Titration solution: | 0.1 n sodium thiosulphate solution |
| Indicator: | potassium- or sodium iodide,<br>1 % starch solution |
| Titration factor: | 35.5 |

Add potassium- or sodium iodide and acidify with sulphuric acid.

Volume added sodium thiosulphate in ml x 35.5 =
concentration available chlorine in mg/l (= ppm)

**Concentration control**

The **P3-hypochloran** concentrate can be added directly to the rinsing water. We recommend the use **of Elados EMP / EcoPro / EcoAdd** diaphragm pumps for metering.

Please visit www.ecolab-engineering.com for more information.

# Safety

**Important indications:**

1. Do not apply in concentrate
2. Do not store in containers of stainless steel
3. Storage only in delivery containers or transfusion to suitable concentrate tanks (PE, PTFE); dosage to be regulated directly from the storage vessel
4. Avoid any concentrate contact with organic substances (grease, oil, rubber, paper, straw, wood, cork, common soils) and other concentrated cleaning and disinfecting agents, especially acids (formation of chlorine gas!)
5. Cold storage - not exceeding 40 °C
6. Avoid direct exposure to sunlight
7. Small spilled amounts can be reduced with sodium thiosulphate solution; larger amounts with P3-oxonia

The relevant hazards identifications of **P3-hypochloran** 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.

**Attention!**

Don’t mix with acids due to risk of hazardous gas creation.



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