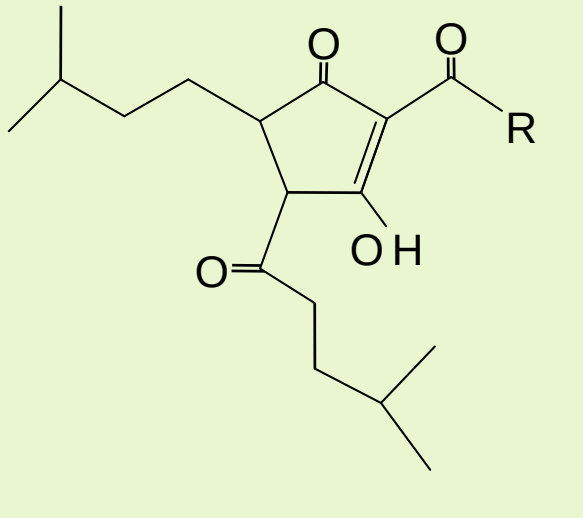
Tetra Iso-Extract (Tetra)

❖ Overview

- **Tetra** is a pure aqueous solution of the potassium salts of Tetrahydroiso-α-acids produced entirely from CO_2 hop extract.
- **Tetra** is one of the most antibacterial hop acids produced from alpha acids. As little as 40 ppm of **Tetra** can inhibit the growth of gram positive bacteria in laboratory testing.
- **Tetra** is produced according to 21 CFR 172.560.

Molecular Structure of
Tetrahydro-isoalpha acids



R= isopropyl, isobutyl, secbutyl

❖ Specification

- **Description:** An amber colored, aqueous solution of the potassium salts of Tetrahydroiso-α-acids.
- **Concentration:** 9.0 ± 0.5% (w/w) of Tetrahydroiso-α-acids by HPLC
- **pH:** 9.5 (± 1.0)
- **Density:** 1.017 (± 0.005) g/ml (HPLC)
  (1.015 g/ml – UV Spectrophotometric)
- **Solubility:** Soluble in demineralized water.

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❖ Properties

❑ Appearance

A homogeneous, pale amber, clear aqueous solution; mobile and free flowing at normal storage and use temperatures. Miscible with demineralized water and alcohol.

❑ Stability

Tetra has good storage stability when stored in sealed containers at room temperatures.

❑ Quality

All Hopsteiner® products are produced in plants accredited to internationally accepted quality standards. **Tetra** is Food Grade, Kosher and is not an antibiotic.

❖ Packaging

Tetra is regularly available in 20-kg pails (HDPE) or 200-kg drums (PP). Other package sizes (including totes) are available on request.

❖ Product Use

In order to inhibit gram positive bacteria growth, **Tetra** is typically added to a yeast propagator or fermenter at a dose rate of 40 ppm. The product can be simply poured or added via a metering pump.

❑ Storage

Tetra will maintain its integrity for at least 12 months. Ambient storage temperatures between 10-15°C (50-60°F) are ideal.

❑ Safety

Tetra should be handled with due care, especially to prevent contact with the eyes. Any contamination of the skin should be washed off with soap and water. If **Tetra** gets into the eyes, irrigate with excess water until clear and seek immediate medical attention.

For full safety information please see the relevant Steiner material safety data sheet.

❖ Analytical Method

❑ Concentration of Tetra-hydroiso-α-acids in Product

The concentration of Tetrahydroiso-α-acids can be determined by UV Spectrophotometric analysis or by HPLC using the current ICS standard according to the modified EBC 7.9 method.

❖ Technical Support

We will be pleased to offer help and advice on the full range of Hopsteiner® products:

- ❑ Copies of all relevant analytical procedures
- ❑ Material Safety Data Sheets (MSDS)
- ❑ Assistance with pilot or commercial trials
- ❑ Specialist analytical services

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