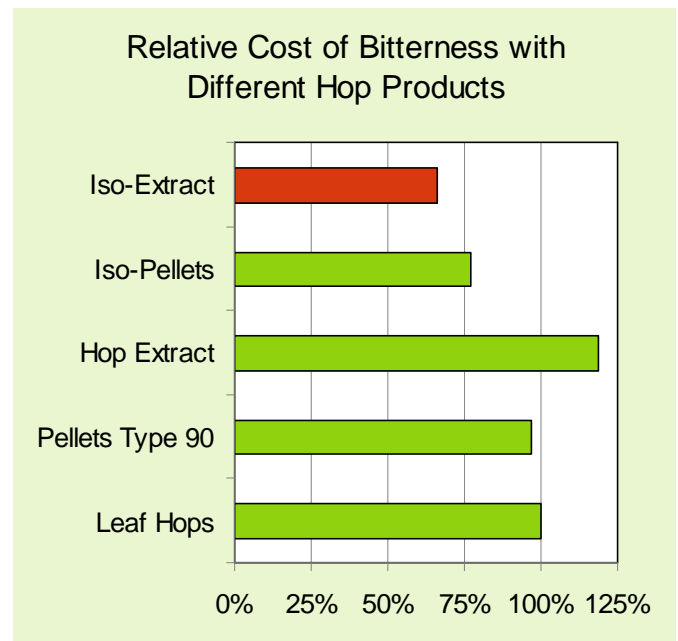


## Iso-Extract 30 % (Isomerized Hop Extract)

### ❖ Overview

- **Isomerized Hop Extract 30% (Iso-Extract)** is produced from CO<sub>2</sub> extract and contains only purified isomerized alpha acids.
- **Iso-Extract** can be used to top-up bitterness or used as a partial hop replacement.
- **Iso-Extract** is added post fermentation, greatly improving the utilization of iso-alpha acids into beer and therefore is the cheapest form of bittering.



### ❖ Specification

- **Description:** An aqueous solution of the potassium salts of iso-alpha acids.
- **Iso-Alpha Acids:** Normally supplied as a 30 % w/w (+/- 2 %) concentration of iso-alpha acids
- **Alpha Acids:** < 0.6 %
- **Beta Acids:** < 0.2 %
- **Oils:** < 0.1 %
- **pH** 9.0 (± 1.0)
- **Viscosity:** 15 – 20 mPas (at 20°C / 68 °F)
- **Density:** 1.065 (± 0.01) g/ml
- **Haze:** 2 % w/v solution remains bright at ambient temperature for 1 hour

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## ❖ Properties

### □ Appearance

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

### □ Utilization

Based on HPLC analyses (using the ICS DCHA Iso standard) utilization of iso-alpha acids **in final beer** can be as high as 85 – 90 % when the extract is added immediately prior to final filtration.

### □ Flavor

**Iso-Extract** produces a clean, bitter flavor and, when used for adjustment, results in beers of consistent bitterness.

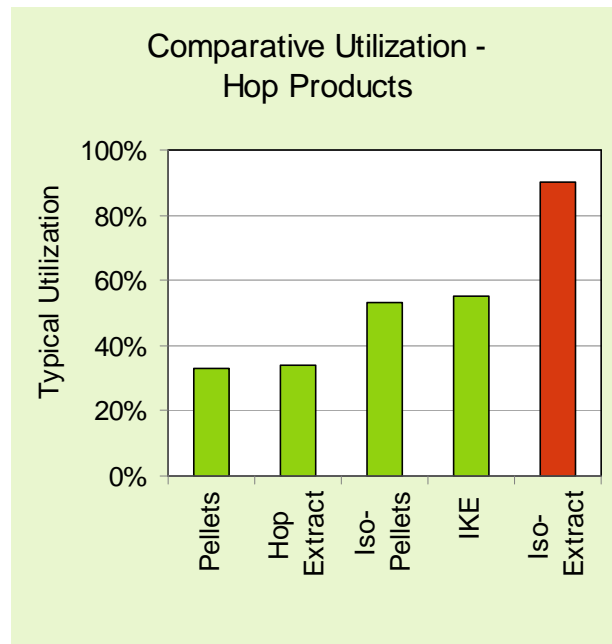
### □ Quality

All Hopsteiner® products are produced in plants accredited to internationally accepted quality standards.

## ❖ Packaging

**Iso-Extract** is normally packaged into 20 kg pails, 25 kg LDPE containers or 1,000 kg IBC containers.

Alternatively, **Iso-Extract** can also be supplied as a 10% or 20% solution.



## ❖ Product Use

Typically used for post fermentation adjustment of beer bitterness.

### □ Dosage

Calculation is based on the bitterness to be achieved, the strength of the **Iso-Extract** solution and the expected utilization (usually 80 – 90 %). Actual utilization will vary from brewery to brewery depending on method and time of addition.

### □ Addition

**Iso-Extract** is added prior to filtration to beer at full strength. If necessary, it can be diluted to between 2 – 5 % in de-ionised water prior to addition. During dilution avoid aeration, as any resultant solution of CO<sub>2</sub> will reduce the pH and cause precipitation. Should a slight haze appear, this can be removed by adjusting the pH to 8 – 9 by the addition of potassium carbonate solution. Never dilute full strength **Iso-Extract** with beer, as the lower pH will also cause

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precipitation. Suitable dosing equipment should be used to ensure that the **Iso-Extract** is added vigorously, in-line during beer transfer.

#### ❑ **Storage**

**Iso-Extract** should be stored in unopened containers at 5 – 15°C (41 – 59°F). Avoid exposure to sunlight and use up any opened containers as soon as possible.

#### ❑ **Best Before Date**

**Iso-Extract** is stable 2 years from date of production under the recommended storage conditions.

#### ❑ **Safety**

**Iso-Extract** is an intensely bitter material. However solutions of **Iso-Extract** are mildly alkaline and therefore contact with sensitive skin should be avoided. If **Iso-Extract** gets into the eyes, irrigate with excess water until clear and seek medical attention.

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

## ❖ **Analytical Methods**

❑ **Concentrations of Iso-Alpha Acids**  
The concentration of iso-alpha acid is measured by HPLC using the current ICS standard according to the EBC 7.9 method.

❑ **Concentrations of Alpha and Beta Acids**

Residual alpha and beta acids can be measured by HPLC using the current ICE standard according to the EBC 7.8 method.

❑ **Bitterness in the Final Beer**

If measuring BU's in the final beer, remember that **Iso-Extract** is a pure form of iso-alpha acid and that, unlike more traditional forms of bittering, there will be less non-bitter impurities measured as part of the analysis.

Adjustments to the Optical Density multiplication factor (70 instead of 50 in case of 100 % addition of **Iso-Extract**) will therefore need to be made if beer specifications are to remain unaltered.

## ❖ **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 full brewery trials
- ❑ Specialist analytical services

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