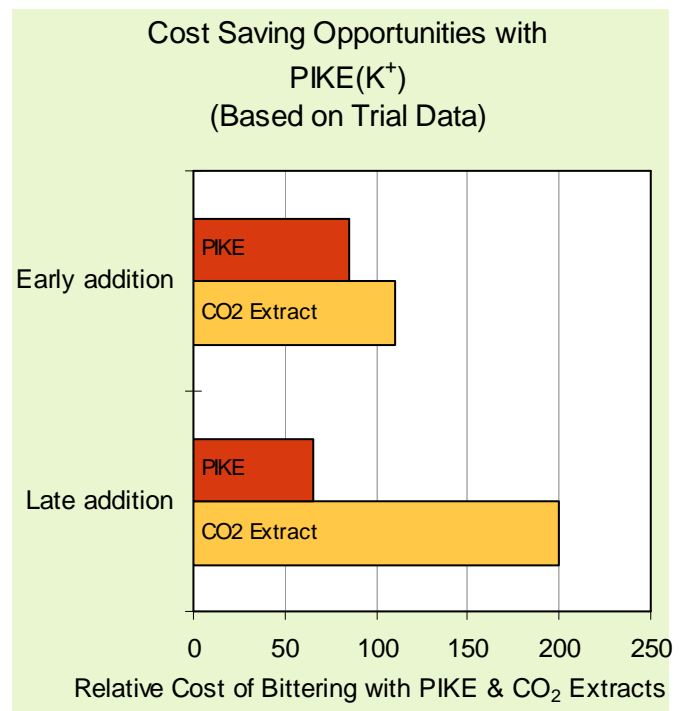


## Potassium-Form Isomerized Kettle Extract (PIKE(K<sup>+</sup>))

### ❖ Overview

- **Potassium-Form Isomerized Kettle Extract (PIKE(K<sup>+</sup>))** contains the potassium salt of iso-alpha-acids, beta-acids and hop oils.
- **PIKE(K<sup>+</sup>)** is produced from CO<sub>2</sub> extract and can be used as a complete replacement for normal kettle extract.
- **PIKE(K<sup>+</sup>)** produces a similar flavor to CO<sub>2</sub> extract whilst greatly improving the utilization of iso-alpha acids.
- **PIKE(K<sup>+</sup>)** disperses readily in water and offers considerable 'house-keeping' benefits over other resin kettle extracts.



### ❖ Specification

- **Description:** A solvent-free, mixture of aqueous potassium iso- $\alpha$ -acids,  $\beta$ -acids and oils.
- **Iso-alpha-acids:** Iso- $\alpha$ -acid content varies according to the hop variety used but typically in the range 30 – 50 %.
- **Alpha-acids:** Typically < 2 %
- **Beta-acids:** Typically 12 – 35 % (variety dependent)
- **Hop oils:** Typically 2 – 10 % (variety dependent)
- **Density:** Typically 0.9 – 1.0 g/ml.

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## ❖ Properties

### □ Appearance

A golden or pale brown thick syrup which becomes more fluid on warming.

### □ Utilization

Based on HPLC analyses (using the DCHA Iso standard) utilization of iso-alpha in **final beer** can be as high as 45 – 55 % when the extract is added at the start of the boil. Trials have also shown that hop oil retention in late addition brews is greatly enhanced when using **PIKE(K<sup>+</sup>)** (up to 4 times).

### □ Flavor

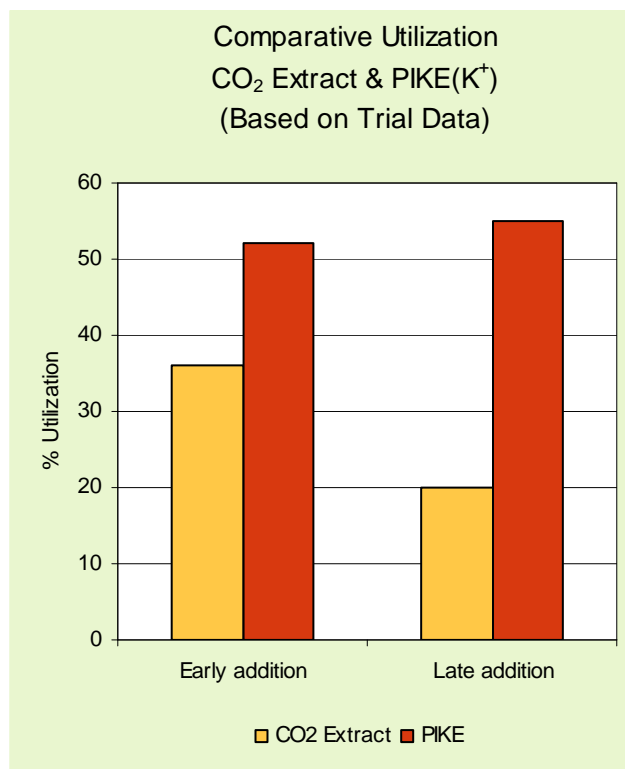
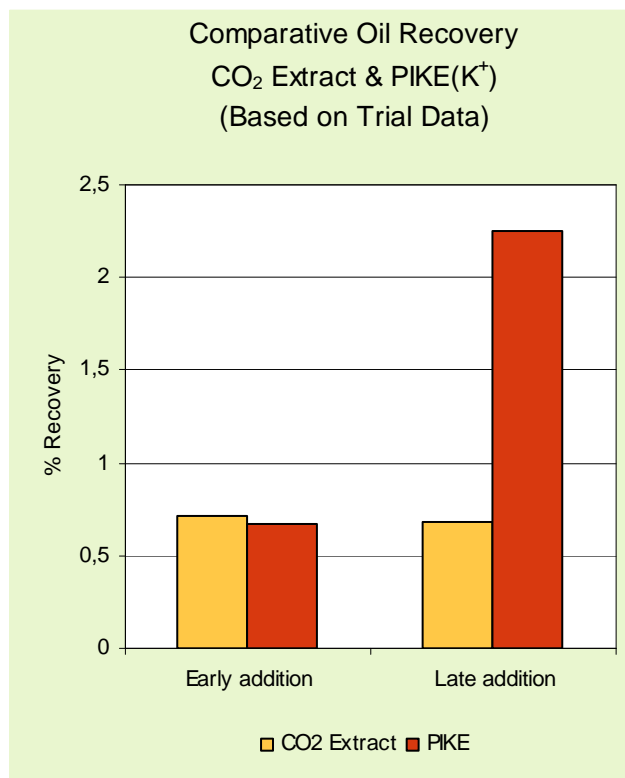
Brewing trials show that beers of identical aroma and taste can be produced when **PIKE(K<sup>+</sup>)** is used as a direct replacement for normal CO<sub>2</sub> extract. However care must be taken to ensure that late addition of **PIKE(K<sup>+</sup>)** does not result in excessive hop character due to the increased retention of hop oil in final beer.

### □ Quality

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

## ❖ Packaging

**PIKE(K<sup>+</sup>)** is normally packaged in 20 kg pails (44 lbs). It can also be packaged in cans and bulk drums according to customer requirements.



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## ❖ Product Use

Typically used in the kettle as 100 % replacement for normal kettle extracts.

### ❑ Dosage

Calculation is based on the iso-alpha concentration in the **PIKE(K<sup>+</sup>)** and the assumption that the utilization of the iso-alpha is likely to be at least 50 % better than that achieved with the alpha in normal extracts. Actual utilization will vary from brewery to brewery depending on plant and process conditions.

### ❑ Addition

**PIKE(K<sup>+</sup>)** should be warmed to c. 40 – 45°C (104 – 113°F) and thoroughly mixed before use. **PIKE(K<sup>+</sup>)** can be added at any time during the kettle boil or into the whirlpool at the start of the trub separation stage. **PIKE(K<sup>+</sup>)** can be added in similar ways to those used for normal kettle extracts including bulk handling and dosing. Unlike normal CO<sub>2</sub> extract or IKE, **PIKE(K<sup>+</sup>)** forms a milky emulsion with water and therefore any spillage can easily be washed away.

### ❑ Storage

**PIKE(K<sup>+</sup>)** should be stored in sealed containers preferably at < 10°C (50°F). Opened containers should be used up quickly.

### ❑ Best Before Date

**PIKE(K<sup>+</sup>)** is stable 2 years from date of production.

### ❑ Safety

**PIKE(K<sup>+</sup>)** should be handled in a similar way to normal kettle extract. Any material coming into contact with the skin should be washed off with soap and water.

If **PIKE(K<sup>+</sup>)** 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 Methods

### ❑ Concentration of Iso- $\alpha$ -acids, $\beta$ -acids and residual $\alpha$ -acids

The concentrations of iso- $\alpha$ -,  $\beta$ - and  $\alpha$ -acids are measured by HPLC using the current ICS & ICE standards according to EBC 7.8 method; sample preparation according to the EBC method 7.7.

Alternatively, the chromatographic conditions of ASBC Hops-15 may be used.

### ❑ Concentration of Hop oils

Hop oil concentration is normally measured by the following methods - IOB 6.3 or ASBC hops-13.

### ❑ Standardisation

If required, the concentration of iso-alpha acids can be standardised to specified levels by the addition of glucose syrup. More conveniently, containers can be packed with a specified amount of iso-alpha per can.

## ❖ 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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