

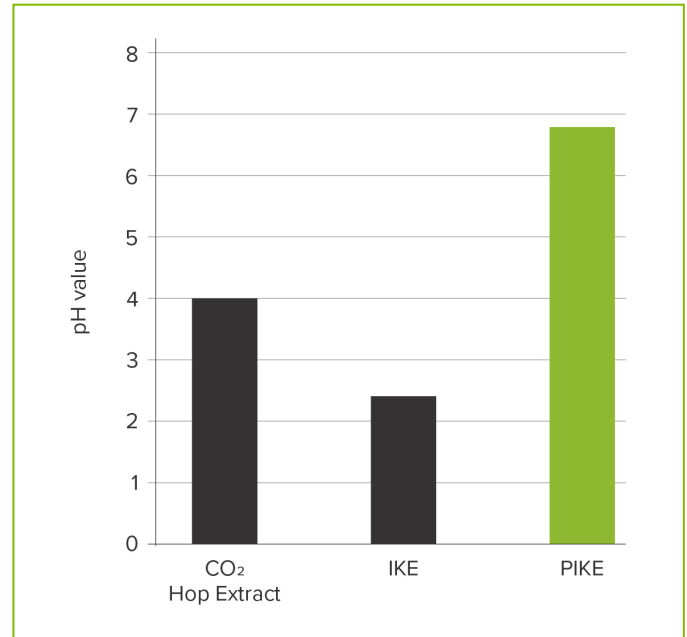
# POTASSIUM-BASED ISOMERIZED KETTLE EXTRACT

## OVERVIEW

**Potassium-based Isomerized Kettle Extract (PIKE)** contains the potassium salt of iso-alpha acids, along with beta acids and hop oils. Due to pre-isomerization of the alpha acids, yields in the brewing process are higher.

**PIKE** is produced from CO<sub>2</sub> hop extract and can be used as a partial or complete replacement for CO<sub>2</sub> hop extract.

**PIKE** can also be utilized as a late hop addition at the end of wort boiling. In this case, a distinctive hop aroma in beer can be achieved with a similar level of hop utilization.



## SPECIFICATIONS

<b>Short description</b>	pre-isomerized hop extract for use in the brewhouse for bittering and aroma addition
<b>Alpha acids</b>	< 2 %
<b>Iso-alpha acids</b>	30 - 50 %
<b>Beta acids</b>	12 - 30 %
<b>Hop oils</b>	2 - 10 %
<b>pH</b>	6.7 ± 0.5
<b>Density</b>	0.9 - 1.0 g / ml (20 °C / 68 °F)
<b>Viscosity</b>	300 - 500 mPas (40 °C / 104 °F)

## PROPERTIES

### APPEARANCE

PIKE is green to brown in color.

### FLAVOR

Beers with identical aroma and flavor profiles can be produced when PIKE is used in place of CO<sub>2</sub> hop extract. If added at the end of the boil, PIKE imparts a typical late hop aroma to the beer.

### UTILIZATION

Based on HPLC analysis of the finished beer, utilization of iso-alpha acids can be as high as 45 - 60 %. Calculations of utilization for PIKE are based on the assumption that the iso-alpha acid yield is likely to be approx. 50 % higher than that achieved with non-isomerized extracts. Late additions of PIKE greatly enhance hop oil retention. Actual utilization will vary from brewery to brewery due to differences in equipment and process conditions

### QUALITY

All Hopsteiner® products are processed in facilities which fulfill internationally recognized quality standards. A monitoring system for residues is in place.

## PACKAGING

Our products are delivered in their respective recommended standard packaging. Alternatives may be possible upon customer request.

Standard packages of our processing plants in the USA (US) and Germany (DE) are:

- Cans 0.5 - 4.0 kg (US)
- Cans 0.5 - 3.1 kg (DE)
- Pail 4 - 20 kg (US)
- Drum 200 kg (US / DE)

Filling can be done as gramm extract or gramm iso-alpha acids. The extract can be adjusted to a specific bitter content by admixing tannin extract or glucose syrup.

## USAGE

PIKE is typically added to the wort kettle as a complete or partial replacement for CO<sub>2</sub> hop extract.

## DOSAGE

Kettle additions of PIKE are based on the concentration of iso-alpha acids, an estimated or known utilization and the desired intensity of bitterness in the beer.

## APPLICATION

PIKE can be added in similar ways to regular kettle extracts. PIKE can be added to the kettle when the transfer of lauter wort to the kettle commences, at the beginning of the boil or up to five minutes before casting out the wort. Pre-warming cans of PIKE is not necessary. Suspending punctured cans in the boiling wort will ensure that all of the extract is completely flushed out into the kettle. If PIKE is added by means of automatic dosing units, it should be warmed to 30 °C (82 °F) and gently mixed to ensure perfect dosing. Unlike conventional CO<sub>2</sub> hop extract or IKE, PIKE forms a milky emulsion with water. Therefore, any product spillage can easily be washed away.

## STORAGE

The recommended storage temperature in the original unopened packaging is < 10 °C (50 °F).

Short-term, transport-related temperature deviations do not affect product quality.

## BEST BEFORE DATE

Under the recommended storage conditions, the shelf life from the date of production/ packaging is at least 2 years.

## SAFETY

Ensure good ventilation of the workplace and wear personal protective equipment. Avoid contact with eyes and skin. Do not inhale vapors or dusts. For full safety information, please refer to the relevant Hopsteiner® safety data sheet.

## ANALYTICAL METHODS

International approved methods listed in committees such as ASBC or Analytica-EBC using current standards are applied.

## PRODUCT ANALYTICS

Concentration of bitter substances

- Analytica-EBC 7.8 (HPLC)
- ASBC Hops-16 (HPLC)

Concentration of hop oils

- Analytica-EBC 7.10 (Distillation)
- ASBC Hops-13 (Distillation)

## TECHNICAL SUPPORT

We are pleased to offer assistance and advice on:

- safety data sheets

- support for brewing trials on a pilot or commercial scale
- analytical services and information about analytical procedures

Disclaimer: The information provided in this document is believed to be correct and valid. However, Hopsteiner® does not guarantee that the information provided here is complete or accurate and thus assumes no liability for any consequences resulting from its application.

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