

# ISOMERISED KETTLE EXTRACT (IKE)

Beers of identical aroma and taste can be produced when IKE is used as a direct replacement for normal CO<sub>2</sub> extract.



## OVERVIEW

- Isomerized Kettle Extract (IKE) contains isomerized alpha acids, beta acids and hop oils
- Produced from CO<sub>2</sub> extract and can be used as a complete replacement for normal or late-addition kettle extract
- Produces a similar flavor to CO<sub>2</sub> extract whilst greatly improving the utilization of iso-alpha acids

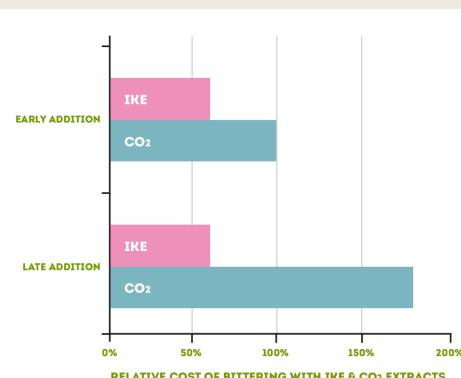
## PROPERTIES

APPEARANCE	A golden or pale brown thick syrup which becomes more fluid on warming; substantially more mobile than corresponding CO <sub>2</sub> extract.
UTILISATION	Based on HPLC analyses (using the ICS DCHA Iso standard) utilization of iso-alpha acids 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 IKE (up to 4 times)
FLAVOUR	Beers of identical aroma and taste can be produced when IKE is used as a direct replacement for normal CO <sub>2</sub> extract. However care must be taken to ensure that late addition of IKE does not result in excessive hop character due to the increased retention of hop oil in final beer.
QUALITY	All products are produced in plants accredited to internationally accepted quality standards.
PACKAGING	IKE is normally packaged in 20kg pails (44 lbs). It can also be packaged in cans and bulk drums according to customer requirements. For convenience of use, customers may have their extract packed in cans to any desired content of iso-alpha acids per container (e.g. 450 g iso-alpha per can). Alternatively, the iso-alpha acids content of IKE can be standardized to any particular concentration using glucose syrup (non-GM glucose cannot be guaranteed) and the container filled to a standard weight (e.g. 30 % iso-alpha in 1-kg cans).

## QUICK SPECS

DESCRIPTION	A solvent-free, non-aqueous mixture of the free acid form of isomerized alpha acids, beta acids and oils.
ISO-ALPHA ACIDS	Iso-alpha acid content varies according to the hop variety used but is typically in the range 40 – 60%
ALPHA ACIDS	< 2%
BETA ACIDS	15 – 40% (depending on variety)
HOP OILS	3 – 12% (depending on variety)
PH	2.5 (± 0.5)
VISCOSITY	50 – 100 mPas (at 40°C / 102 °F)
DENSITY	0.9 – 1.0 g/ml

## COST SAVING OPPORTUNITIES WITH IKE



VICTORIA (HEAD OFFICE)  
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## PRODUCT USE

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

<b>DOSAGE</b>	Calculation is based on the iso-alpha concentration in the IKE 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.
<b>ADDITION</b>	Handled in bulk, IKE should be warmed to 30°C (82°F) before use; otherwise IKE can be added in similar ways to normal kettle extracts. IKE can be added into the kettle either at the start of filling, at the start of the boil or up to 5 minutes before kettle cast. Because of its lower viscosity, it particularly lends itself to bulk handling and dosing.
<b>STORAGE</b>	IKE should be stored in sealed containers at < 10°C (50°F). Opened containers should be used up quickly.
<b>BEST BEFORE DATE</b>	IKE is stable 2 years from date of production under the recommended storage conditions.

## TECH SUPPORT

We offer help and advice on the full range of products:

- Copies of all relevant analytical procedures
- Material Safety Data Sheets (MSDS)
- Assistance with pilot or full brewery trials

## SAFETY

IKE is mildly corrosive due to its low PH. It 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 IKE gets into the eyes, irrigate immediately with excess water until clear and seek medical attention.

## ANALYTICAL METHODS

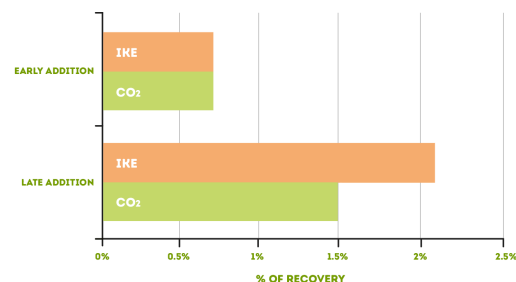
### CONCENTRATIONS OF ISO-ALPHA ACIDS, BETA ACIDS AND RESIDUAL ALPHA ACIDS

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.

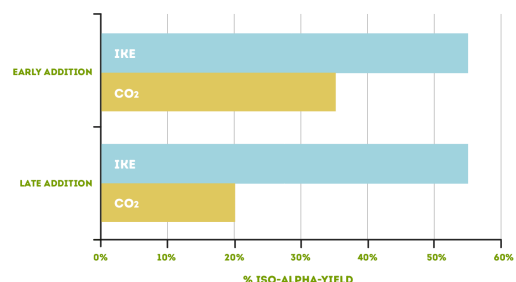
### CONCENTRATIONS OF HOP OILS

Hop oil concentration is measured by the IOB 6.3, EBC 7.10 or ASBC hops-13 method.

## COMPARATIVE OIL RECOVERY – CO<sub>2</sub> EXTRACT AND IKE



## COMPARATIVE ISO-ALPHA YIELD – CO<sub>2</sub> EXTRACT AND IKE



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