

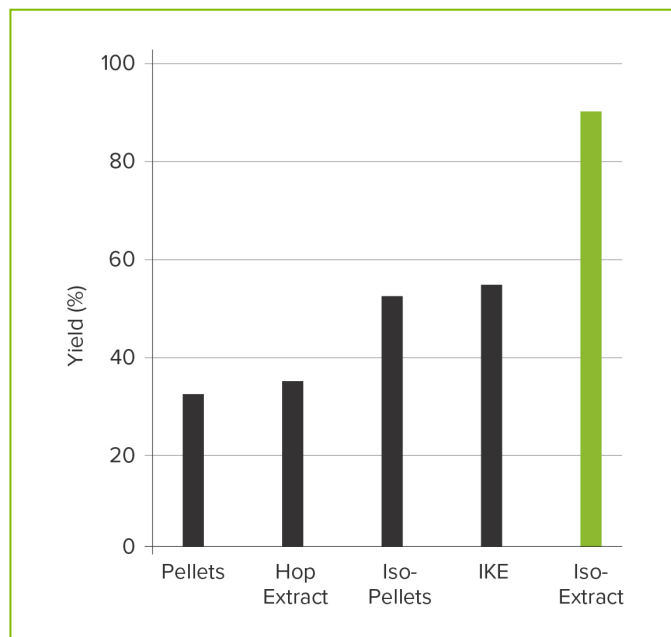
# ISOMERIZED HOP EXTRACT 30 %

## OVERVIEW

**Isomerized Hop Extract 30% (Iso-Extract)** is an aqueous solution of the potassium salts of iso-alpha acids produced from CO<sub>2</sub> hop extract.

**Iso-Extract** can be used post-fermentation to adjust bitterness or to partially replace conventional hop products used to impart bitterness.

**Iso-Extract** is typically added prior to beer filtration and has the highest yield of all hop products.



## SPECIFICATIONS

Short description	aqueous hop extract to adjust the bitterness
Alpha acids	< 0.6 %
Iso-alpha acids	30.0 ± 2.0 % (w/w) HPLC
Beta acids	< 0.2 %
Hop oils	0.1 %
pH	9.0 ± 1.0
Density	ca. 1.07 g/ml (20 °C / 68 °F)
Viscosity	15 - 20 mPas (20 °C / 68 °F)

## PROPERTIES

### APPEARANCE

Pale amber to yellow in color, Iso-Extract is a clear, homogeneous, aqueous solution.

### FLAVOR

Iso-Extract produces a clean bitter flavor. It can be used as a partial replacement for kettle hopping. Iso-Extract is primarily used to adjust the final bitterness of beer. Noticeable changes in the bitter flavor of beer may be observed if more than 30 - 40 % of the total bitterness is contributed by Iso-Extract.

### UTILIZATION

Based on HPLC analysis of the finished beer, utilization of iso-alpha acids can be as high as 85 - 90 % if the extract is added prior to the final step in filtration. Actual utilization will vary from brewery to brewery due to differences in equipment and process conditions.

### STANDARDIZATION

Iso-Extract is typically supplied as a 30 % w/w solution of the potassium salt of iso-alpha acids; however, 10 or 20 % concentrations are also available on request.

### 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:

- Canister 20 kg (US / DE)
- Jug 10 kg (US)
- Pail 20 kg (US)

## USAGE

Iso-Extract is typically used for the post fermentation adjustment of beer bitterness.

## DOSAGE

Dosage of Iso-Extract (typically 30 %) is based on the concentration of the Iso-Extract, the expected utilization and the desired intensity of bitterness in the beer.

## APPLICATION

Iso-Extract is added at full strength (undiluted) prior to filtration. If dilution is necessary, always add Iso-Extract to demineralized water first and adjust the pH to 8.5 - 9.5 using either potassium hydroxide (KOH) or potassium carbonate ( $K_2CO_3$ ). Laboratory scale testing is recommended prior to commercial use. Never dilute full-strength Iso-Extract with beer, as the lower pH will cause precipitation. Suitable dosing equipment should be used to add Iso-Extract into the beer stream at a point where vigorous mixing is assured during beer transfer. If containers are used over several days, it is recommended that the headspace be flushed with nitrogen ( $CO_2$  is not suitable).

## CLEANING RECOMMENDATION

Iso-Extract should not be left in dosing lines at low temperatures. Lines and dosing pumps should be flushed with warm, slightly alkaline, demineralized water or ethanol for purposes of cleaning.

## STORAGE

The recommended storage temperature in the original unopened packaging is 5 - 15 °C (41 - 59 °F).

Avoid exposure to sunlight.

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 3 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 7.9 (HPLC)
- ASBC Hops-9C (HPLC)
- ASBC Hops-9D (HPLC)

## BEER ANALYTICS

The standard formula for calculating bitter units in beer (Analytica-EBC 9.8 or ASBC Beer-23A) may need to be adjusted as it results in too low values when using higher amounts of Iso-Extract.

## 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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