

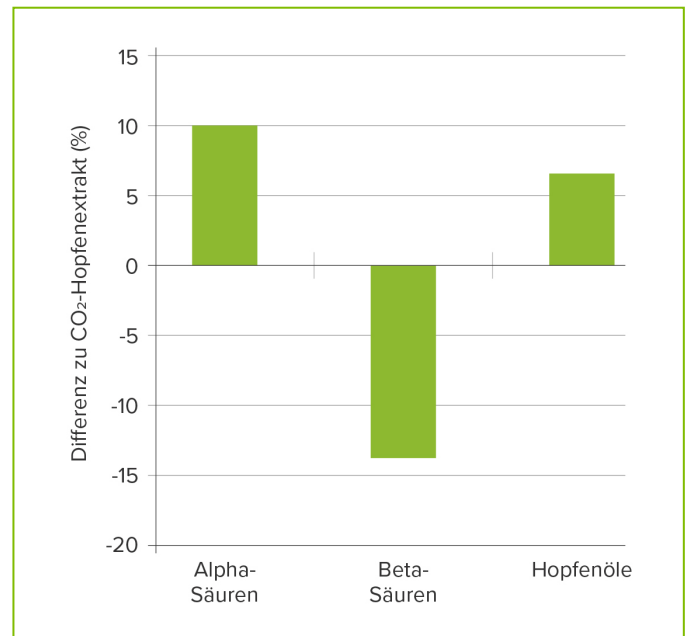
# HOPFLOW

## OVERVIEW

**HopFlow** is a user friendly form of CO<sub>2</sub> hop extract, produced through the extraction of hop pellets with food-grade carbon dioxide. **HopFlow** is a free flowing extract containing alpha acids, beta acids and hop essential oils.

**HopFlow** can be used to partially or entirely replace leaf hops or hop pellets in the brewing process.

**HopFlow** allows brewers a quick and easy way to add hop extract to the kettle without the needed step of heating, just pour out what you need.



## SPECIFICATIONS

<b>Short description</b>	hop extract for for bitterness and hop flavor during wort boiling, flowable at room temperature
<b>Alpha acids</b>	typically 65 - 75 %
<b>Iso-alpha acids</b>	< 2 %
<b>Beta acids</b>	< 5 %
<b>Hop oils</b>	12 - 18 ml/100 g
<b>pH</b>	4.0 ± 0.5
<b>Density</b>	0.9 - 1.0 g/ml (20 °C / 68 °F)
<b>Viscosity</b>	300 - 500 mPas (45 °C / 113 °F)

## PROPERTIES

### APPEARANCE

HopFlow™ is a gold amber brown flowable syrup-like extract.

### FLAVOR

The flavor characteristics of the original hops are almost completely retained in HopFlow™. Early additions of HopFlow™ during wort boiling mainly serve to impart bitterness while late addition imparts some hop character due to the retention of some hop oils in the wort.

### UTILIZATION

If HopFlow™ is boiled for at least 50 minutes, utilization within the range of 32 - 38 % can be expected. 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:

- Poly jugs of 1.4 kg alpha acids (US)

## USAGE

HopFlow™ is typically added to the wort kettle as a complete or partial replacement for leaf hops or hop pellets.

## DOSAGE

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

## APPLICATION

For the highest possible utilization, HopFlow™ should be added early in the wort boiling process. Pre-warming is not necessary as HopFlow™ is flowable at room temperature already.

## 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 4 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 7.6 (LCV)
- ASBC Hops-8 (II) (LCV)
- Analytica-EBC 7.7 (HPLC)
- ASBC Hops-14 (HPLC)
- ASBC Hops-8 (I) (Spectro)

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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