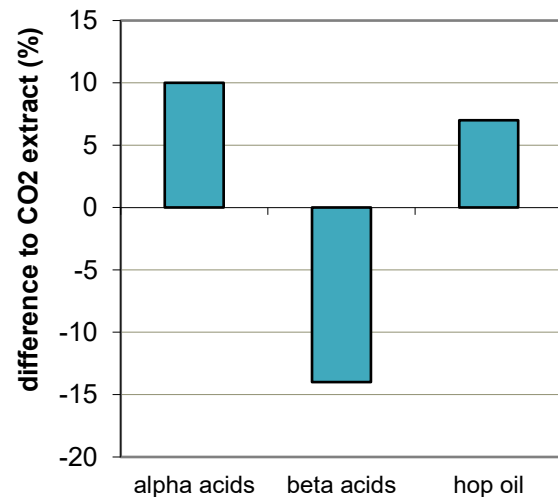


HopFlow

❖ Overview

- **HopFlow** is a user friendly form of CO₂ 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 in the brewing process to partially or entirely replace leaf hops or hop pellets.
- **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.

Differences between CO₂ extract and HopFlow



❖ Specifications

- | | |
|--------------------|--|
| • Description: | Golden amber brown hop extract, flowable at room temperature |
| • Alpha acids*: | 65 – 75 % |
| • Beta acids*: | < 5 % |
| • Iso-alpha acids: | < 2.0 % |
| • Hop oil*: | 12 – 18 ml/100g |
| • pH | 4.0 (± 0.5) |
| • Viscosity*: | 300 – 500 mPas at 20 °C (68 °F) |
| • Density: | 0.9 – 1.0 g/ml at 20 °C (68 °F) |

*dependent on variety and crop year

❖ Properties

• Appearance

Gold amber brown flowable syrup which becomes more mobile on warming.

• Utilization

If **HopFlow** is boiled for at least 50 minutes, an utilization between 32 – 38 % can be achieved. Actual utilization will vary from brewery to brewery depending on process conditions.

• Flavor

The flavor characteristics of the original hops are maintained. Early addition of **HopFlow** during wort boiling provides bitterness while late addition imparts some hop character due to the retention of some hop oils in the wort.

• Chemical Residues

Nitrates and heavy metals are almost completely eliminated in **HopFlow**. In addition, pesticide residues are largely removed by the CO₂ extraction process

• Quality

All Hopsteiner® products are processed in facilities which fulfill internationally recognized quality standards.

❖ Packaging

HopFlow can be packaged in cans, pails and drums according to customer requirements:

Cans: 0.5 to 4 kg (USA)

0.5 to 4.2 kg (Germany)

Pails: 3 to 20 kg (USA only)

Plastic containers: 5 kg (USA only)

Drums: 50 and 200 kg

❖ Product Use

HopFlow is typically added into the kettle as a complete or partial replacement for leaf hops or pellets.

• Dosage

Addition to the kettle is based on the alpha acid content of the extract and an assumed utilization of 35 %. Actual utilization will vary from brewery to brewery depending on plant and conditions.

• Application

For the best utilization **HopFlow** should be added early in wort boiling. However, owing to likely losses caused by protein precipitation, the product is best added 10 minutes after the start of boiling.

- **Storage**

HopFlow should be stored in sealed containers at < 10 °C (50 °F). Use opened containers as soon as possible within 3 – 4 weeks.

- **Best Before Date**

HopFlow is stable for four years from the date it was produced / packaged if stored under the recommended conditions.

- **Safety**

HopFlow is a natural substance and may be safely handled using routine precautions to avoid contact with skin and particularly eyes. Any material coming into contact with the skin should be washed off with soap and water. If **HopFlow** gets into the eyes, flush with copious amounts of water until clear and seek medical attention.

For full safety information, please refer to the relevant Hopsteiner® safety data sheet.

❖ Analytical Methods

- **Concentration of Bitter Substances**

Alpha and beta acids can be measured using the following methods:

- HPLC according to Analytica-EBC 7.7 or ASBC Hops-14 with the current ICE standard
- spectrophotometric method according to ASBC Hops-8 (I)

The lead conductance value can be measured using the following methods:

- Analytica-EBC 7.6
- ASBC Hops-8 (II)

- **Concentration of Hop Oil**

The hop oil concentration can be measured using the following methods:

- Analytica-EBC 7.10
- ASBC Hops-13

❖ Technical Support

We are pleased to offer assistance and advice on the full range of Hopsteiner® products:

- copies of all relevant analytical procedures
- Safety Data Sheets (SDS)
- assistance with pilot or full-scale brewing trials
- special analytical services

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.