

# Hop Oils

## General:

Hop oils are prepared from CO<sub>2</sub> hop extract by means of specific distillation methods and exclusively consist of essential hop oils. They are available for different varieties.

Specific Hop oils are:

- Hop Oil HAL: a blended and standardized hop oil for consistent hop aroma.
- Hop Oil N° 1: a premium, blended hop oil.

## Characteristics:

Varietal hop oils have a natural variety specific composition and are highly concentrated. Hop Oil HAL and Hop Oil N° 1 are generic hop oils with consistent composition. The hop oil compounds are predominantly terpene hydrocarbons therefore solubility is very poor. They are very effective for dry hopping and have a long tradition of use in the UK that goes back to the 19<sup>th</sup> century. They provide a delicate „dry hop“ character and can be dosed to the brewing process at various stages.

## Product specifications:

<b>Description:</b>	Yellow to amber liquid
<b>Hop oils:</b>	100% of specified variety (or specified blend)
<b>Density:</b>	0.8 - 0.9 g/ml
<b>Iso-<math>\alpha</math>-acids:</b>	< 0.1 %
<b><math>\alpha</math>-acids:</b>	< 0.1 %
<b><math>\beta</math>-acids:</b>	< 0.1 %
<b>Heavy metals:</b>	Meets current EU and US FDA regulations
<b>Lead:</b>	Meets current EU and US FDA regulations
<b>Pesticides:</b>	Meets current EU and US FDA regulations

### **Product Use:**

The addition in the kettle will result in low recoveries. Added pre-fermentation a different hop oil character will result due to the chemical reactions of the volatile compounds during fermentation and the impact of the yeast metabolism. The addition prior to filtration is recommended. Please note that pure Hop Oils are not readily soluble in beer "as is" and therefore should be dispersed in a suitable carrier for dosing. There are two options:

- 1) The required volume of oil is dispersed in nine volumes of food grade ethanol by vigorous shaking or mixing. An unstable dispersion results, which must be added to a small volume of beer immediately and thoroughly mixed. This beer is then blended in with the untreated bulk.
- 2) Emulsification using food grade emulsifiers. This aqueous emulsion is then metered into flowing beer. Refer to data sheets covering Hop Oil Emulsion (available on our website).

Addition rates of Hop Oils depend on the point of dosage. A kettle addition will require 1-5 g/hl, added pre-fermentation a rate of 0.5-2 g/hl is recommended. For the addition prior to filtration the range will normally be 0.05 to 0.3 g/hl dependent upon the intensity of aroma and taste required and the characteristics of the base beer. Dosing experiments, using a pipette or microlitre syringe will give useful indications of the - required quantity.

### **Packaging:**

Normally packed in glass bottles containing 25 g of oil. Also available in 1 kg and 5 kg aluminium flasks.

### **Storage and shelf life:**

Store in full, closed containers at 3° to 6°C (37-43 °F). We recommend the usage within 24 months. After 24 month storage, it is recommended that an analysis be done with the product to determine its activity for dosage adjustment if necessary.

### **Analytical Methods:**

For the analysis of the composition of hop oils gas chromatography (GC) techniques are used. Details of methods are available on request.

### **Safety:**

Any material coming into contact with the skin should be washed off with soap and water. For more information download the relevant Safety Data Sheet (SDS).

### **Technical Support:**

We will be pleased to offer help and advice on the use of Hop Oils in brewing.