

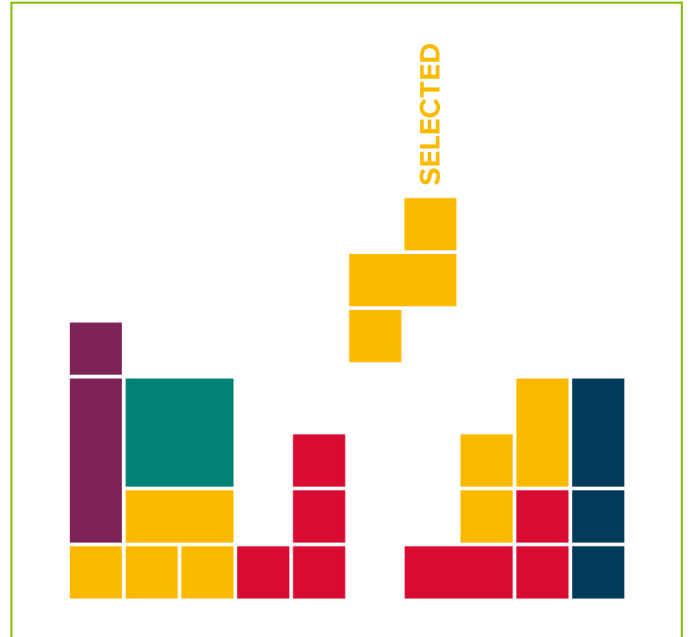
HOP OIL TYPE SELECTED FREE

OVERVIEW

Hop oil Type **SELECTED FREE** is produced by conventional hop extraction with subsequent fractionation by means of distillation.

Hop oil Type **SELECTED FREE** has been specifically developed to improve flavor and taste of alcohol-free and alcohol-reduced beers. It can be applied on both, bottom and top-fermented brews.

Hop oil Type **SELECTED FREE** is dosed prior to beer filtration and has a considerably higher utilization compared to conventional hopping methods, as the aroma compounds are not lost due to evaporation in the brewhouse.



SPECIFICATIONS

Short description	pure hop oil diluted in propylene glycol
Key compounds:	Linalool Myrcene Humulene Caryophyllene Hop esters
Bittering substances	not detectable
Density	ca. 1.0 g/ml (20 °C / 68 °F)
Viscosity	ca. 46 mPas (25 °C / 77 °F)

For batch-dependent information, please refer to the enclosed certificate of analysis.

PROPERTIES

APPEARANCE

Hop oil Type **SELECTED FREE** is a nearly colorless to light green/ orange, transparent or slightly turbid liquid.

FLAVOR

Hop oil Type **SELECTED FREE** contains mainly polar hop components, which are especially soluble in alcohol-reduced and alcohol-free beers. This composition is typically also found in late hopped regular beers. Depending on the quantity added and the type of beer, Hop oil Type **SELECTED FREE** supports both, the overall flavor and the mouthfeel of the beer. It is suitable for use in alcohol-reduced and alcohol-free beers brewed with conventional hop products as well as light stable beers. During beer aging the aroma components of Hop oil Type **SELECTED FREE** remain stable and contribute to overall flavor stability.

UTILIZATION

Hop oil Type **SELECTED FREE** has an excellent recovery rate. Depending on the time of the addition, the recovery rate for hop oil can be close to 100%.

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:

- Aluminum bottles 0.5 and 1.0 kg (DE)

The product is supplied as a dilution in propylene glycol.

USAGE

DOSAGE

The quantity of the hop oil addition is determined by the brewer and depends on the time and point of the addition.

Example (addition before / during filtration):

up to 3 ml/hl for bottom-fermented beers

up to 6 ml/hl for top-fermented beers

Trials performed by injecting the product into bottled beer with a microliter syringe are helpful for determining the quantity of Hop oil Type SELECTED FREE required.

APPLICATION

Shake the packaging well before use. Hop oil Type SELECTED FREE can be added at different stages on the cold side of beer production, typically prior to filtration. For the highest possible yield, a direct addition into the beer stream prior to filtration is recommended. This enables the hop oil to dissolve in the beer without changing its flavor.

STORAGE

The recommended storage temperature in the original unopened packaging is 1 - 10 °C.

BEST BEFORE DATE

Under the recommended storage conditions, the shelf life from the date of production/ packaging is at least 2 years.

Opened containers should be consumed as soon as possible.

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

Hop oil components

- Analytica-EBC 7.12 (GC)
- ASBC Hops-17 (GC)

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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