

## Ethanol Hop Extract

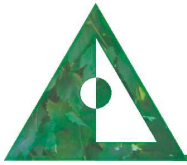
Ethanol Hop Extracts have been prepared from hops or hop pellets using food grade pure fermentation alcohol and contain the  $\alpha$ -acids,  $\beta$ -acids and essential oils of hops. Ethanol Hop Extract is added into the kettle and can be used as a partial or complete replacement for kettle hops or pellets, it produces comparable bitter flavor and similar utilization to other pure resin extracts.

### Characteristics:

Ethanol Hop Extract retains the aroma and the bittering potential of the hops from which it is made. Stability is excellent. Compared to raw hops or hop pellets the extracts represent a convenient and concentrated alternative. Since the brewing characteristics of the original hops are maintained, an early addition to the kettle imparts mainly bitterness while late addition will result in a carryover of the volatile oils in beer with aromatic "late hop" character.

### Specifications:

<b>Description:</b>	Depending on the extraction conditions and the hop variety, the colour of the extract can vary from yellow to dark green. It is a semi-fluid paste at room temperature. The product becomes more fluid when warmed up.
<b>Viscosity:</b>	approx. 1 – 3 Pas at 30 – 40 °C (86 – 104 °F), (depending on variety).
<b>Iso-<math>\alpha</math>-acids:</b>	0.5 – 2.0 %
<b><math>\alpha</math>-acids:</b>	20% - 55% (depending on variety)
<b><math>\beta</math>-acids:</b>	15 - 40% (depending on variety)
<b>Hop oils:</b>	Approx. 3 – 12 % (depending on variety)



# AROMATRIX FLORA PVT. LTD.

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**Density:** 0.9 – 1.0 g/ml

**pH:** 6.2 ( $\pm 0.5$ )

**Solvent Residue:** Ethanol content < 0.3 %

## Quality:

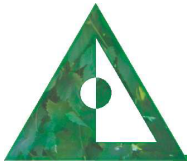
All Aromatrix Flora products are produced in plants accredited to internationally accepted quality standards.

## Product Use:

For efficient provision of bitterness, the Ethanol extract should be added to the kettle at the beginning or up to 10 minutes after the beginning of the wort boil. Utilisation of  $\alpha$ -acids in beer is within the range of 32% -38%. In the early stages of boiling Ethanol Extract shows a slower rate of isomerisation compared to pellets; however, after 25 – 30 minutes, isomerisation is greater than pellets. Early addition of the Ethanol Extract during wort boiling provides bitterness whilst late addition imparts some hop character due to the retention of some hop oils in the wort. Added late in the boil utilisation of  $\alpha$ -acids may be reduced considerably. The quantity to be added is calculated using the  $\alpha$ -acids content and the estimated utilisation. Actual utilisation may vary depending on plant and processing parameters. If added by means of an automatic dosing system, the extract should be warmed up to 40°C and gently agitated to ensure proper dosing.

## Packaging:

Standardisation of the alpha acid content can be achieved by adjusting the weight of extract in each container. Alternatively, the alpha acid content of the extract can be standardised by the addition of glucose syrup or some other food grade material. Container sizes range from 0.5 to 1 kg. Non-returnable bulk containers are available in size of 200 kg. Containers meet all food industry packaging regulations. When bulk containers are supplied for automatic dosing units, viscosity analysis maybe provided on request. All internal surfaces of containers are lined with a food grade coating.



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## Storage and Best-Before Recommendation:

Ethanol Hop Extract is exceptionally stable when properly stored. Hop oils are preserved in the condition as they were in hops. Ethanol Hop Extract should be cold stored at 0-5°C (32-41°F) and should be used within 6 years after processing. If stored at ambient conditions (below 25°C, 77°F) extracts should be used within 3 years. Containers once opened should be used within a few days.

## Safety:

Ethanol Hop Extract is a natural, non-toxic substance and may be safely handled using routine precautions to avoid contact with skin and, particularly, eyes. For further information please see the relevant Aromatrix Flora Material Safety Data Sheet (MSDS) from our web site.

## Analytical Methods:

The determination of  $\alpha$ -acids comprises two types of methods, the specific measurement of  $\alpha$ -acids by means of HPLC and conductometric methods:

- ❖  $\alpha$ -acids can be measured by any of the following methods:
  - EBC method 7.6 or ASBC Hops-8 ( $\alpha$ -acids as lead conductometric value (LCV))
  - By HPLC, using the current ICE standard, according to the EBC 7.8 method, or the ASBC method - Hops-14 (Iso- $\alpha$ ,  $\alpha$  and  $\beta$ -acids)
  
- ❖ Hop oil concentration can be measured by:
  - EBC 7.10
  - ASBC Hops-13

## Technical Support:

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