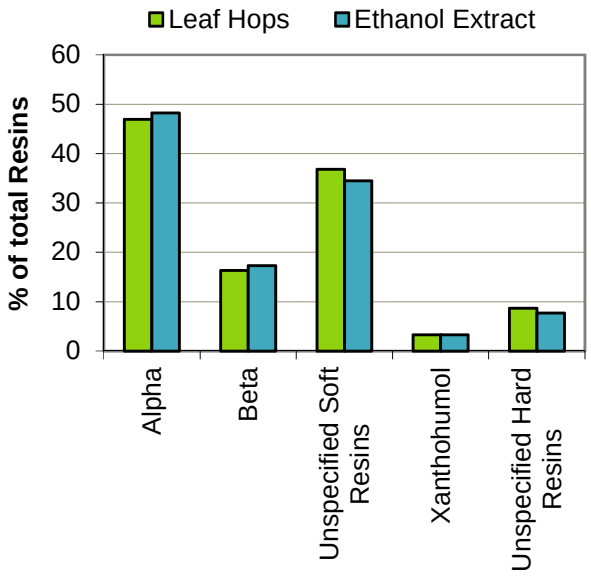
Ethanol-Extract

❖ Overview

- **Ethanol-Extract** is produced from aroma or bitter hop varieties using pure fermented alcohol. **Ethanol-Extract** contains any bitter fraction and nearly all hop oils of the original leaf hops.
- **Ethanol-Extract** is added into the kettle and can be used as a partial or complete replacement for leaf hops or pellets.
- **Ethanol-Extract** presents a concentrated and practical alternative to leaf hops or pellets with identical bitter taste and an excellent shelf life.

Composition of Hop Resins in Leaf Hops & Ethanol Extract



❖ Specification

- Description: Dark green extract, highly viscous at room temperature
- Alpha acids*: 20 – 55 %
- Beta acids*: 15 – 40 %
- Iso-alpha acids: 0.5 – 2.0 %
- Hop oil*: approx. 3 – 12 %
- Residual ethanol: < 0.3 %
- pH: 6.2 (± 0.5)
- Viscosity: 400 – 1000 mPas at 45°C (113°F)
- Density: approx. 1.0 g / ml at 20°C (68 °F)

* dependent on variety and crop year

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S.S.Steiner, Inc.
New York, USA
Tel:(1) 212 838 8900
Fax:(1)212 593 4238
E-mail: sales@hopsteiner.com

Simon H. Steiner, Hopfen, GmbH
Mainburg, Germany
Tel: (49) 8751 8605-0
Fax: (49) 8751 8605-80
E-mail: info@hopsteiner.de

Steiner Hops Ltd.
Epping, England
Tel: (44) 1992 572331
Fax: (44) 1992 573780
E-mail: enquiries@hopsteiner.co.uk

Hopsteiner Trading (Zhuhai) Co., Ltd.
Zhuhai, PRC
Tel: (86) 756 322 3340
Fax: (86) 756 322 3345
E-mail: info@hopsteiner.com.cn

❖ Properties

- **Appearance**

  A dark green, thick syrup / paste which becomes more fluid on warming.

- **Utilization**

  If **Ethanol-Extract** is boiled for at least 50 minutes, an utilization in the range of 30 – 40 % can be achieved. Actual utilization will vary from brewery to brewery depending on plant and process conditions.

- **Flavor**

  The flavor and especially bitter characteristics of the original hops are completely maintained. Early addition of **Ethanol-Extract** during wort boiling imparts mainly bitterness.

- **Chemical Residues**

  Nitrates and heavy metals are significantly reduced in **Ethanol-Extract.** Pesticides residues are also largely removed by ethanol extraction.

- **Quality**

  All Hopsteiner® products are produced in plants accredited to internationally accepted quality standards.

❖ Packaging

Ethanol-Extract can be packaged in cans and drums according to customer requirements:

Cans: 0.5 to 10 kg
Drums: 50 & 200 kg

For convenience of use, customers may have their extract packed in cans to any desired content of alpha acids per container (e.g. 450 g alpha acids per can).

Alternatively, the alpha acids content of **Ethanol-Extract** can be standardized to any particular concentration using tannin extract or glucose syrup (non-GM glucose cannot be guaranteed) and the container filled to a standard weight (e.g. 30 % alpha acids in 1-kg cans).

❖ Product Use

Ethanol-Extract is typically added into the kettle as a complete or partial replacement for leaf hops or hop pellets.

- **Dosage**

  Addition of **Ethanol-Extract** to the kettle is based on the concentration of bitter substances (“CBV”), an estimated or known utilization and the desired bitter intensity in the beer.

- **Addition**

  For the best utilization **Ethanol-Extract** should be added early in wort boiling. **Ethanol-Extract** is not very suitable for “late hop additions” due to the rather unpolar character. However, in this situation, better results can be achieved using the pre-isomerized kettle extracts IKE or PIKE due to their better solubility.

  If **Ethanol-Extract** is used in cans, it’s not necessary to warm up prior to their use. Punctured containers suspended into the boiling wort will ensure that all of the extract is completely flushed out.

S.S.Steiner, Inc.
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Mainburg, Germany
Tel: (49) 8751 8605-0
Fax: (49) 8751 8605-80
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Epping, England
Tel: (44) 1992 572331
Fax: (44) 1992 573780
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In case **Ethanol-Extract** is used in automatic dosing units, it should be warmed up to 45°C (113°F) and gently mixed to ensure perfect dosing.

- **Storage**

  Ethanol-Extract should be stored in sealed containers at < 10°C (50°F). Opened containers should be used within a few days.

- **Best Before Date**

  Ethanol-Extract is stable 8 years from date of production under the recommended storage conditions.

- **Safety**

  Ethanol-Extract 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 or proprietary hand cleansers. If **Ethanol-Extract** gets into the eyes, irrigate with excess water until clear and seek medical attention.
  For full safety information please see the relevant Hopsteiner® safety data sheet.

❖ Analytical Methods

- **Concentration of Bitter Substances**

  Iso-alpha, alpha and beta acids can be measured by any of the following methods, using the current standards:
  - HPLC method according to Analytica-EBC 7.8
  - ASBC Hops-16

The lead conductance value can be measured by any of the following methods:
- Analytica-EBC 7.6
- ASBC Hops-8 (II)

Ethanol-Extract is normally used according to its Conductometric Bitter Value ("CBV") as this value better represents its bitter potential.
Note: CBV = LCV (EBC 7.6) + 50% of iso-alpha acids (EBC 7.8)

- **Concentration of Hop Oils**

  Hop oil concentration can be measured by any of the following methods:
  - Analytica-EBC 7.10
  - ASBC Hops-13

❖ Technical Support

We will be pleased to offer help and advice on the full range of Hopsteiner® products:

- Copies of all relevant analytical procedure
- Safety Data Sheets (SDS)
- Assistance with pilot or full brewery trials
- Specialist analytical services

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