



ETHANOL EXTRACT (All-Resins-Extract)

OVERVIEW

- Ethanol Extract is produced from aroma or bitter hop varieties, using pure fermentation alcohol.
- It contains the complete range of hop bitter acids (both hard and soft resins) and hop oils as present in the extracted raw hop variety.
- The extract is added to the kettle in order to fully or partially replace leaf hops, pellets or CO₂ extracts.
- It provides a comparable bitterness profile to pellets and CO₂ extract at similar utilization.
- Its superior shelf-life of eight (8) years makes the extract conveniently storable.

PROPERTIES & SPECIFICATIONS

- **Appearance:** thick paste / syrup with dark-green color which becomes more fluid when warmed.
- **Alpha acids*:** 20 – 55%
- **Beta acids*:** 15 – 40%
- **Iso-alpha acids*:** < 2%
- **Hop oils*:** 3 – 12%
- **Residual alcohol:** < 0.3% ethanol
- **pH:** approx. 6.2
- **Viscosity:** approx. 10,000 mPas @ 30°C, approx. 1,000 mPas @ 50°C
- **Density:** approx. 1.0 g/l @ 20°C
- **Flavor:** aroma and bitterness profile of the used hop variety are fully retained.
- **Chemical Residues:** heavy metals, nitrates and agricultural residues are significantly reduced or even largely removed during extraction with ethanol.
- **Packaging:** tins, buckets or drums

*) depending on hop variety

PRODUCT USE**

- **Application**
To maximize utilization, Ethanol Extract should be added early in wort boiling. Due to its nonpolar character, it is not suitable for late or dry-hopping.
When using tins, pre-warming is not necessary. These simply need to be punctured or opened and then suspended into the boiling wort which will flush out all the extract into the kettle.
When using buckets or pumping the extract from drums with automated dosing units, it should be warmed up to 45°C and gently mixed before use.
- **Utilization**
Depending on process conditions, Ethanol Extract will lead to 30-40% alpha acid utilization after 50 minutes of boiling. Isomerization is slower than with pellets at first, yet higher in total after 30 minutes.
- **Dosage**
Extract addition volumes to wort are typically based on the desired bitter intensity in the beer (IBU). Depending on the brewhouse utilization, bitter substances should be added accordingly.
- **Analytical Methods**
Alpha, beta and iso-alpha acids are usually measured by HPLC (EBC 7.8) or ASBC Hops-16. Preferably with Ethanol Extracts, the lead conductance value (LCV) is measured by EBC 7.6 or ASBC Hops-8, to be combined with 50% of iso-alpha acids (EBC 7.8) for better dosage guidance. Hop oil content is measured by EBC 7.10 or ASBC Hops-13.
- **Storage & Best Before Date**
Recommended storage is at < 10°C in sealed tins, buckets or drums. If in sealed containers, shelf life is eight (8) years. Opened it should be consumed within a few days, preferably stored chilled.

***) for safety information, please refer to MSDS