



TETRA ISO EXTRACT (TETRA)

OVERVIEW

- Tetra Iso Extract is the aqueous solution of potassium salts of tetrahydro iso-alpha acids, derived from CO₂ hop extract.
- Tetra is used post fermentation and can replace a part of normal hop bittering when it is used to enhance beer foam and/or act as an antimicrobial agent.
- In the absence of conventional hop products (i.e., alpha acids and iso-alpha acids), Tetra is light-stable and prevents beers from developing "light-struck" flavor.

PROPERTIES & SPECIFICATIONS

- **Appearance:** clear liquid with yellow to amber color.
- **Tetrahydro iso-alpha acids:** 9.0% +/- 0.5% (w/w) HPLC, 10.0% +/- 0.5% (w/w) Spectro
- **Alpha acids:** < 0.1%
- **Iso-alpha acids:** < 0.1%
- **pH:** 9.0 – 11.0
- **Viscosity:** 2 - 10 mPas @ 20°C
- **Density:** approx. 1.02 g/l @ 20°C
- **Flavor:** Tetra creates a strong bitter taste in beer or other beverage applications. Its sensory bitterness equivalent is 1.3 times higher than normal iso-alpha acid's. If used at higher dosages, Tetra can create a sharp and even metallic bitterness profile. Depending on the beer style, its use should thus be limited to a few IBU derived from Tetra.
- **Packaging:** pails, jugs, canisters

PRODUCT USE*

- **Application**
Tetra is usually added undiluted prior to final filtration. If dilution is necessary, never dilute with beer (pH differences will cause precipitation!), but add Tetra into pH-adjusted demineralized water (pH +/- 9.0, use KOH or K₂CO₃). Dosing equipment should be used at a stage where even mixing into the beer stream (e.g., during pumping) is ensured. After use, remaining Tetra should be kept cool, while dosing lines should be cleaned with warm demineralized water (slightly alkaline) or ethanol.
- **Utilization & Light Stability**
Depending on process conditions, Tetra's yield should be +/- 70% if used just prior to final filtration. If used as sole hop product or in combination with RHO-30, it protects beers from light-struck flavor.
- **Dosage & Foam Stability**
Dosage levels are based on the desired bitterness adjustment (IBU) and foam intensity in the beer. 2 - 3 mg/l of tetrahydro iso-alpha acids in finished beer will lead to significant enhancement of both foam retention and cling.
- **Analytical Methods**
Tetra-iso-alpha acids are usually measured by HPLC (EBC 7.9 or ASBC Hops-18).
- **Storage & Best Before Date**
Recommended storage is at +/- 15°C in original sealed containers without sunlight exposure. Freezing should be prevented, as the aqueous solution might break and lead to precipitation. Under these conditions, shelf life is at least two (2) years. Once opened, Tetra should be consumed within a few days, preferably stored at 5-10°C and flushed with inert gases like nitrogen or argon (use of CO₂ is not advised).

*) for safety information, please refer to MSDS