

# ALPHA EXTRACT



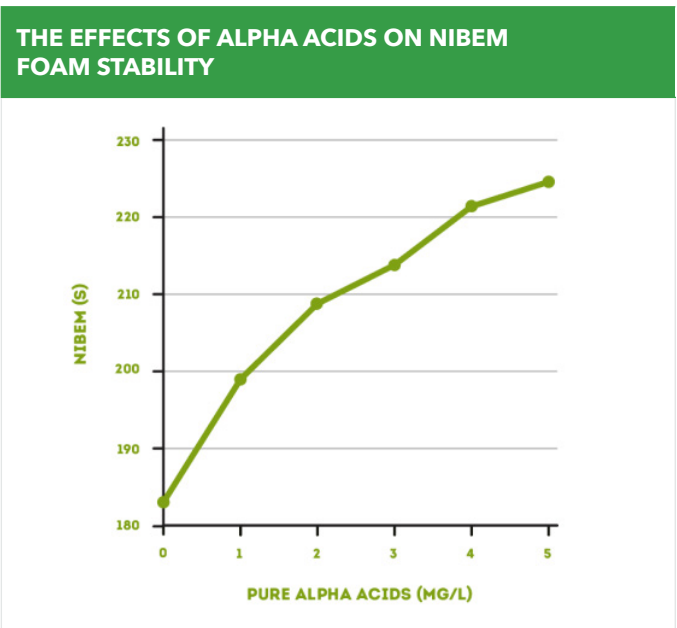
## OVERVIEW

- Alpha Extract is a pure, aqueous solution of natural alpha acids in the form of potassium salts, derived from CO<sub>2</sub> extract.
- Alpha Extract imparts a smooth bitterness to beer with a bitterness only 10% of that of iso-alpha acids.
- In addition, Alpha Extract improves the stability and cling of beer foam



PROPERTIES	
APPEARANCE	Yellow to amber in colour, <b>Alpha Extract</b> is a homogeneous, aqueous solution. Free flowing at the recommended storage temperatures, <b>Alpha Extract</b> is miscible in demineralised water and alcohol.
UTILISATION	Utilisation of alpha acids in the finished beer can vary between 60 - 70% depending on the time and efficiency of dosing, the quantity of adjuncts (if any) and the bitterness level.  Actual utilisation will vary from brewery to brewery due to differences in equipment and process conditions.
FLAVOUR	<b>Alpha Extract</b> provides a smooth (sensory) bitterness at a dosing rate of 7 - 8mg/l, depending on the type of beer. However, this will lead to an increase in the analytical bitterness value. The perceived bitterness of <b>Alpha Extract</b> is smoother than that of pure iso-alpha acids. At the same time, <b>Alpha Extract</b> enhances the stability and the cling of beer foam. An improvement in beer foam is already evident at 3 - 4mg/l of alpha acids in the finished beer.
QUALITY	All Ellerslie Australia products are processed in facilities which fulfill internationally recognised quality standards.
PACKAGING	<b>Alpha Extract</b> is normally packaged in 20kg pails. Other sizes are available on request, e.g. IBC of 640-1000kg.

QUICK SPECS	
DESCRIPTION	Clear, pale amber to yellow aqueous solution of the potassium salts of iso-alpha acids
CONCENTRATION	20.0 ± 1.0 % (w/w) of alpha acids
PH	8.5 (±0.5)
VISCOSITY	6 mPas at 20°C (68 °F)
DENSITY	1.050 (±0.020) g/ml at 20°C (68°F)



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# ALPHA EXTRACT



## PRODUCT USE

**Alpha Extract** is typically added before the final step in filtration.

### DOSAGE

Dosage of **Alpha Extract** is based on the product concentration, the desired dosing rate and the expected utilization. Actual utilization will vary from brewery to brewery depending on the time and point of the addition.

### ADDITION

We recommend adding **Alpha Extract** at full strength (undiluted) into the center of the beer stream for at least 70% of the total volume being transferred, preferably prior to the final step in filtration. An accurate,

high pressure dosing pump is required to add the product into the beer stream at a point where vigorous mixing is assured.

If dilution is necessary, always add **Alpha Extract** to demineralized water and adjust the pH to 8.5 - 9.5 using potassium hydroxide (KOH) or potassium carbonate (K<sub>2</sub>CO<sub>3</sub>). If containers are used over several days, it is recommended that the headspace be flushed with nitrogen (CO<sub>2</sub> is not suitable).

### CLEANING RECOMMENDATION

**Alpha Extract** should not be left in dosing lines at low temperature. Lines and dosing pumps should be flushed with warm, slightly alkaline, demineralized water or ethanol for purposes of cleaning.

### STORAGE

**Alpha Extract** should be stored in sealed containers at 1-5°C (34-41°F). Avoid exposure to sunlight and use opened containers as soon as possible.

### BEST BEFORE DATE

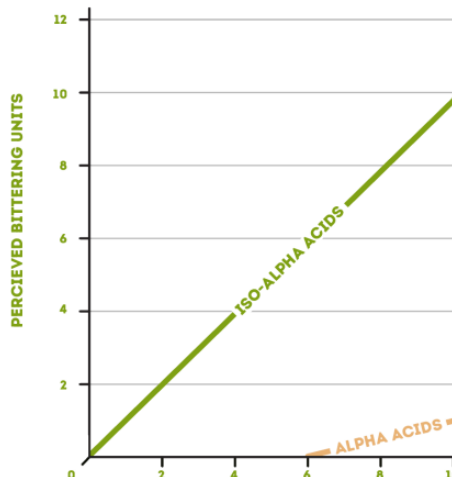
**Alpha Extract** is stable for one year from the date it was produced / packaged if stored under the recommended conditions.

### SAFETY

**Alpha Extract** should be handled using routine precautions to avoid contact with skin and, in particular, the eyes. Any product coming into contact with the skin should be immediately washed off with soap and water or an appropriate hand cleanser.

If **Alpha Extract** gets into the eyes, flush with copious amounts of water until clear and seek medical attention.

## SENSORY AND ANALYTICAL BITTERNESS



## ANALYTICAL METHODS

### CONCENTRATIONS OF ALPHA ACIDS IN BEER

The concentration of Alpha acids in beer is best determined by HPLC using the current ICE standard. If either the Analytica EBC 9.8 or ASBC beer 23 method is applied, please note that 1mg/l of alpha acids is equal to an increase of 0.4-0.6 bittering units. At the same time, the sensory bitterness only slightly changes although the analytical bitterness value increases.

### CONCENTRATION OF BITTER SUBSTANCES

Alpha acids can be measured using the following methods:

- HPLC according to Analytica EBC 7.7 or ASBC hops 14, with the current ICE standard.

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## SUPPLEMENTARY INFORMATION

<b>USAGE IN COMBINATION</b>	If <b>Alpha Extract</b> is to be used in combination with Iso-Extract, stable aqueous solutions of Alpha Acids plus Iso-Alpha Acids can be produced to customer specifications. If <b>Alpha Extract</b> and Tetra are used in combination, <b>Alpha Extract</b> must be added to beer before Tetra.
<b>STABILITY OF ALPHA ACIDS IN BEER</b>	It is not unusual to detect a loss of alpha over the normal shelf life of beer. Nevertheless, this has been known to have no effect of stability and cling of beer foam.
<b>LIGHT STABILITY OF ALPHA ACIDS</b>	It is not recommended that <b>Alpha Extract</b> be used in light stable beers, as alpha acids can transform into Iso-Alpha acids, which are not light stable.

## TECHNICAL SUPPORT

We are pleased to offer assistance and advice on the full range of Ellerslie Australia products:

- Copies of all relevant analytical procedures
- Safety Data Sheets (SDS)
- Assistance with pilot or full-scale brewing trials
- Special analytical services

Disclaimer: The information provided in this document is believed to be correct and valid. However, Ellerslie Australia 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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