

ALPHAFLOC PASTE (PST003)

Alphafloc isinglass paste is produced from the clean maws of certain types of fish. These fish maws contain about 98% collagen on a dry ash-free basis. The paste form of isinglass comprises finely divided isinglass in an aqueous base with sodium metabisulphite as preservative. The fish maws are subjected to vigorous cleaning followed by wet size reduction via processing which avoids heat generation (thereby avoiding thermal degradation of the collagen).

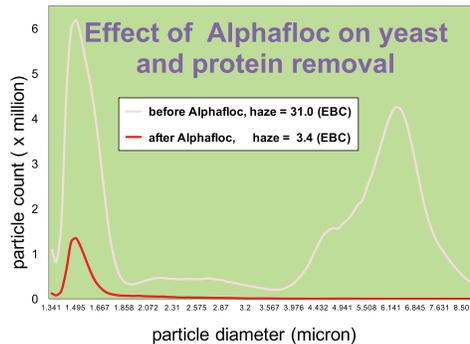
The ready for use isinglass produced from the paste is added to beer at the end of fermentation to speed maturation and improve filtration by removing yeasts and protein particles. For ease of use Alphafloc paste is supplied with the necessary acid and preservative in a separate sachet. Alphafloc viscosity is typically around 50-60,000 cP.



PRINCIPLE

The precise nature of the action of collagen on yeast and proteins is not fully understood, and many suggestions have been promoted.

Collagen exists in solution as tightly bound triple helix strands which possess both positively and negatively charged sites along their length. It is clear that the amino acid make-up of collagen, and specifically the high proportion of proline and hydroxyproline, contributes to its remarkable ability to remove both yeasts and proteins so effectively. In a typical application greater than 95% of yeast and 90% of protein particles are removed.

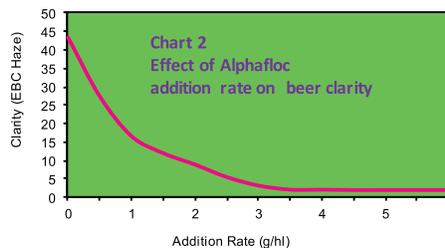


TREATMENT RATES

A typical treatment rate of 1 -3 g/hl (as isinglass) is recommended.

Typical addition rates of the ready to use liquid isinglass for beers prior to filtration are between 0.25 -1 L/hL of beer.

For both performance and commercial considerations it is advisable to identify the correct addition rate. This will vary from beer to beer (a simple optimization test is detailed later).



BENEFITS

- Reduced cold storage time.
- Fewer vessels.
- Lower energy use.
- Reduced beer loss.
- Improved filtration.
- Faster throughput.
- Reduced powder use.
- Improved beer haze and stability.
- Less re-work.

REGULATORY

The active component of Alphafloc is isinglass.

FDA

Isinglass is listed as Generally Recognised as Safe (GRAS) by the Food and Drug Administration (FDA) under 27 CFR 24 subpart L – 24.246.

Australia and New Zealand

Approved for use as a food processing aid under section 1.3.3. of the Food Standards Code (schedule 18)

UK/EC

Commission Directive 2007/68/EC exempts isinglass from having to be mentioned on labels when used to clarify beer or wine.

Isinglass can be used as a processing aid as it meets the requirements of EU General Food Law (Regulation (EC) No 178/2002 (as amended)).

CONTACT US

For more information, please visit us at www.lallemandbrewing.com

For any questions, you can also reach us at abvickers@lallemand.com



APPLICATION

Alphafloc is added via a solution to beer at the end of fermentation and chilling, or if centrifuges are used, immediately after centrifugation. It is fully compatible with silica gel, but all other processing aids at this stage should be added separately. (methods of solution preparation are detailed later)

For maximum benefit the Alphafloc solution should be added inline to the beer during transfer. If added prior to the chiller satisfactory incorporation will occur. A static inline mixer is advisable otherwise.

Some beers react very quickly with Alphafloc - flocculation can occur within minutes of addition. In these cases Alphafloc addition should take place throughout the whole period of beer transfer. If this is not possible additions should be made during the latter part of the transfer, or to the filled vessel.

Unitank operation presents a special set of circumstances.

The beer should be chilled conventionally.

Immediately before addition of Alphafloc the sedimented yeast should be fully removed. The Alphafloc solution can be pumped into the bottom of the vessel and mixed with CO₂.

The design and size of the cold storage vessel and the filterability requirements of the beer, will dictate the length of time required for settlement.

In all instances care should be taken in removing all the settled solids prior to filtration.

Vessel size (hl)	Storage (days)
2,000	2
4,000	3
8,000	4
10,000	5

Typical cold storage times for Alphafloc treated beers (cylindroconical)



BREWING PRACTICE

Isinglass has long been used in the clarification of traditional British cask ale. In this role its effectiveness has never been rivaled, although many attempts have been made to find alternatives over the years.

The same ability to remove yeast, and more importantly, proteins makes it an ideal partner in the cost effective production of filtered beers.

New generation centrifuges are being introduced into the brewing process. This has seen interest in Alphafloc increase, as the action of the centrifuge on large particulate solids and Alphafloc on the more troublesome smaller particles results in beers with excellent filtration characteristics.



IDENTIFICATION OF OPTIMUM ADDITION RATE

Prepare a 4.0% w/v solution by first dispersing 20 g paste in 500 ml cold water. Disperse thoroughly using a handheld domestic food blender or similar high shear mixing device.

Add 2 g citric acid and mix until all the paste is dissolved and a smooth homogeneous liquid is produced (this should only take a minute or two) – the liquid is now ready to use.

Take samples of beer at the end of fermentation, either from the transfer line or directly from fermentation vessel.

Cool to 0oC and remove yeast if necessary.

Fill clear glass bottles or laboratory measuring cylinders and dose with the dissolved paste at rates of 0, 1, 2, 3, 4 and 5 g/hl (i.e. 0, 0.25, 0.5, 0.75 and 1.0 ml finings per 100ml beer).

Store the treated beers at 0oC overnight and assess clarity both visually and by haze measurement.

The optimum rate is determined as the point at which further additions of isinglass give little or no clarity improvement.



ALPHAFLOC SOLUTION PREPARATION – PLANT SCALE.

Use a clean mixing vessel.

Add cold water to cover the mixer head/blades and start the mixer – leave mixing throughout preparation.

Add one x 14 kg bucket of paste per 350 litres total volume.

Empty the first 14 kg bucket of paste into the water. Keep mixing to completely disperse (approximately 15 minutes).

Empty subsequent buckets into the tank and mix each to disperse in the same way.

When all required paste is in the tank and fully dispersed into an even suspension, add the citric acid at a rate of 1 bag (as supplied) per bucket of paste added.

Fill with water to the desired final volume (14 kg paste per 350 litres).

Mix until a smooth, well-dissolved isinglass liquid is achieved (typically 30 minutes would be appropriate).

The isinglass is now ready to use.