



# VICFINE (FFV 161) BEER CLARIFICATION



## APPLICATION

Vicfine 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 Vicfine solution should be added in-line 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 Vicfine - flocculation can occur within minutes of addition. In these cases Vicfine 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.

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

Typical cold storage times for Vicfine treated beers (cylindroconical)

Immediately before addition of Vicfine the sedimented yeast should be fully removed. The Vicfine solution can be pumped into the bottom of the vessel and mixed with CO<sub>2</sub>. 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.



## BREWING PRACTICE

Isinglass has long been used in the clarification of traditional British cask ale. In this role it's effectiveness has never been rivalled, 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 Vicfine increase, as the action of the centrifuge on large particulate solids and Vicfine on the more troublesome smaller particles results in beers with excellent filtration characteristics.



## IN PRACTICE

Vicfine contains the necessary acids for solution preparation. If phosphoric acid is readily available this can be added once the Vicfine powder has been added to the water in order to speed up the rate of dissolving. An addition rate of 100 ml per hectolitre (85% phosphoric) is sufficient.

The dissolving action of the mixer can be supplemented by re-circulating the solution via a centrifugal or similar pump



## IDENTIFICATION OF OPTIMUM ADDITION RATE

Prepare a 0.5% w/v solution by first dispersing 2.5 gm Vicfine in 500 ml cold water. After a 30 minute hydration period dissolve the Vicfine by mixing vigorously for 2 to 3 minutes. This is best achieved with a hand held domestic food blender. *Note: if the Vicfine powder is allowed to stand overnight a satisfactory solution can be prepared with a simple laboratory magnetic mixer.*

Take samples of beer at end of fermentation, either from the transfer line or directly from fermentation vessel. Cool to 0°C and remove yeast if necessary. Fill clear glass bottles or laboratory measuring cylinders and dose with Vicfine solution at rates of 0, 1, 2, 3, 4 and 5 gm/hl.

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

The optimum rate is determined as the point at which further additions of Vicfine give little or no clarity improvement. In the example shown in Table 2 this is 2 gm/hl.



## VICFINE SOLUTION PREPARATION – PLANT SCALE

The exact method will depend on the equipment available and external constraints, for example time. Certain basic requirements should, however, be met.

Potable water at a temperature of less than 10°C. ideally aerated.

Vessels and pipework made of stainless steel or other inert materials, e.g. polypropylene

High speed mixer capable of maintaining a vigorous stirring action in a Vicfine solution with typical viscosity of 2,000 centipoise.

The isinglass component of Vicfine is sensitive to heat damage as soon as it is dissolved. A Vicfine solution is stable for up to 1 week if maintained at a temperature below 15°C. In cases where this is not possible the solution should be used within 24 hours.

Run approximately half of the required water volume into the mixing vessel. With the mixer stirring slowly add the Vicfine powder to avoid formation of lumps. Leave the mixer stirring for minimum 30 minutes but ideally 2 hours. As the Vicfine dissolves the viscosity of the solution increases. Add extra water as necessary until the final volume is achieved.