



Clear Choice Malt

Many consumers like their beer to be bright and clear without haze. Beer hazes are biological or non-biological in nature. The most common non-biological haze in beer is composed largely of complexes of proteins and reactive polyphenols. This haze forms at around 0 °C (32 °F), but re-dissolves when the beer is warmed to around 15 °C (59 °F). After further storage of the beer, strong bonds can form between the polyphenols and the proline-rich proteins forming an irreversible, permanent haze.

The most reactive polyphenols are proanthocyanidins and in beer 70-80% are derived from the malt and the rest from hops. Proanthocyanidins belong to the flavonoid group of polyphenols and are located in the testa of all traditional barley varieties.

Cold storage of beer at -1 to -2 °C (30-28 °F) can be used to bring about a degree of haze stability, but brewers frequently wish to accelerate the process of haze stabilisation and achieve greater stability than is possible through cold storage alone. This necessitates the use of processing aids that either remove potential haze-forming proteins (such as silica hydrogel) or remove polyphenols (such as PVPP treatment).

Haze formation can be avoided by the use of Crisp proanthocyanidin-free *Clear Choice Malt*

Proanthocyanidin-free malting barley varieties were first bred in the early 1970's. These varieties do not contain proanthocyanidins thus one of the haze precursors is absent in the resultant malt, wort and beer.

Beers brewed with *Clear Choice Malt* benefit from extended shelf life, improved haze stability and enhanced flavour stability. Additionally, the absence of polyphenols increases malty, sweet notes and reduces astringent and bitter notes in the finished beer. Many breweries, especially in the craft sector, are now benefitting from these quality attributes.

Benefits observed by brewers using *Clear Choice Malt* include:-

- Normal processing through the brewhouse with, in some cases, reduced trub volumes
- Cold conditioning at +3 or +4°C (37-39°F) leading to savings in refrigeration time and costs
- Removal of the need to use processing aids for stabilisation with associated cost savings
- 'Clean label' advantages of stating that chemical stabilisers not used for chill proofing
- Potential improvements to foam quality in the absence of silica hydrogel usage
- Extended length of filter runs
- Long term haze-free shelf life for packaged beers (periods in excess of 1 year)
- For cask and bottle-conditioned beers, yeast/trub sediments to a firm cake reducing beer losses
- Proportional improvements when *Clear Choice Malt* is used as a partial grist replacement