



***Clear Choice*[®] Malt**

Most craft beer drinkers like their beer to be bright, clear and without haze. Customer perception is many times affected to how bright, vibrant and clear a beer is when served. Unless appropriate for the style, clear beer is an indication of *quality* to the craft beer consumer.

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 Malting Group Clear Choice malt

Clear Choice[®] 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.

Clear Choice[®] Malt:

- 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*[®] Free Malt is used as a partial grist replacement

Crisp Malting Group is the sole UK licence holder for the production of Clear Choice malt

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