

INEOS Silicas

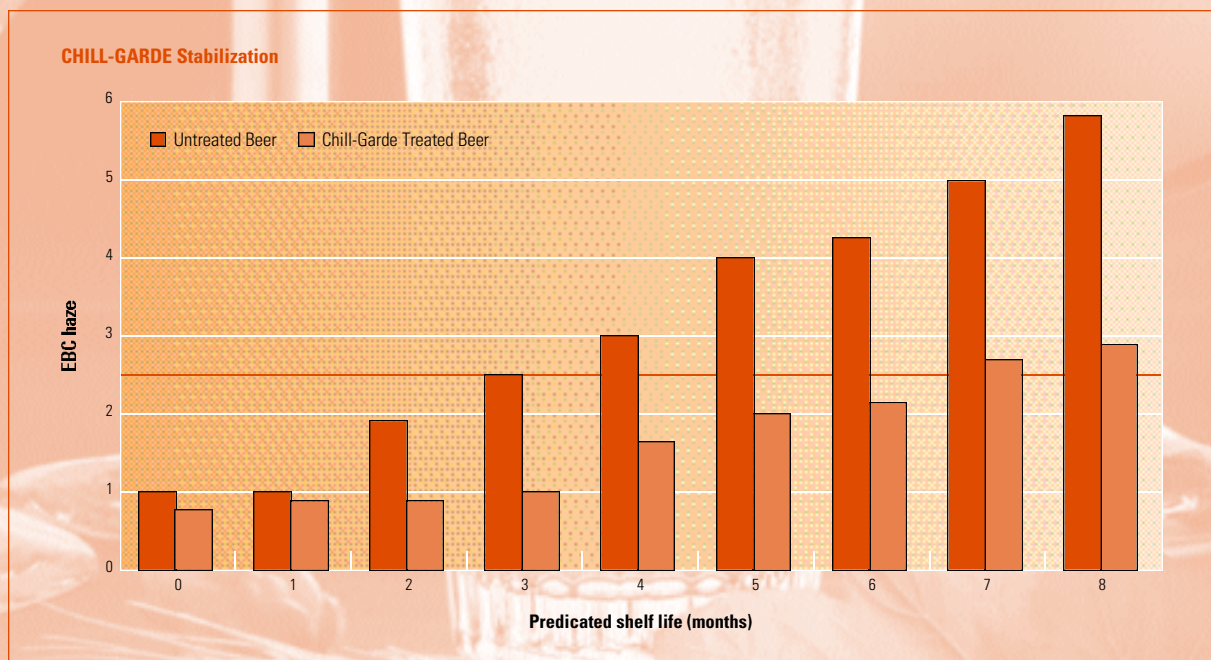
CHILL-GARDE SILICA HYDROGELS

INEOS Silicas offers a range of amorphous silica hydrogels for use as beer stabilizers. These products are non-dusting and can be applied with equal effectiveness during aging or at the filtration. Used in isolation, silica hydrogels typically deliver up to 6 months shelf life.

CHILL-GARDE - Silica hydrogel stabilization in aging or at the filter

CHILL-GARDE is a quick dispersing silica hydrogel designed for fast, consistent slurry make up to meet with production demands. Applied during aging, CHILL-GARDE forms low volume sediments, reducing beer losses and aiding processing. Alternatively, the medium range permeability of this product permits its use at the diatomaceous earth filter, often enabling the partial replacement of filter aid.

The graph below illustrates how application of CHILL-GARDE can extend the shelf life of the beer. The amount of CHILL-GARDE required will depend on beer type and shelf life requirements.





CHILL-GARDE properties

The sponge-like structure of CHILL-GARDE silica particles provides an enormous internal surface area for protein adsorption. However, CHILL-GARDE preferentially adsorbs haze-forming proteins, offering a high level of specificity. The proteins involved in foam stabilization are not easily adsorbed on the silica surface. The internal surface area of the particles is several hundred square meters per gram of silica. Because of this large surface available for adsorption, stabilization is rapid. It is, however, important that thorough contact is made with the beer being treated.

CHILL-GARDE procedures

Preparation

CHILL-GARDE is added to the beer as a 10-20% slurry in cold de-aerated water or beer. Agitation should be applied to achieve complete dispersion of the silica. CHILL-GARDE does not swell in water and so no 'soak or hydration' time is required. The slurry should be mixed until it is free from lumps prior to addition to the beer. Agitation of the slurry should then be maintained through the injection to prevent the silica settling out in the slurry tank.

Rate of use

Most American-style beers are effectively stabilized by treatment with 10 to 15 lbs of silica hydrogel per 100 barrels. The exact rate of use can vary by beer and brewery. It depends on factors such as the malt/adjunct ratio, type and gravity of the beer and cellar processing.

In-Tank treatment

For treatment in-tank, CHILL-GARDE slurry is injected into the beer during transfer from fermentation to cold storage. To ensure thorough contact, the slurry should be proportionally dosed to the beer stream throughout the transfer stage. If this is not possible then the slurry should be added slowly to the beer throughout the first two-thirds of the filling operation. During beer storage the hydrogel particles settle to form a compact and stable sediment which can be removed with minimum loss of beer.

Treatment at the filter

CHILL-GARDE slurry can be injected into the beer just prior to filtration. To provide a minimum contact time of 10 minutes, or longer if possible, the point of injection should be just prior to the filter surge tank. The CHILL-GARDE and the body feed slurries can be dosed into the beer stream either simultaneously or separately. When CHILL-GARDE is used at the filter, it may be possible to reduce the level of diatomaceous earth used and achieve optimum filtration rates and clarities.

For information on handling, safety data and packaging, please refer to the General Stabilization brochure.

Technical service

INEOS Silicas offers a high standard of technical and analytical service to ensure optimum performance of its products. For assistance, contact us via e-mail: techsupport@ineossilicas.com

For further information please contact:

| INEOS Silicas Limited | INEOS Silicas Americas LLC | INEOS Silicas Asia Pacific Pte Ltd | INEOS Silicas Brasil Limitada | INEOS Silicas South Africa (Pty) Ltd |
|--|--|--|--|--|
| Warrington England WA5 1AB T: +44 (0)1925 416100 F: +44 (0)1925 416116 | 111 Ingalls Avenue Joliet IL 60435 USA T: +1 815 727 3651 F: +1 815 727 5312 | No 3 Shenton Way #15-09 Shenton House Singapore 068805 T: +65 6325 0898 F: +65 6324 2243 | Rua Cenzo Sbrighi 27 1º andar cj 12 - Água Branca 5036-011 - São Paulo SP Brazil T: +55 (0)11 3611 2590 F: +55 (0)11 3611 1490/5703 | 169 Tedstone Road PO Box 14016 Wadeville 1422, Gauteng South Africa T: +27 (0)11 820 7111 F: +27 (0)11 827 6922 |

Or visit our website: www.ineossilicas.com

All information contained in this publication is believed to be accurate and is given in good faith. INEOS Silicas would be very pleased to co-operate with organisations who wish to explore further any resulting possibilities. However, readers must satisfy themselves as to the suitability of such information for their own particular purpose. This applies equally to recommendations or suggestions made by INEOS Silicas relating to the use of information from this publication or offered in response to specific enquiries or otherwise. No warranty is given as to the fitness of the information for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except insofar as such exclusion is prevented by law. INEOS Silicas accepts no liability for loss or damage (including liability for negligence or other tortious act or omission) other than that causing death or personal injury arising from reliance on the information provided. Freedom from patent, copyright or design protection must not be assumed.