

### Kerry has been providing brewing solutions for over 50 years, a business founded by a master brewer.

Our enzymologists and many of our brewing researchers, are trained as master brewers because we know that to develop the optimum solution, you have to understand all aspects of the brewing process.

Kerry work with customers in over 80 countries to develop solutions that meet their most demanding challenges.

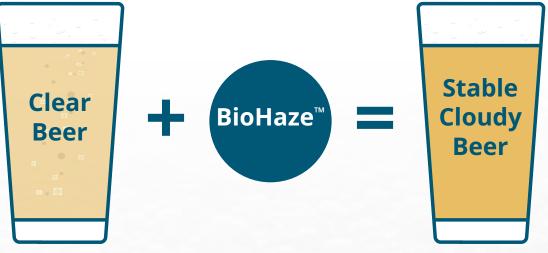
# $BioHaze^{\text{TM}}$ stable cloudifier for beer

## BioHaze<sup>™</sup> is a new and specifically developed product designed to deliver natural and stable turbid or cloudy appearance in beer.

Added post-filter, BioHaze allows the brewer to achieve the correct visual appearance using otherwise standard lager or pale ale ingredients.

BioHaze increases the haze instantly and maintains the cloudy effect in beer. Results of our extensive research, development and application trials show that this product is unique with regard to stability, and does not sediment easily when compared with existing technologies.





BioHaze is a free flowing powder. It is recommended to prepare a 2-5% solution in cold de-aerated water for dosing into the final filtered beer. Recommended dose rate is 50-100 g/hl (0.1 to 0.2 lbs/barrel).

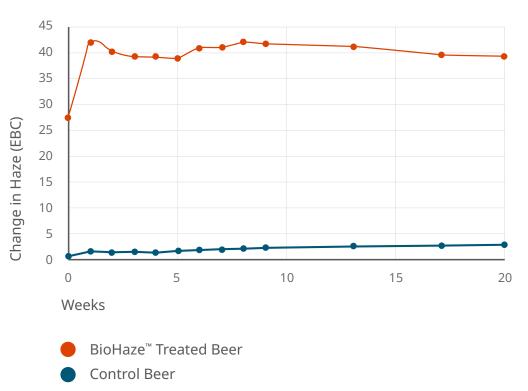


### BioHaze™ **STABLE CLOUDIFIER FOR BEER**

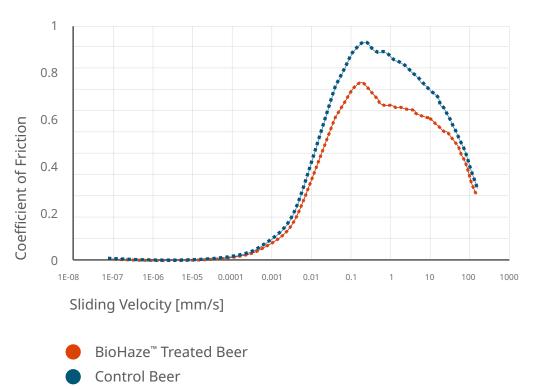
#### **BioHaze<sup>™</sup> Benefits**

- Provides natural turbidity instantly
- Maintains turbid/cloudy effect during storage *(see figure 1)*
- Enhances foam stability *(see figure 2)*
- No impact on flavor
- Improves mouthfeel (see figure 3)
- Inhibits oxidation of beer (see figure 4)
- Easier application
- Non-GMO, kosher, natural, suitable for vegetarians and vegans

#### Figure 1: Cloud stability in lager (85% malt / 15% rice) during storage



#### Figure 3: Mouthfeel/tribology (sliding velocity vs. coefficient of friction)



Our tribology study confirms BioHaze imparts better mouthfeel to the beer by reducing friction.



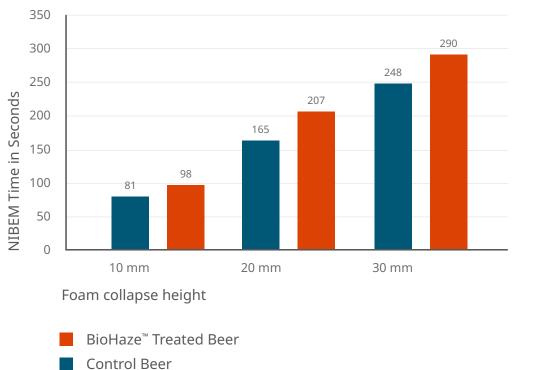
**Contact your BSG Account Representative** for more information

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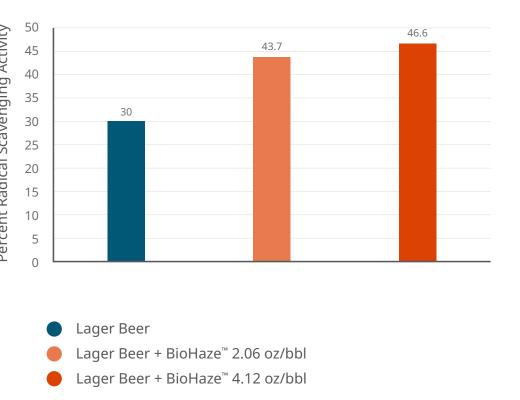


#### Figure 2: Effect of BioHaze<sup>™</sup> on foam stability





#### Figure 4: Anti-oxidant activity of BioHaze<sup>™</sup> based on DPPH assay\*



Key factors affecting BioHaze performance and stability include hop content and adjuncts used for brewing. Therefore, when BioHaze is used in a new application, or changes are made to an existing formula, it should first be tested in the finished product to ensure it is compatible with other ingredients in the formula, as well as the process, and also tested for shelf-life stability.

\*The method is based on the scavenging of DPPH by antioxidants, which upon a reduction reaction decolorizes the DPPH methanol solution. The assay measures the reducing ability of antioxidants toward the DPPH radical.)

