

TECHNICAL DATA SHEET

Product Name: Head Master™

Product Code: 46-342

Update Date: September 2, 2016

TECHNICAL INFORMATION

Quality Attributes: Hexahydroisoalpha acids in an aqueous/propylene glycol solution. Concentration specification by HPLC is:

10.0% ± 1% hexahydroisoalpha acids, including a controlled small amount of tetrahydroisoalpha acids.

Effective beer foam and cling enhancer, which varies depending upon the foam proteins present in the beer, also adds sensory bitterness to beer.

Appearance: A clear amber to brown fluid solution.

Aroma and Flavor: Adds sensory bitterness to beer - approximately equivalent to that of isoalpha acids.

Will not cause formation of light-struck character, providing there is no source of unreduced isoalpha acids introduced during the brewing process. Each Lot is analyzed to ensure alpha acids and isoalpha acids are below the limits to guarantee light-stability.

Shelf Life: We recommend cold warehousing in full, tightly sealed containers, protected from light, at temperatures below 20 - 30°C. Shelf life under these conditions is two years from date of manufacture.

Replacement/Usage Level: Depending on the application, the amount may vary. Can achieve bitterness utilization of approximately 75% – 85% when dosed post-fermentation. Typical usage levels range from 3 – 6 grams of product per bbl beer to attain approximately 2 – 4 BU sensory bitterness and significant foam enhancement in final beer.

Uses: Designed for injection undiluted into post-fermentation beer. Not recommended for brewkettle addition.

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This product may be diluted if desired for more precise dosing. Dilution recommendation is to attain 1% hop acids by adding the product to uncarbonated, demineralized water adjusted using potassium hydroxide to a pH level of 10-11 while continuously stirring.

GM Status: This product does not contain ingredients from genetically modified source materials and, where appropriate, ingredients are traceable back to origin with an Identity Preserved system.

Additional Assistance: For additional assistance on the qualification of Kalsec® products, such as supplier and product questionnaires, allergen declarations, nutritional, labeling, ingredient range declarations (component range breakdowns) and other documentation in support of your approval of Kalsec® products, please contact the Kalsec® Regulatory Affairs team at regulatoryaffairs@kalsec.com.

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