



TECHNICAL DATA SHEET

Characteristics

HopKick® is a 100% hop-derived aqueous extract that is clear, flowable, variety specific, and true-to-type. HopKick is designed for addition to the cold side of beverage operations to achieve the greatest impact of flavor and aroma. In non-brewing applications, like seltzers, teas, and RTDs, HopKick enhances other flavors even at low dosage rates. HopKick contains no hop solids and eliminates beverage losses associated with hop pellet liquid absorption. HopKick is a water-soluble hop essence derived from a liquid hop extraction process and contains only hop derived components. In the United States, hop extracts are generally recognized as safe (GRAS) in accordance with US FDA regulation 21 CFR 182.20.

Product Specifications

<u>Description:</u>	Aqueous hop extract
<u>Appearance:</u>	Clear to opaque in nature; some color variation possible
<u>α-acids + iso- α-acids:</u>	<1%
<u>β-acids:</u>	<1%

Quality and Food Safety

John I. Haas, Inc. (HAAS®) maintains food safety and quality management systems registered to the FSSC 22000 and ISO 9001 standards. Please refer to our website (www.johnihaas.com) for more information on our systems and programs.

Product Use

To ensure optimal flavor and aroma utilization, HopKick® is designed to be added to the cold side of beverage operations. Timing of addition can influence the final beverages flavor and aroma; beverage innovators discretion will dictate dosage timing and addition rate. To ensure optimal performance, HopKick should be refrigerated. User should ensure that the product is shaken vigorously before use. We recommend using the whole container in one use and/or within a few days once opened to ensure optimal results.

The dosing range of HopKick is dependent on the beverage matrix being explored and the variety of HopKick desired. The range can be as large as 0.03-1.5%. HAAS recommends using the dose rate range as a starting point.

Matrix	Dose Rate Range (v/v)
Beer and NA Beer	0.01 - 1.2%
Waters and Tea	0.03 - 0.25%
Hard Seltzers & FMB	0.1 - 1.5%

HopKick® can be dosed at a variety of different stages of fermentation or maturation. This can be achieved any number of ways and depends on the beverage equipment type and arrangement. For example, an in-line pump, dry hop dosing vessel, or other set-up is an ideal vehicle to solubilize the product more thoroughly as it enters the tank. Where pumping into a tank is not possible, HopKick can be added directly at the top of the tank for satisfactory results.



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Packaging

Containers meet all food industry packaging regulations.

Storage and Best-By Recommendation

HopKick® stability is significantly enhanced when properly stored. Store at or below 5 °C / 41 °F. Shelf-life evaluation of HopKick indicates that the product is stable for nine (9) months. Once product is received by the customer, it should be stored cold and unopened. We recommend using the whole container in one use and/or within a few days once opened to ensure optimal results.

Laboratory microbiological results reported negative for all pathogens and spoilage microorganisms.

Safety

Any material that contacts with skin should be washed off with soap and water. For more information download the relevant Safety Data Sheet (SDS) on our website.

Technical Support

We are pleased to offer support for the many uses and applications of HopKick® and can be contacted at brewing.solutions@johnihaas.com.