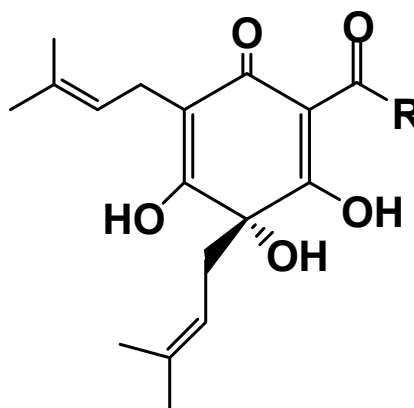


## Alpha 20 %

### ❖ Overview

- **Alpha 20 %** is a natural antibacterial product produced from CO<sub>2</sub> hop extract. Alpha 20% contains natural hop Alpha acids formulated in alkaline water.
- Alpha acids are unique to hops and naturally inhibit the growth of gram positive bacteria, such as Lactobacillus. Approximately 20 ppm of **Alpha 20%** can inhibit the growth of most gram positive bacteria under ideal conditions.
- **Alpha 20 %** is food grade, kosher and not an antibiotic.

### Structure of Alpha Acids



- R = -CH-(CH<sub>3</sub>)<sub>2</sub> (Cohumulone)**  
**R = -CH<sub>2</sub>-CH-(CH<sub>3</sub>)<sub>2</sub> (Humulone)**  
**R = -CH(CH<sub>3</sub>)-CH<sub>2</sub>-CH<sub>3</sub> (Adhumulone)**

### ❖ Specifications

- Description: yellow to amber solution containing the potassium salts of alpha acids from hops
- Concentration: 20.0 ± 1.0 % (w/w) of alpha acids
- pH: 8.5 (± 0.5)
- Viscosity: 6 mPas at 20 °C (68 °F)
- Density: 1.050 (± 0.020) g/ml at 20 °C (68 °F)

## ❖ Properties

### • Appearance

Yellow to amber in color, **Alpha 20 %** is a homogeneous, aqueous solution. Free flowing at the recommended storage temperatures, **Alpha 20 %** is miscible in demineralized water and alcohol.

### • Quality

All Hopsteiner® products are processed in facilities which fulfill internationally recognized quality standards.

## ❖ Packaging

**Alpha 20 %** is normally packaged in 20 kg pails. Other sizes are available on request, e.g. IBC of 640 – 1000 kg.

## ❖ Product Use

We recommend that **Alpha 20 %** be used in its undiluted form. It is not difficult to pump and is compatible with the usual materials used in food processing plants.

### • Dosage

Actual dosage will depend on the application, but typically 20-100 ppm of **Alpha 20 %** is effective as an anti-bacterial agent.

### • Application

**Alpha 20 %** may be dosed directly into process streams or added to solid or semi-solid products in a suitable blender.

When dosing into pipelines or vessels it is best to ensure that there is vigorous mixing so as to disperse the product quickly. This can be achieved by injecting into the bulk fluid at high pressure through a suitable nozzle or small bore pipe so that a high degree of turbulence is generated.

### • Storage

**Alpha 20 %** should be stored in sealed containers at 1 – 5 °C (34 – 41 °F). Avoid exposure to sunlight and use opened containers as soon as possible.

### • Best Before Date

**Alpha 20 %** is stable for one year from the date it was produced / packaged if stored under the recommended conditions.

### • Safety

**Alpha 20 %** should be handled using routine precautions to avoid contact with skin and, in particular, the eyes. Any product coming into contact with the skin should be immediately washed off with soap and water or an appropriate hand cleanser. If **Alpha 20 %** gets into the eyes, flush with copious amounts of water until clear and seek medical attention.

For full safety information, please refer to the relevant Hopsteiner® safety data sheet.

## ❖ Supplementary Information

Alpha acids are a natural major constituent of hops and are present in amounts ranging from about 2 – 20 % depending on hop variety. Alpha acids are soluble in organic solvents and are readily extracted by liquid or supercritical carbon dioxide. CO<sub>2</sub> hop extract produced commercially for use in brewing beer typically contain from 40 – 70 % alpha acids, of which there are three major homologs – cohumulone, humulone and adhumulone. All three are active as anti-bacterial agents.

**Alpha 20 %** is certified as Kosher, including for Passover, GRAS, Food Grade and is not an antibiotic.

## ❖ Analytical Methods

### • Concentration of Bitter Substances

Alpha acids can be measured using the following methods:

- HPLC according to Analytica-EBC 7.7 or ASBC Hops-14, with the current ICE standard

## ❖ Technical Support

We are pleased to offer assistance and advice on the entire Hopsteiner® product range:

- Information on all relevant analytical procedures
- Safety Data Sheets (SDS)
- Special analytical services

## ❖ Patent

Alpha 20 % is covered by US Patent 9,796,955

Disclaimer: The information provided in this document is believed to be correct and valid. However, Hopsteiner® does not guarantee that the information provided here is complete or accurate and thus assumes no liability for any consequences resulting from its application.