



**YAKIMA CHIEF HOPS®**



# YCH 803

## PRODUCT DATA SHEET

### PACKAGED BY

Yakima Chief Hops, 306 Division Street, Yakima, WA 98902 USA, Phone (509) 457-3200

### DESCRIPTION

YCH 803 is the essential oil fraction derived from supercritical CO<sub>2</sub> hop extract. YCH 803 is <1% alpha acids and beta acids and will not provide any bitterness or contribute to a sun struck flavor. The key essential oil compounds found in Hop Oil are : linalool, geraniol, β-pinene, myrcene, humulene, and caryophyllene.

### PACKAGING & STORAGE

Standard packaging is available in 1 kg and 5 kg aluminum bottles. YCH 803 should be stored at a temperature below 42°F (5°C). Under these conditions, YCH 803 will remain stable in closed containers for two (2) years.

### APPLICATION & USAGE

YCH 803 is designed to provide hoppy aroma and flavor to beer. It performs best when dosed during active fermentation. The convection of fermentation ensures adequate mixing and can help reduce terpene derived flavors in final beer. Dosing can be done at the very start of fermentation. YCH 803 can be added directly into the fermenter or can be injected into the wort stream during transfer.

Brite tank dosing (after the beer has been crashed) is not suggested for YCH 803, though it is possible. High levels of terpenes will likely make it into the final beer, which can provide flavors that are not true-to-type. If YCH 803 is dosed into a static vessel (post-fermentation or brite tank), a rousing or recirculation step is suggested for proper mixing.

YCH 803 should make up less than 50% of the dry hop for initial trials, as it's flavor contribution may be slightly different than traditional hop products. However, if desired, YCH 803 can make up 100% of the dry hop charge.

YCH 803 should be dosed at a 1:200 ratio versus T-90. That means 10kg of T-90 would be equivalent to 50g of YCH 803. Normal hopping rates likely fall between 1.3 and 7.5g/hL (250 - 1500 g/hL T-90 equivalent).

### AROMA

Perception of hoppy character and various related notes in beer will depend on the quantity of product added and when the product is added.



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METHOD ASSAY	METHOD	TYPICAL ANALYSIS
<b>Identification</b>	UV absorption curve is similar to that of referenced standard	-
<b>Alpha Acids Assay</b>	HPLC - EBC 7.7 or ASBC HOPS-14 (ICE-4 Std.)	<1% (w/w)
<b>Beta Acids Assay</b>	HPLC - EBC 7.7 or ASBC HOPS-14 (ICE-4 Std.)	<1% (w/w)
<b>Oil Composition</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>Linalool</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>Geraniol</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>β-Pinene</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>Myrcene</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>Humulene</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>Caryophyllene</b>	GC FID , ASBC HOPS METHOD -17	as reported
<b>Farnesene</b>	GC FID , ASBC HOPS METHOD -17	as reported


# YCH 803

## SAFETY DATA SHEET

### 1. PRODUCT IDENTIFICATION

1.1 Product Name	YCH 803 (Pure Hop Oil, Hops Essential Oil, Hops Volatile Oil, Varietal Hop Oils) Made from Hop Pellets
1.2 Supplier	Yakima Chief Hops Inc. 306 Division St. Yakima, WA 98902 (USA) Phone: +1.509.457.3200 Email: <a href="mailto:quality@yakimachief.com">quality@yakimachief.com</a> Website: <a href="http://yakimachief.com">yakimachief.com</a>
1.3 Recommended Use	Ingredient used in brewing beer.
1.4 Restrictions on Use	None

### 2. HAZARD IDENTIFICATION

2.1 Hazard Classification	Flammable liquid, Category 3
2.2 Label Elements	<p>Signal word: Warning            Hazard statements: H226 – Flammable liquid and vapor            Precautionary statements:            P210 – Keep away from heat/sparks/open flames/hot surfaces – No smoking            P381 – Eliminate all ignition sources if safe to do so.            P403 + 235 – Store in a well-ventilated place. Keep cool.</p> 
2.3 Other Hazards	Prolonged skin contact could cause dermatitis in some individuals.

### 3. COMPOSITION, INGREDIENT INFORMATION

3.1 Composition	<p>A concentrate of hop oils produced by CO<sub>2</sub> extraction.</p> <table border="1"> <thead> <tr> <th>Chemical Name</th> <th>CAS-No.</th> <th>EC-No.</th> <th>Ingredient Percent</th> </tr> </thead> <tbody> <tr> <td>Hops Oil Concentrate</td> <td>8007-04-3N/A</td> <td>640-023-9</td> <td>&gt;99%</td> </tr> </tbody> </table> <p>There are no additional hazardous ingredients greater than or equal to 1.0 wt% concentration or carcinogenic ingredients greater than or equal to 0.1 wt% concentration.</p>	Chemical Name	CAS-No.	EC-No.	Ingredient Percent	Hops Oil Concentrate	8007-04-3N/A	640-023-9	>99%
Chemical Name	CAS-No.	EC-No.	Ingredient Percent						
Hops Oil Concentrate	8007-04-3N/A	640-023-9	>99%						
3.2 Hazard Components	<p>Not Applicable            Product is natural, unrefined and contains no additives.</p>								

### 4. FIRST AID MEASURES

4.1 Oral Ingestion	Never make an unconscious person vomit or drink fluids. If necessary, rinse mouth with water and provide fresh air. Get medical attention if discomfort continues.
4.2 Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if symptoms occur.
4.3 Skin Contact	If irritation occurs, wash off with a disinfectant soap and water. Consult a physician if symptoms occur. Launder contaminated clothing before reuse.
4.4 Inhalation	In case of difficult breathing, move person to fresh air. Consult a physician if symptoms occur.
4.5 Symptoms	None Known

## 5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media	Use alcohol-resistant foam, dry chemical or carbon dioxide spraying extinguishing media to base of flames. Do not use direct water jet on burning material. Avoid open flame and excessive temperatures.
5.2 Hazards from Fire	Closed containers may build up pressure when exposed to heat and should be cooled with water spray. Keep product and empty container away from heat and sources of ignition.
5.3 Advice for Firefighters	Wear self-contained breathing apparatus and full protective gear for firefighting if large quantities of product are involved.

## 6. ACCIDENTAL RELEASE MEASURES

6.1 Procedure	Place waste in an appropriately labeled container for disposal. Recover as much of the material as possible. Care should be taken to avoid environmental release.
6.2 Protective Equipment	Use adequate ventilation or a respirator if in a confined area. Use rubber gloves. Wear Safety Glasses.

## 7. HANDLING AND STORAGE

7.1 Handling Equipment	Closed Container of Food Grade Quality. Brushed aluminum bottles.
7.2 Precautions	Avoid prolonged skin contact. Use personal protective equipment (Section 8)
7.3 Storage Conditions	Store in tightly closed original container (preferably high grade stainless steel, glass or aluminum). Store in a cool, dry area away from heat sources and protected from light. Keep air contact to a minimum. Store at a temperature below 5°C (42°F).

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

8.1 Control and Exposure Limits	OSHA Standards: No additional data available Threshold Limit Values: No additional data available NIOSH Recommendations: No additional data available
8.2 Engineering Controls	Provide adequate ventilation
8.3 Personal Protective Equipment (PPE)	Skin Protection: wear rubber gloves if prolonged exposure Eye Protection: wear safety glasses

## 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance & Odor	Yellowish, clear liquid
9.2 Odor	Typical hoppy, depends on variety
9.3 Odor Threshold	No data available
9.4 pH	N/A
9.5 Freezing Point	-90°C
9.6 Boiling Point	185°C
9.7 Flash Point	46°C
9.8 Evaporation Point	No data available
9.9 Flammability	No data available
9.10 Upper/Lower Flammability	No data available
9.11 Vapor Pressure	No data available
9.12 Vapor Density	No data available

9.13 Density	0.80 – 0.90
9.14 Solubility in Water	Insoluble
9.15 Partition Coefficient	No data available
9.16 Auto-ignition Temperature	415°C
9.17 Decomposition Temperature	No data available
9.18 Viscosity	6 – 7 cP (25°C)

## 10. STABILITY AND REACTIVITY

10.1 Reactivity	Product is sensitive to oxidation in open containers, and/or under excessive temperatures
10.2 Stability	Product is stable under appropriate storage conditions, in closed containers and/or under inert atmosphere. (Section 7.3)
10.3 Possibility of Hazardous Reactions	None known
10.4 Conditions to Avoid	Store at a temperature range of -3°C to 5°C (25°F to 41°F), away from heat sources and protected from light. Keep air contact to a minimum.
10.5 Incompatible Materials	None Known
10.6 Hazardous Decomposition Products	None Known

## 11. TOXICOLOGICAL INFORMATION

11.1 Acute Toxicology	None Known. Product is “Generally Recognized As Safe” (GRAS 21 CFR 182.20)
11.2 Routes of Exposure	Inhalation: No data available Ingestion: No data available Skin contact: No data available Eye contact: No data available
11.3 Suspected Cancer Agent	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
11.4 Reproductive Toxicity	This product is not reported to produce mutagenic, embryotoxic, teratogenic, or reproductive effects in humans.


## 12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity	No data available
12.2 Potential for Persistence and Degradation	No data available. Product is all natural and biodegradable.
12.3 Bioaccumulation	No data available. Product is all natural.
12.4 Mobility in Soil	No data available
12.5 Other Effects	No data available

## 13. DISPOSAL CONSIDERATIONS

13.1 Product Disposal	According to regulations in force.
13.2 Packaging Disposal	According to regulations in force; for paper/cardboard, steel and PET.

## 14. TRANSPORTATION INFORMATION

14.1 UN Number	UN 1197 Extracts, flavoring, Liquid, 3 III
14.2 Shipping Name	YCH 803
14.3 Hazard Class	3-Flammable liquid
14.4 Packing Group	III – Minor Danger
14.5 Environmental Hazards	Non-hazardous product
14.6 Other	<p>Department of Transportation ( DOT)            In accordance with DOT            Transport document description: UN1197 Extracts, Liquid, 3, III            UN-No. (DOT): UN1197            Proper Shipping Name (DOT): Extracts, liquid, Class (DOT): III Minor Danger            Hazard Labels (DOT: 3- Flammable Liquid</p>  <p>DOT Packaging Non Bulk (49 CFR 173.xxx): 203</p> <p>DOT Packaging Bulk (49 CFR 173.xxx): 242</p> <p>DOT Special Provisions (49 CFR 172.102): B1- If the material has a flash point at or above 38 C (100 F) and below 93 C (200F), then the bulk packaging requirements of 173.242 of this sub-chapter is applicable.</p> <p>IB3- Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2; Composite (31HZ1 and 31HA2, 31HB2,31HN2,31HD2 and 31HH2). Additional Requirements: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see special Provisions IP8 in the Table 2 for UN2672)</p> <p>T2- 1.5 178.274(d)(2) Normal      178.275(d)(3)</p> <p>TP1- The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = <math>97 / 1 + a (tr - tf)</math>            Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees Celsius of the liquid during filling.</p>

## 15. REGULATORY INFORMATION

<p>15.1 Safety, Health, and Environmental Regulations</p>	<p>SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.</p> <p>SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.</p> <p>SARA 311/312 Hazards: Fire hazard, Acute health hazard, Chronic health hazard</p> <p>TSCA: All components of this product are on the Toxic Substances Control Act.</p> <p>EINECS: No components of this product are on the European Inventory of Existing Commercial Chemical Substances.</p> <p>Canada DSL: All components of this product are on the Canada Domestic Substance List.</p> <p>CA Prop. 65 Components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.</p> <p>Heavy Metals, Pesticides/Herbicides/Fungicides, Nitrates, Radioactivity: Below tolerance levels. Allergenic-Free Non-GMO Traceable</p>
<p>15.2 REACH</p>	<p>Not Applicable (No EINECS Ref.)</p>

## 16. OTHER INFORMATION

<p>16.1 HMIS</p>	<p>Health Hazard: 0 Flammability: 2 Physical Hazard: 0</p>
<p>16.2 NFPA Rating</p>	<p>Health Hazard: 0 Fire Hazard: 2 Reactivity Hazard: 0</p>
<p>16.3 Issue Date</p>	<p>15 August 2019</p>
<p>16.4 Revision Date</p>	<p>07 February 2025</p>
<p>16.5 Other</p>	