YAKIMA CHIEF HOPS®

YCH 805

PRODUCT DATA SHEET

ADVANCED PRODUCTS EFFICIENT

nqa. ISO 9001 ISO 14001 Registered

PACKAGED BY

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

OVERVIEW

YCH 805 is hop oil in propylene glycol is 2% pure hop oil diluted in propylene glycol (<97%) to produce a 100% beer soluble product. The pure hop oil is derived from varietal specific CO_2 hop extract, and the oil is removed by wipe film distillation. The product contains the complete range of essentials oils found in each hop varietal.

DESCRIPTION

YCH 805 utilizes propylene glycol as an emulsifier to allow for high solubility rates of hop oil into beer or other beverages. YCH 805 can be used to help amplify hop flavors in beer, or provide subtle hoppiness on its own, in light lagers or blonde ales.

PACKAGING & STORAGE

YCH 805 is available in 100 mL, 1 L and 5 L aluminum containers. YCH 805 should be stored at a temperature below 42°F (5°C). During transit, YCH 805 may remain at ambient temperature for up to ten days, but not to exceed 85°F (30°C). Under these conditions, YCH 805 will remain stable in closed containers for two (2) years.

APPLICATION & USAGE

YCH 805 is 100% beer soluble and can be dosed post-fermentation to provide hoppy aroma and flavor to beer. It can be used in conjunction with dry hopping, or in full replacement, though it is wise to experiment with lower doses initially. In general, YCH 805 can be used at a ratio of 1:4 to 1:20 compared to T-90 pellets. This means that 10kg of T-90 would be equivalent to between 4000 and 500g of YCH 805. The dosing rate for a brewery will completely depend on brew house, beer style and intensity/flavor preferred. Because YCH 805 is emulsified, higher levels of terpenes like myrcene, caryophyllene and humulene will make it into the final beer. This may cause flavors that are not true-to-type at higher dosage rates. Benchtop testing of dose rate is possible when YCH 805 will be used post-fermentation or in a brite tank.

AROMA

Perception of hoppy character and various related notes in beer will depend on the quantity and timing of the YCH 805 addition.

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SPECIFICATION SHEET

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DESCRIPTION	METHOD	TYPICAL ANALYSIS
Appearance	Visual	Clear/yellow liquid
Iso-alpha acids + Alpha acids	HPLC - EBC 7.8, ASBC HOPS-16 (ICE-4 Std. and ICS-13 Std.)	Not detected
Beta acids	HPLC - EBC 7.4, ASBC HOPS-14 (ICE-4 Std.)	Not detected
Oil Composition	GCMSD-SCD	See table below

YCH 805 SPECIFICATION					
Compound	β-pinene	Myrcene	Limonene	Caryophyllene	Humulene
Specification	> 50 ppm	> 6000 ppm	> 25 ppm	> 200 ppm	> 400 ppm

NOTES:
Some precipitation may occur
Range is varietal dependent
PPM = Parts Per Million
10,000 ppm = 1 % w/w

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YCH 805

SAFETY DATA SHEET

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1. PRODUCT IDENTIFICATION

1.1 Product Name	Hop Oil in PG (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: quality@yakimachief.com Website: yakimachief.com
1.3 Recommended Use	Ingredient used in brewing beer.
1.4 Restrictions on Use	None

2. HAZARD IDENTIFICATION

2.1 Hazard Classification	Combustible, Category 4
2.2 Label Elements	Signal word: Warning Hazard statements: H227 – Combustible liquid 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.
2.3 Other Hazards	Prolonged skin contact could cause dermatitis in some individuals.

3. COMPOSITION, INGREDIENT INFORMATION

3.1 Composition	A concentrate of hop oils produced by CO_2 extraction mixed with PG.

Chemical Name	CAS-No.	EC-No.	Ingredient Percent
Propylene Glycol	57-55-6	200-338-0	97% maximum allowable
Hops Oil Concentrate	8007-04-3	292-504-3	1-2%
Water			1-2%

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.

3.2 Hazard Components	Not Applicable

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 room temperature or 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, cloudy 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	-62°C
9.6 Boiling Point	188°C
9.7 Flash Point	89°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	1.00 – 1.10
9.14 Solubility in Water	Partially soluble in water
9.15 Partition Coefficient	No data available
9.16 Auto-ignition Temperature	400°C
9.17 Decomposition Temperature	No data available
9.18 Viscosity	40-45 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 below 5°C (42°F), away from heat sources and protected from light. Keep air contact to a minimum.
10.5 Incompatible Materials	Strong oxidizers, strong acids, acid chlorides, acid anhydrides, reducing agents.
10.6 Hazardous Decomposition Products	Oxides of carbon

11. TOXICOLOGICAL INFORMATION

11.1 Acute Toxicology	Acute oral toxicity Oral LD50= 22,000mg/kg(rat) Acute dermal toxicity Dermal LD50> 2,000 mg/kg (rabbit) Acute inhalation toxicity Inhalation LC50> 317mg/L-2hr (rabbit
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	Propylene glycol Toxicity to fish: Mortality NOEC –Pimephales promelas (fathead minnow) –52,930 mg/L, 96h. Toxicity to invertebrates: Morality NOEC –Daphnia –13,020 mg/L, 48h. EC50 –Daphnia magna (water flea) –13,020 mg/L, 48h.
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	Non-Hazardous product
14.2 Shipping Name	Hop Oil in PG
14.3 Hazard Class	Non-Hazardous product
14.4 Packing Group	Non-Hazardous product
14.5 Environmental Hazards	Non-hazardous product
14.6 Other	Product should be stored away from engines or any heat source during transportation.

15. REGULATORY INFORMATION

15.1 Safety, Health, and Environmental Regulations	SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. 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. SARA 311/312 Hazards: Fire hazard, Acute health hazard, Chronic health hazard TSCA: All components of this product are on the Toxic Substances Control Act. EINECS: No components of this product are on the European Inventory of Existing Commercial Chemical Substances. Canada DSL: All components of this product are on the Canada Domestic Substance List. 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. Heavy Metals, Pesticides/Herbicides/Fungicides, Nitrates, Radioactivity: Below tolerance levels. Allergenic-Free Non-GMO Traceable
15.2 REACH	Not Applicable (No EINECS Ref.)

16. OTHER INFORMATION

16.1 HMIS	Health Hazard: 0 Flammability: 1 Physical Hazard: 0
16.2 NFPA Rating	Health Hazard: 0 Fire Hazard: 1 Reactivity Hazard: 0
16.3 Issue Date	2019-08Aug-15
16.4 Revision Date	2024-10Oct-23
16.5 Other	