

Beta Acid Oil

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product Identifier	Beta Acid Oil
1.2 Synonyms	BAO, Beta acid-enriched hop extract
1.3 Relevant Uses	For use as an ingredient in the brewing of beer.
1.4 Supplier	BarthHaas / BarthHaas UK Ltd.
1.5 Emergency Contact Details	Hop Pocket Lane, Paddock Wood, Kent, TN12 6DQ, UK Emergency phone: +44 1892 833 415 (09:00 - 17:30 Mon-Thurs; 09:00 - 16:30 Fri, UK time) Email: enquiries@barthhaas.co.uk

2. HAZARD IDENTIFICATION

2.1 Classification

According to Regulation (EC) 1272/2008 [CLP]:

- Skin Sensitization Category 1
- Skin Irritation Category 2
- Eye Irritation Category 2
- Acute toxicity (oral) Category 4
- Acute toxicity (dermal) Category 4

2.2 Label Elements

According to Regulation (EC) 1272/2008 [CLP]:

- **Hazard Pictogram**



- **Signal Word:**

- **Warning**

- **Hazard Statement**

- H302 Harmful if swallowed
- H312 Harmful in contact with skin
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation

- **Precautionary Statement**

- P301+P312: IF SWALLOWED: Call a Poison Centre/Doctor if you feel unwell
- P280: Wear protective gloves and eye protection
- P302+P352: IF ON SKIN: Wash with plenty of soap and water
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
- P264 Wash hands thoroughly after handling

2.3 Other Hazards

None

3. COMPONENTS/INFORMATION ON INGREDIENTS

Components

The product is a mixture of bitter and aroma substances, extracted from the dried cones of the cultivated hop plant *Humulus lupulus*.

Hop Extract, CAS: 8060-28-4

EINECS No . 232-504-3

REACH Registration no. 01-2120766018-52-0000

4. FIRST AID MEASURES

4.1 Description of First

Aid Methods:

- **Inhalation**
 - **Skin Contact**
 - **Eye Contact**
 - **Oral Ingestion**
- Move to fresh air
 - Wash skin thoroughly with soap and water. If any symptoms persist obtain medical attention.
 - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 - Rinse mouth out with water and drink a portion of water (ca. 200ml). Vomiting may occur but should not be induced. Obtain medical attention if symptoms persist.

4.2 Most important symptoms and Effects

See labelling (Section 2.2) and Section 11.

4.3 Indications of Immediate Medical

No data available

5 FIRE AID MEASURES

5.1 Extinguishing Media Carbon dioxide, dry powder, foam.

5.2 Special Hazards Arising from Substance Contains hop oil. Hop oil is combustible any may give rise to hazardous fumes in a fire

5.3 Advice for Firefighters Fire fighters should wear self-contained positive pressure breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Protection Wear appropriate protective clothing – see Section 8.

6.2 Environmental Precautions Avoid sub-soil penetration. Prevent entry to sewers and public waters. Do not discharge onto the ground or into watercourses.

6.3 Methods for Cleaning Up Contain spillage using earth, sand or other inert material. Transfer to suitable sealed container prior to disposal. Flush area with hot soapy water to remove final traces. Use adequate ventilation or a respirator if in a confined area.



7. HANDLING AND STORAGE

- 7.1 Precautions for Safe Handling** Avoid excessive contact with product. Use appropriate protective clothing as indicated in Section 8. Wash hands after use.
- 7.2 Conditions for Safe Storage** Store at 0 - 5 °C (32 - 41 °F). Suitable storage is high grade stainless steel, glass, high-density polyethylene and high phenolic lacquered mild steel
- 7.3 Specific End Uses** For use as a food ingredient. It should be used in accordance with applicable food legislation.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters Not applicable.

8.2 Exposure Controls:

- **Engineering Controls** - Provide adequate ventilation.
- **Eye/Face Protection** - Chemical goggles must be worn during handling.
- **Hand Protection** - PVC, rubber, latex or nitrile gloves
- **Skin Protection** - If danger of splashing wear PVC or rubber apron.
- **Respiratory Protection** - Not normally required



9. PHYSICAL AND CHEMICAL PROPERTIES

a) Physical state	Resinous paste
b) Color	Dark yellow to brown
c) Odor	Characteristic, typical hoppy, resinous aroma
d) Melting point/Freezing point	No clear melting point. Becomes fluid at 40 - 60 °C (104 - 140 °F), depending on Variety
e) Boiling point	No data available. Hop extract: no clear boiling point - decomposes before boiling
f) Flammability	Non flammable
g) Lower and upper explosion limit	Not practical to measure
h) Flash point	Hop extracts containing hop oils have a flash point of ca. 80 °C (176 °F) or above, depending on variety
i) Auto-ignition temperature	Not practical to measure
j) Decomposition temperature	Not practical to measure
k) pH	Not practical to measure
l) Kinematic viscosity	Not practical to measure - available on request
m) Solubility	Insoluble; forms an emulsion.
n) Partition coefficient n-octanol/water (log value)	LogP _{ow} : Hop extract contains components with Log P values of 3 - 7 at pH 7
o) Vapor pressure	Not practical to measure



- p) Density [kg/m³]** Ca. 1000
- q) Relative vapor density** Not practical to measure
- r) Particle characteristics** Not practical to measure

10. STABILITY AND REACTIVITY

- 10.1 Reactivity** No reactivity hazards known.
- 10.2 Chemical Stability** Stable if stored according to Section 7.2 and 10.5
- 10.3 Possibility of Hazardous Reaction** None known
- 10.4 Conditions to Avoid** Keep container closed when not in use; high temperatures
- 10.5 Incompatible Materials** None known
- 10.6 Hazardous Decomposition Products** None known



11. TOXICOLOGICAL INFORMATION

11.1 Acute Toxicity	Beta-acid enriched hop extracts containing 30 - 70% β -acids have an estimated ATE value (oral, dermal) of 1,000 - 2,300 mg per kg bw. This signifies classification under Category 4 for Acute Toxicity, oral and dermal, according to Regulation (EC) 1272/2008.
11.2 Skin Corrosion/Irritation	Skin Irritation Category 2
11.3 Serious Eye Damage/Irritation	Eye Irritation Category 2
11.4 Respiratory or Skin Sensitization	Skin Sensitisation Category 1
11.5 Germ Cell Mutagenicity	OECD Guideline 471 (Bacterial Reverse Mutation Assay) mutagenic Bacterial reverse Mutations Assay on 40% beta-acids: not mutagenic
11.6 Carcinogenicity	Hop extracts have a long history of safe use as a component of beer. Bacterial reverse mutation assay: not mutagenic.
11.7 Reproductive Toxicity	Weight of evidence indicates lack of reproductive toxicity. Long history of safe use as a component of beer. Hop extracts are generally recognised as safe (GRAS) in accordance with US FDA regulation 21 CFR 182.20.
11.8 STOT- Single Exposure	Weight of evidence indicates safety when used for its intended use - see (11.7) above.
11.9 STOT-Repeated Exposure	Weight of evidence indicates safety when used for its intended use - see (11.7) above.
11.10 Aspiration Hazard	Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity	<p>Toxicity to fish:</p> <ul style="list-style-type: none">- <i>Carassius auratus</i> (goldfish) - Etude pharmacologique de l'action du lupulin et de la fleur d'organer sur le poisson. <i>Pharmaceutica acta Helvetiae</i> (1953) 28(7-8), pp.183-206: lowest dose causing adverse effects estimated by calculation as ca. 80 mg/l. <p>Toxicity to Daphnia and other aquatic invertebrates:</p> <ul style="list-style-type: none">- EC50 - <i>Daphnia magna</i> (Water flea) - >5.8 mg/l - 48 h.- NOEC - <i>Daphnia magna</i> - ca. 2.2 mg/l - 48 h. <p>Toxicity to freshwater algae:</p> <ul style="list-style-type: none">- EC50 - 42.7 mg/l - 48 h- NOEC - 12.5 mg/l - 72 h
12.2 Persistence and Degradability	Ultimate biodegradation (natural product).
12.3 Bioaccumulative Potential	Natural product, not expected to bioaccumulate.
12.4 Mobility in Soil	<p>Log Koc 1.7 - <4.5 (modelling by EPISuite™)</p> <p>Other information: low hazardous to water</p> <p>Water contaminant class 1 (self assessment) according to VwVwS from May 17th 1999 appendix 3. Do not discharge onto the ground or into watercourses.</p>
12.5 Results of PBT Exposure:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Other Adverse Effects Exposure	No data available

13. DISPOSAL CONSIDERATIONS

13.1 Product Disposal	Dispose in accordance with all applicable local and national regulations.
13.2 Container Disposal	Labels should not be removed from containers until they have been cleaned. Contaminated containers should not be treated as household waste. Containers should be cleaned using appropriate methods and then re-used or disposed of by landfill or incineration as appropriate.



14. TRANSPORT INFORMATION

14.1 UN-Number Non-hazardous for transport

14.2 Shipping Name Non-hazardous for transport

14.3 Transport Hazard Class N/A

14.4 Packing Group Non-hazardous for transport

14.5 Marine Pollutant No data available

15. REGULATORY INFORMATION

15.1 Safety, Health, and Environmental Regulations Germany: Water contaminant class 1 (self assessment) according to VwVwS from May 17th 1999 appendix 3. Do not discharge onto the ground or into watercourses.

15.2 Chemical Safety Assessments N/A when used for food applications

16. OTHER INFORMATION

(b) Key literature references and sources for data:

- REACH registration dossier for EC 232-504-3

(c) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

- Skin Irritation Category 2: *in vitro* test data for REACH registration dossier for EC 232-504-3
- Eye Irritation Category 2: *in vitro* test data for REACH registration dossier for EC 232-504-3
- Skin Sensitisation Category 1: *in vitro* test data for REACH registration dossier for EC 232-504-3

The information in this safety data sheet is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on our present knowledge and should be used only as a supplement to information already in your possession concerning this product. It does not represent any guarantee of the properties of the product. The determination of whether and under what condition the product should be used is yours to make. We do not accept any liability for loss, injury or damage that may result from its use.