Hop Oil Type NOBLE

Safety Data Sheet

according to US OSHA Hazard Communication Standard (HCS 2012); 29 CFR Part 1910.1200
Issue date: 10/14/2022 Revision date: 10/14/2022 Supersedes: 9/5/2017 Version: 6.00

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Trade name	:	Hop Oil Type NOBLE
Chemical name	:	hop oil
CAS-No.	:	8007-04-3

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Manufacturing of food

1.3. Supplier

Manufacturer/Supplier
Simon H. Steiner, Hopfen, GmbH
Auhofstr. 18
Mainburg, 84048
Germany
T +49 8751 8605 0 - F +49 8751 8605 80

Supplier/Importer
Steiner Hops Ltd.
15A Henley Business park
Pirbright Road
Normandy, Guildford, Surrey, GU3 2DX
United Kingdom
T +44 1992 572 331

Manufacturer
Hops Extract Corporation of America
305 N 2ND Ave Yakima
Yakima , WA, 98902-2690
USA
T +1 509 249 1530

Manufacturer
Hallertauer Hopfenveredelungsges. mbH
Auhofstr. 18
Mainburg, 84048
Germany
T +49 8751 8605 500

Manufacturer/Supplier/Importer
S. S. Steiner, Inc.
1 West Washington Avenue
Yakima, WA 98903
USA
T +1 509 453 4731

Email competent person
sds@kft.de

1.4. Emergency telephone number

Emergency number	:	Simon H. Steiner, Hopfen, GmbH Tel.: +49 8751 8605 0 (Montag – Freitag 08:00 – 17:00, Central European Time) Hallertauer Hopfenveredelungsges. mbH Tel.: +49 8751 8605 500 (Montag – Freitag 08:00 – 17:00, Central European Time) Steiner Hops Ltd. Phone: +44 1992 572 331 (Monday to Friday 8.00-17.00, Greenwich Mean Time) S. S. Steiner, Inc. Phone: +1 509 453 4731 (Monday to Friday 8.00-17.00, Pacific Time Zone)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 3	H226	Flammable liquid and vapor
Skin corrosion/irritation Category 2	H315	Causes skin irritation

Serious eye damage/eye irritation Category 2A	H319	Causes serious eye irritation
Skin sensitization, Category 1	H317	May cause an allergic skin reaction
Aspiration hazard Category 1	H304	May be fatal if swallowed and enters airways

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) :
H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation

Precautionary statements (GHS US) :
P210 - Keep away from heat, hot surfaces, sparks, open flames. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment.
P241 - Use explosion-proof electrical equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P261 - Avoid breathing mist, vapors, spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P280 - Wear protective clothing, eye protection, face protection.
P301+P310 - If swallowed: Immediately call a doctor.
P302+P352 - If on skin: Wash with plenty of water.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331 - Do NOT induce vomiting.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P363 - Wash contaminated clothing before reuse.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : UVCB
Chemical name : hop oil

CAS-No. : 8007-04-3

Name	Product identifier	%	GHS US classification
hop oil	CAS-No.: 8007-04-3	99.9	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1, H317 Asp. Tox. 1, H304
Linalool (Constituent)	CAS-No.: 78-70-6	≤ 10	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1B, H317
7-methyl-3-methyleneocta-1,6-diene (Constituent)	CAS-No.: 123-35-3	≤ 9.6	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Asp. Tox. 1, H304
Humulene (Constituent)	CAS-No.: 6753-98-6	≤ 6.7	Not classified
caryophyllene (Constituent)	CAS-No.: 87-44-5	≤ 1.4	Skin Sens. 1B, H317 Asp. Tox. 1, H304

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : In all cases of doubt, or when symptoms persist, seek medical attention.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : May cause an allergic skin reaction. Irritation.

Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : Risk of lung edema.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire. Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Strong water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Flammable liquid and vapor.
Explosion hazard : Explosive vapor/air mixtures may be formed.
Hazardous decomposition products in case of fire : Toxic fumes may be released. Carbon monoxide. Carbon dioxide.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information : Do not allow run-off from fire fighting to enter drains or water courses. Disposal must be done according to official regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Avoid breathing mist, vapors, spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal. Notify authorities if product enters sewers or public waters.
Other information : Disposal must be done according to official regulations.

6.4. Reference to other sections

Information for safe handling. See section 7. Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : In use, may form flammable vapor-air mixture.
Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Avoid contact with skin and eyes. Avoid breathing mist, vapors, spray.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment.

Storage conditions	:	Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
Storage temperature	:	< 10 °C
Heat-ignition	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from heat and direct sunlight.
Information about storage in one common storage facility	:	Keep away from food, drink and animal feeding stuffs.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

hop oil (8007-04-3)

No additional information available

7-methyl-3-methyleneocta-1,6-diene (123-35-3)

No additional information available

Linalool (78-70-6)

No additional information available

caryophyllene (87-44-5)

No additional information available

Humulene (6753-98-6)

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure good ventilation of the work station.
Environmental exposure controls	:	Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

In case of repeated or prolonged contact wear gloves. Nitrile rubber. EN 374. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Please follow the instructions related to the permeability and the penetration time provided by the manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear

Eye protection:

Wear closed safety glasses. EN 166

Skin and body protection:

Wear suitable protective clothing. EN 13034. EN ISO 13688

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Short term exposure. Filter type. A. EN 143

Other information:

Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes. Always wash hands after handling the product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	clear. Oily.
Color	:	light yellowish
Odor	:	No data available
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	0.82 – 0.86 g/ml
Solubility	:	Soluble in ethanol. Soluble in water with difficulty.
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	Product is not explosive. Explosive vapor/air mixtures may be formed.
Oxidizing properties	:	Non oxidizing material.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport. Flammable liquid and vapor.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (inhalation) : Not classified (Based on available data, the classification criteria are not met)

7-methyl-3-methyleneocta-1,6-diene (123-35-3)	
LD50 oral rat	> 3380 mg/kg body weight
LD50 dermal rabbit	> 5000 mg/kg body weight

Linalool (78-70-6)	
LD50 oral rat	2790 mg/kg body weight (OECD 401 method)
LD50 dermal rabbit	5610 mg/kg body weight (OECD 402 method)

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitization : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)

7-methyl-3-methyleneocta-1,6-diene (123-35-3)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)

Aspiration hazard : May be fatal if swallowed and enters airways.

Viscosity, kinematic : No data available

Symptoms/effects after skin contact : May cause an allergic skin reaction. Irritation.

Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : Risk of lung edema.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects.

7-methyl-3-methyleneocta-1,6-diene (123-35-3)	
EC50 - Crustacea [1]	1.47 mg/l (48h; Daphnia magna; (OECD 202 method))
EC50 72h algae	0.31 mg/l (Pseudokirchneriella subcapitata; (OECD 201 method))

Linalool (78-70-6)	
LC50 - Fish [1]	27.8 mg/l (96h; Oncorhynchus mykiss; OECD Guideline 203)
EC50 - Crustacea [1]	59 mg/l (48h; Daphnia magna; OECD Guideline 202)
EC50 96h - Algae [1]	88.3 mg/l (Desmodesmus subspicatus; DIN 38412 L 9)

12.2. Persistence and degradability

7-methyl-3-methyleneocta-1,6-diene (123-35-3)	
Persistence and degradability	Readily biodegradable.

Biodegradation	76 % (28d; (OECD 301D method))

Linalool (78-70-6)	
Persistence and degradability	Readily biodegradable.
Biodegradation	64.2 % (28 d; (OECD 301D method))

caryophyllene (87-44-5)	
Persistence and degradability	Not readily biodegradable.
Biodegradation	10 % (28 d; EU Method C.4-E)

12.3. Bioaccumulative potential

7-methyl-3-methyleneocta-1,6-diene (123-35-3)	
Partition coefficient n-octanol/water (Log Pow)	4.82 (pH 6,5; 30°C; (OECD 117 method))

Linalool (78-70-6)	
Partition coefficient n-octanol/water (Log Pow)	2.9 (20°C)
Bioaccumulative potential	Bioaccumulation unlikely.

caryophyllene (87-44-5)	
Partition coefficient n-octanol/water (Log Pow)	6.23 (25 °C; pH = 7; (OECD 123 method))

Humulene (6753-98-6)	
Partition coefficient n-octanol/water (Log Pow)	6.592

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Disposal must be done according to official regulations. Do not dispose of with domestic waste. Do not discharge into drains or the environment.

Product/Packaging disposal recommendations : Recycle or dispose of in compliance with current legislation.

Additional information : Flammable vapors may accumulate in the container.

SECTION 14: Transport information

In accordance with DOT / IMDG / IATA

14.1. UN number

DOT NA No : UN1993

UN-No. (IMDG) : 1993

UN-No. (IATA) : 1993

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Flammable liquids, n.o.s. (hop oil)

Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, N.O.S. (hop oil)
Proper Shipping Name (IATA) : Flammable liquid, n.o.s. (hop oil)

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : 3
Hazard labels (DOT) : 3

IMDG
Transport hazard class(es) (IMDG) : 3
Hazard labels (IMDG) : 3

IATA
Transport hazard class(es) (IATA) : 3
Hazard labels (IATA) : 3

14.4. Packing group

Packing group (DOT) : III
Packing group (IMDG) : III
Packing group (IATA) : III

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT
UN-No.(DOT) : UN1993

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 (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable. B52 - Notwithstanding the provisions of 173.24b of this subchapter, non-reclosing pressure relief devices are authorized on DOT 57 portable tanks. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: 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 Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	150
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	220 L
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

IMDG

Special provision (IMDG)	:	223, 274, 955
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
EmS-No. (Fire)	:	F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
EmS-No. (Spillage)	:	S-E - SPILLAGE SCHEDULE Echo - FLAMMABLE LIQUIDS, FLOATING ON WATER

IATA

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y344
PCA limited quantity max net quantity (IATA)	:	10L
PCA packing instructions (IATA)	:	355
PCA max net quantity (IATA)	:	60L
CAO max net quantity (IATA)	:	220L
Special provision (IATA)	:	A3

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

CAUTION: This product is exempt from all requirements of the Toxic Substances Control Act (exemption for food and food additive according to Toxic Substances Control Act Title 15, Chapter 53, §2602, B (VI))

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

7-methyl-3-methyleneocta-1,6-diene (123-35-3)
Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

⚠ **WARNING:** This product can expose you to 7-methyl-3-methyleneocta-1,6-diene, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

according to US OSHA Hazard Communication Standard (HCS 2012); 29 CFR Part 1910.1200

Revision date : 10/14/2022

Data sources : Information provided by the manufacturer. European Chemicals Agency, http://echa.europa.eu/.

Department issuing data specification sheet: : KFT Chemieservice GmbH
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D-64347 Griesheim

Phone: +49 6155-8981-400
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SDS Service: +49 6155 8981-522

Contact person : Dr. Stefanie Finsterbusch-Kettner

Other information : A safety data sheet is not required for this product. This Product Safety Information Sheet has been created on a voluntary basis.

Full text of H-phrases	
H226	Flammable liquid and vapor
H227	Combustible liquid
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration

Abbreviations and acronyms	
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TLM	Median Tolerance Limit
vPvB	Very Persistent and Very Bioaccumulative

Indication of changes:
General revision. Composition/Information on ingredients. Transport information.

KFT SDS US 00

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.