

Safety Data Sheet

according to US OSHA Hazard Communication Standard (HCS 2012); 29 CFR Part 1910.1200 Issue date: 7/5/2023 Revision date: 7/5/2023 Supersedes: 10/14/2022 Version: 7.00

SECTION 1: Identification

1.1. Identification

Product form Trade name

- : Substance
- : Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)

1.2. Recommended use and restrictions on use

Use of the substance/mixture

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

1.4. Emergency telephone number

Emergency number

: Manufacturing of food

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

: 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)

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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

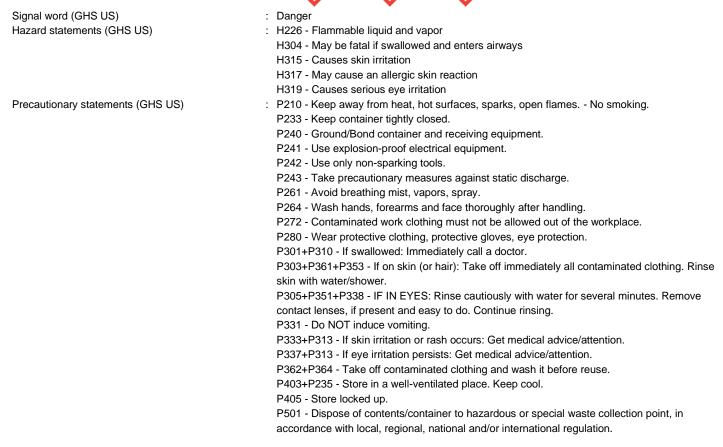
GHS US classification

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)



2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

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SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type Name : UVCB

: Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)

Name	Product identifier	%	GHS US classification
7-methyl-3-methyleneocta-1,6-diene (Natural component)	CAS-No.: 123-35-3	≤ 75.5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1B, H317 Asp. Tox. 1, H304
(E)-7,11-dimethyl-3-methylenedodeca-1,6,10-triene (Natural component)	CAS-No.: 18794-84-8	≤ 19.4	Asp. Tox. 1, H304
caryophyllene (Natural component)	CAS-No.: 87-44-5	≤ 16.6	Skin Sens. 1B, H317 Asp. Tox. 1, H304
Linalool (Natural component)	CAS-No.: 78-70-6	≤ 1.7	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1B, H317

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.

: Do not induce vomiting. Call a physician immediately.

First-aid measures after ingestion

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.

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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media Unsuitable extinguishing media	 : Use extinguishing media appropriate for surrounding fire. Water spray. Dry powder. Foam. Carbon dioxide. : Strong water jet.
5.2. Specific hazards arising from the chem	nical
Fire hazard Explosion hazard Hazardous decomposition products in case of fire	 Flammable liquid and vapor. Explosive vapor/air mixtures may be formed. Toxic fumes may be released. Carbon monoxide. Carbon dioxide.
5.3. Special protective equipment and prec	autions 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	
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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

For containment Methods for cleaning up	 Collect spillage. 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
Other information	waters. : 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.

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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, sprav.
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	y 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	: Keep away from food, drink and animal feeding stuffs.
facility	

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)	
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)	<u></u>
No additional information available	
E)-7,11-dimethyl-3-methylenedodeca-1,6,10-triene (18794-84-8)	
No additional information available	

8.2. Appropriate engineering controls

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

8.3. Individual protection measures/Personal protective equipment

Hand protection:

In case of repeated or prolonged contact wear gloves. Chemically resistant protective gloves. Nitrile rubber. ISO 374-1. 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. ISO 16321-1

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Skin and body protection:

Wear suitable protective clothing. EN ISO 13688. EN 13034

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Filter type. A-P2. EN 143. Short term exposure

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
рН	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 45 – 55 °C
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	: 0.85 g/ml (68 °F)
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	: 11.765 mm²/s
Viscosity, dynamic	: 10 mPa·s (77 °F)
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.

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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)
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-dier	ne (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)

STOT-Tepealeu expusure	. Not classified (based on available data, the classification chiefla are not met)
Aspiration hazard	: May be fatal if swallowed and enters airways.
Viscosity, kinematic	: 11.765 mm²/s
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

: Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.	
(123-35-3)	
1.47 mg/l (48h; Daphnia magna; (OECD 202 method))	
0.31 mg/l (Pseudokirchneriella subcapitata; (OECD 201 method))	
27.8 mg/l (96h; Oncorhynchus mykiss; OECD Guideline 203)	
59 mg/l (48h; Daphnia magna; OECD Guideline 202)	
88.3 mg/l (Desmodesmus subspicatus; DIN 38412 L 9)	
(E)-7,11-dimethyl-3-methylenedodeca-1,6,10-triene (18794-84-8)	
54 μg/L (21d; Daphnia magna; (OECD 211 method))	

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NOEC chronic fish

66 μg/L (32d; Pimephales promelas; (OECD 210 method))

12.2. Persistence and degradability

Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)			
Persistence and degradability	The product has not been tested.		
7-methyl-3-methyleneocta-1,6-diene (123-35-3	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)		
(E)-7,11-dimethyl-3-methylenedodeca-1,6,10-triene (18794-84-8)			
Persistence and degradability	Readily biodegradable, failing 10-d window.		
Biodegradation	60.6 % (28d; (OECD 301B method))		

12.3. Bioaccumulative potential

Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)		
Bioaccumulative potential	The product has not been tested.	
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))	

12.4. Mobility in soil

Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)		
Ecology - soil	The product has not been tested.	
(E)-7,11-dimethyl-3-methylenedodeca-1,6,10-triene (18794-84-8)		
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.69 (OECD 121 method)	
Ecology - soil	Low mobility (soil).	

12.5. Other adverse effects

No additional information available

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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

DOT	IMDG	ΙΑΤΑ
14.1. UN number		
1993	1993	1993
14.2. Proper Shipping Name		
Flammable liquids, n.o.s. (hop oil)	FLAMMABLE LIQUID, N.O.S. (hop oil)	Flammable liquid, n.o.s. (hop oil)
14.3. Transport hazard class(es)		
3	3	3
PLANMABLE LEQUED		
14.4. Packing group		
III	Ш	111
14.5. Environmental hazards		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: Yes	Dangerous for the environment: No

14.6. Special precautions for user

DOT UN-No.(DOT)

: UN1993

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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 relied 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
		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
ΙΑΤΑ		
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))

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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

Hop Oil Type DRY, Hop Oil Type DRY variety specific, Hop Oil (steam distilled), Hop Oil (thin film)

Regulatory reference Manufacturing of food

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

Listed on IARC (International Agency for Research on Cancer)

Linalool (78-70-6)

Listed on TECI (Thailand Existing Chemicals Inventory)

15.3. US State regulations

\Lambda 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 Sta	andard (HCS 2012); 29 CFR Part 1910.1200
Revision date	: 7/5/2023
Data sources	: Information provided by the manufacturer. European Chemicals Agency, http://echa.europa.eu/.
Department issuing data specification sheet:	: KFT Chemieservice GmbH
	Im Leuschnerpark 3
	D-64347 Griesheim
	Phone: +49 6155-8981-400
	Fax: +49 6155 8981-500
	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 Waterwa	erways	

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Abbreviations and acronyms	
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
IARC	International Agency for Research on Cancer
ΙΑΤΑ	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: Comments Section Changed item Change General revision No additional information available 1 CAS-No. Removed No additional information available 2.2 Precautionary statements (GHS US) Modified No additional information available 3 CAS-No. Removed CAS-No. hop oil 8.1 Personal protective equipment Modified Breathing equipment 9 Flash point Added No additional information available 11 Toxicological information Removed No additional information available

KFT SDS US 00

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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.