KETTLE REDI®

Safety Data Sheet

Kettle Redi® is not classified as a dangerous product according to European Union legislation, and it is used as a flavoring for food, for example in the brewing of beer. However, this safety data sheet is provided voluntarily according (as appropriate) to the principles of the Classification, Labelling and Packaging Regulations (Regulation (EC) No. 1272/2008).

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product Identifier:	**Kettle Redi®**
1.2 Synonyms:	
1.3 Relevant Uses:	**Food use**: for use as a processing aid for brewing beer.
1.4 Supplier:	**John I. Haas, Inc.**
1.5 Emergency Contact Details:	1600 River Road, Yakima, WA 98902 Emergency phone: +1 509 469 4000 (08:00am – 5:00pm Mon-Fri, PST time) Email: info@johnihaas.com

2. HAZARDS IDENTIFICATION

2.1 Classification — According to Regulation (EC) 1272/2008 [CLP]:
Skin Irritation Category 2 Eye Irritation Category 2
Skin Sensitization Category 1

2.2 Label Elements: Pictogram

Signal word: Warning Hazard statements:
H315 Causes skin irritation.
H317 May cause an allergic skin reaction. H319 Causes serious eye irritation.

Precautionary statements:
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.

2.3 Other Hazards: This product is a bittering ingredient for beer. It is therefore extremely bitter. Ingestion of a large dose may cause irritation of mouth, throat and digestive tract.

3. COMPONENTS/INFORMATION ON INGREDIENTS

Component	EINECS no.	Conc. of the component	CAS no.
Hop extract	232-504-3	Balance	8060-28-4
Rho-isohumulones		40 +/- 2 %	25522-96-7

4. FIRST AID MEASURES

4.1 Description of First Aid Methods:

Inhalation: Rinse nose and mouth with water. Obtain medical attention if discomfort continues.

Skin contact: Wash skin thoroughly with soap and water

Eye contact: Wash eye with plenty of water. Obtain medical attention if irritation persists

Oral Ingestion: Rinse mouth out with water and drink a portion of water (ca. 200 ml). Vomiting may occur but should not be induced Consult a physician if any symptoms persist.

4.2 Most Important Symptoms and Effects: Skin and eye irritation.

4.3 Indications of Immediate Medical Attention or Special Treatment: Action is indicated in 4.1 above.

5. FIRE AID MEASURES

5.1 Extinguishing media:	Carbon dioxide, dry powder, foam.
5.2 Special Hazards from Substance:	Contains hop oil. Hop oil is combustible and may give rise to hazardous fumes in a fire
5.3 Advice for Firefighters:	Wear self contained 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.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling:	Use appropriate protective clothing as indicated in Section 8. Wash hands after. use
7.2 Conditions for Safe Storage:	Store unopened containers at room temperature. Do not allow to freeze. Once opened, store in a cool place and use within 2 days.
7.3 Specific End Uses:	For use as a food ingredient. It should be used in accordance with applicable legislation.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters:	Not applicable.	
8.2 Exposure Controls	Engineering Controls:	Provide adequate ventilation.
	Eye/Face Protection:	Safety glasses if danger of splashing.
	Hand Protection:	PVC, rubber or nitrile gloves if danger of splashing.
	Skin Protection:	If danger of splashing, wear a PVC or rubber apron.
	Respiratory Protection:	Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Thick amber/brown liquid (Some separation may occur)
Odor:	Slight odor of hops.
Odor Threshold:	No data available.
pH:	No data available.
Melting Point:	No clear melting point. Becomes fluid at 40 – 60°C (104 – 140°F), depending on variety.
Boiling Point:	No clear boiling point – decomposes before boiling
Flash Point:	Hop extracts containing hop oils have a flash point of ca. 80 °C (176 °F) or above, depending on variety.
Evaporation Rate:	No data available.
Flammability:	Not flammable
Upper/Lower Flammability:	N/A
Vapor Pressure:	No data available.
Vapor Density:	No data available.
Density:	900 – 1,100 kg.m-3
Solubility in Water:	Insoluble; forms an emulsion
Partition Coefficient:	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Viscosity at 20 °C:	approx. 1 – 3 Pas at 30 – 40 °C (86 – 104 °F)
Explosive properties:	No data available.
Oxidizing properties:	No data available.

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 Reactions	None known.
10.4 Conditions to Avoid:	Keep container closed when not in use; avoid high temperatures.
10.5 Incompatible Materials:.	None known.
10.6 Hazardous Decomposition Products:	None known.

11. TOXICOLOGICAL INFORMATION

Hop extracts have a long history of safe use as a beer ingredient. Substance has not been fully tested. Data below are for the ingredient hop extract. Read-across from data for isohumulones indicates the same hazard classifications for rho-isohumulones and for hop extract.

11.1 Acute Toxicity:	Typical hop extracts are not classified as hazardous. Estimated ATE values (oral, dermal) are > 2000 mg/kg bw.
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 Sensitization Category 1.
11.5 Germ Cell Mutagenicity	OECD Guideline 471 (Bacterial Reverse Mutation Assay) not mutagenic. Bacterial Reverse Mutation Assay on 40 % rho iso alpha 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 recognized 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 hazardous

12. ECOLOGICAL INFORMATION

12.1 Toxicity:
Substance has not been fully tested. Data below are for the ingredient hop extract. Read-across from data for isohumulones indicates the same hazard classifications for rho-isohumulones and for hop extract.

Toxicity to fish: Carassius auratus (goldfish) - Etude pharmacologique de l'action du lupulin et de la fleur d'organer sur le poisson. Pharmaceutica acta Helvetiae (1953) 28(7-8), pp.183-206: lowest dose causing adverse effects estimated by calculation as ca. 80 mg/l.

Toxicity to Daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) – >5.8 mg/l – 48 h. NOEC – Daphnia magna – ca. 2.2 mg/l – 48 h.

Toxicity to freshwater algae: EC50 – 42.7 mg/l – 48 h. NOEC – 12.5 mg/l – 72 h.

12.2 Persistence and Degradability:	Hop extract: Ultimate biodegradation (natural product).
12.3 Bioaccumulative Potential:	Hop extract: Natural product, not expected to bioaccumulate
12.4 Mobility in Soil:	Hop extract: Log Koc 1.7 – <4.5 (modelling by EPISuiteTM) Other information: low hazardous to water. Water contaminant class 1 (self assessment) according to VwVwS from May 17th 1999 appendix 3. Do not discharge onto the ground or into watercourses.
12.5 Results of PBT and vPvB Assessment:	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:	No data available

13. DISPOSAL CONSIDERATIONS

Product disposal:	Dispose in accordance with all applicable local and national regulations.
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

UN-Number:	Non-hazardous for transport
Class:	Non-hazardous for transport
Shipping name:	N/A
Packing group:	Non-hazardous for transport
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 Assessment:	No data available

16. OTHER INFORMATION

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.