Xanthohumol Extract

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product Identifier	**Xanthohumol Extract**
1.2 Synonyms	
1.3 Relevant uses	For food use. Add-on product for the food and pharmaceutical industries.
1.4 Supplier	Hopfenveredlung St. Johann GmbH, Auenstraße 18-20, 85283 Wolnzach, Germany
1.5 Emergency contact details	During regular office hours: +49-8442-66-0 Toxic information München: Telefon: +49-89-19240 / Fax: +49-89-41402467 Email: tox@mri.tum.de

2. HAZARD INDENTIFCATION

2.1 Classification

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

Skin Irritation Category 2
Eye Irritation Category 2
Skin Sensitisation Category 1
Long term (chronic) Aquatic Hazard Category 4

2.2 Label elements

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

Hazard pictogram

Signal word: **Warning**

Hazard statements:

H315: Causes skin irritation
H317: May cause an allergic skin reaction
H319: Causes serious eye irritation
H413: May cause long lasting harmful effects to aquatic life

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.
P273: Avoid release to the environment

2.3 Other hazards

None

3. COMPONENTS/INFORMATION ON INGREDIENTS

Xanthohumol-enriched hop extract CAS 6754-58-1 EC no. 614-078-4

The product is a CO_2 extract of the cultivated hop plant *Humulus lupulus*. It is enriched in the hop polyphenol xanthohumol. Xanthohumol content is 20 – 30% m/m; isoxanthohumol 1-3% m/m.

4. FIRST AID MEASURES

4.1 Description of first aid methods:

- **Inhalation** - Move to fresh air
- **Skin contact** - Wash skin thoroughly with soap and water. If any symptoms persist obtain medical attention.
- **Eye contact** - Flood the eye with plenty of water. If any symptoms persist obtain medical attention
- **Oral ingestion** - Drink large amounts of water to dilute. Vomiting may occur but should not be induced. Obtain medical attention if symptoms persist

4.2 Most important symptoms and effects Skin and eye irritation; may cause an allergic skin reaction.

4.3 Indications of immediate medical attention and special treatments needed No special treatments – treat symptomatically.

5 FIRE AID MEASURES

5.1 Extinguishing media Carbon dioxide, dry powder, foam.

5.2 Special hazards arising from substance None anticipated.

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

6. ACCDIENTAL RELEASE MEASURES

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

6.2 Environmental precautions Avoid release into the environment. 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.

6.4 References to other sections See Section 8 for appropriate protective clothing. See Section 13 for disposal.

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

Keep container in a well-ventilated place.
Store in a dry and tightly closed container. Avoid heat and direct sunlight.
Packaging material
Store only in the original container.

Storage class
LGK 11: (*Combustible solids that cannot be assigned to any of the aforementioned.)*

7.3 Specific End Uses For use in the food sector. It should be used in accordance with the applicable food regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters Not applicable.

8.2 Exposure Controls:

- **Engineering Controls** - Not required
- **Eye/Face Protection** - Safety goggles
- **Hand Protection** - PVC, rubber, latex or nitrile gloves
- **Skin Protection** - Not normally required. Long-sleeved workwear recommended to avoid accidental skin contact.
- **Respiratory Protection** - Not normally required

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Physical state	Powder
b) Color	Yellow to dark green
c) Odor	Characteristic
d) Melting point/Freezing point	Solid at room temperature.
e) Boiling point	Not practical to measure
f) Flammability	Non-flammable.
g) Lower and upper explosion limit	N/A
h) Flash point	N/A
i) Auto-ignition temperature	N/A
j) Decomposition temperature	No hazardous decomposition when used for its intended use
k) pH	Not practical to measure – practically insoluble in water
l) Kinematic viscosity	N/A
m) Solubility	Practically insoluble in water
n) Partition coefficient n-octanol/water (log value)	Xanthohumol log P_{ow} is estimated as 5.43
o) Vapor pressure	Not practical to measure

p) Density [kg/m³]	N/A – not specified for a powder
q) Relative vapor density	Not practical to measure
r) Particle characteristics	Not practical to measure
9.2 Other information	N/A

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	No safety-relevant information available. Oxidation-promoting conditions such as heat and UV light have a quality-reducing effect. Avoid high temperatures. Keep container closed when not in use.
10.5 Incompatible Materials	None known
10.6 Hazardous Decomposition Products	None known

11. TOXICOLOGICAL INFORMATION

Read across from similar substance Hop Extract CAS: 8060-28-4 EC No . 232-504-3:

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 Sensitisation Category 1.
11.5 Germ Cell Mutagenicity	OECD Guideline 471 (Bacterial Reverse Mutation Assay) 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

2.1 Ecotoxicity

Read across from similar substance Hop Extract CAS: 8060-28-4 EC No . 232-504-3:
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.

Test data on substance (xanthohumol-enriched hop extract):
Tap water saturated with xanthohumol extract (TOC 149 mg/L): Daphnia test of water saturated with XN extract. Result: GD value = 1

Read across from similar substance Hop Extract CAS: 8060-28-4 EC No . 232-504-3:

12.2 Persistence and Degradability

Ultimate biodegradation (natural product)

12.3 Bioaccumulative Potential

Natural product, not expected to bioaccumulate

12.4 Mobility in Soil

Log K_{oc} 1.7 – <4.5 (modelling by EPISuite™)

12.5 Results of PBT Exposure:

This substance 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 Endocrine disrupting properties

This substance has not been assessed as an endocrine disrupting substance.

12.7 Other adverse effects

None known.

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	N/A
14.3 Transport Hazard Class	Non-hazardous for transport
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 1 August 2017.*
15.2 Chemical Safety Assessments	N/A – for food use

16. OTHER INFORMATION

a) Revision information — Updated according to EU 2020/878

b) Abbreviations

CAS Chemical Abstracts Service
CLP Classification, Labelling and Packaging Regulation (EC) no. 1272/2008
EC European Community/Commission
PBT Persistent, Bioaccumulative and Toxic
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) no. 1907/2006
vPvB very Persistent, very Bioaccumulative

c) Key literature references and sources for data:

- REACH registration dossier for EC 207-405-3
- Daphnia test on tap water saturated with xanthohumol-enriched hop extract
- ChemSpider www.chemspider.com for xanthohumol $logP_{0w}$

d) Method used for classification of mixtures:

- Skin Irritation Category 2: Read-across from Hop Extract CAS: 8060-28-4 EC No . 232-504-3
- Eye Irritation Category 2: Read-across from Hop Extract CAS: 8060-28-4 EC No . 232-504-3
- Skin Sensitisation Category 1: Read-across from Hop Extract CAS: 8060-28-4 EC No . 232-504-3
- Aquatic Chronic Category 4: Daphnia test on tap water saturated with xanthohumol extract: failure to achieve a concentration that is toxic. Assign Category Chronic 4: *Cases when data do not allow classification under the above criteria but there are nevertheless some grounds for concern. This includes, for example, poorly soluble substances for which no acute toxicity is recorded at levels up to the water solubility* (CLP)

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