



NemOmex Nematicide

SAFETY DATA SHEET

Section 1: Identification of the substance/mixture and of the company/undertaking

- 1.1. **Product name** : NemOmex Nematicide
Identification : EPA Reg. No. 82572-1-86868
CAS number : 68990-67-0
EINECS number : 273-620-4
USA (FDA) : E999 21 CFR 172.510. FEMA GRAS NUMBER 2973.
- 1.2. **Relevant identified uses of substance or mixture and uses advised against.**
Wetting agent.
- 1.3. **Details of supplier for the safety data sheet.**
Omex Agrifluids, Inc.
1675 Dockery Avenue
Selma, CA 93662
- 1.4. **Emergency telephone number.**
1-800-424-9300

Section 2: Hazards identification

- 2.1. **Product definition:**
Quillaja saponaria wood extract liquid.
- 2.2. **Classification of the substance or mixture.**
According to Directive criteria, 1999/45/EC and 67/548/EEC the following amendments thereof:
- Xi** : Irritant.
R Phrases : R36 Irritating to eyes.
S Phrases : S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Regulation criteria 1272/2008 (CLP/GHS):



- Hazard Statements** : warning.
: H320. Causes eye irritation.

Precautionary Statements:

- P264 : Wash with water the parts of your body that had contact with the product.
- P280 : Wear protective gloves/protective clothing/eye protection/face protection.
- P305+P351+P338 : IF IN EYES. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so, continue rinsing.
- P314 : Get medical advice/attention if you feel unwell.
- P362 : Take off contaminated clothing and wash before reuse.

P501 : Dispose of contents/container in accordance with applicable regulations.

Special Provisions : Use caution when opening the package, the product may build pressure and splashing when removing the lid.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.3 Other hazards

Substance meets the criteria for PBT : not listed in ESIS PBT list according to Regulation (EC) No. 1907/2006, Annex VIII

Substance meets the criteria for vPvB : not listed in ESIS PBT list according to Regulation (EC) No. 1907/2006, Annex VIII

SECTION 3: Composition/information on ingredients

3.1. Product name : **NemOmex Nematicide**

3.2. Identifier : **QUILLAJA SAPONARIA WOOD EXTRACT LIQUID**

CAS number: 68990-67-0

USA FDA 21 CFR 172.510.

FEMA GRAS NUMBER 2973

EINECS NUMBER: 273-620-4

Classification : Liquid. Regulation (EC) No. 1272/2008 [CLP/GHS]: Eye irritant, H320 67/548/EEC[DSD]: Xi: R36

Additives : None

Purity : 99.9 % QUILLAJA SAPONARIA.

Section 4. First aid measures

4.1. Description of first aid measures

In case of skin contact : Rinse skin with water/shower, take off contaminated clothing and wash before reuse.

In case of eyes contact : Rinse cautiously with water for several minutes. In case of irritation, seek medical advice.

In case of ingestion : If swallowed, wash out mouth with water; never give anything by mouth to an unconscious person.

In case of inhalation : First aid is not normally required.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact : May cause irritation.

Eyes contact : Causes eye irritation.

Ingestion : May cause irritation to mouth, throat and stomach.

Inhalation : May cause irritation to respiratory system when heated at 60 °C or above.

4.3. Indication of any immediate medical attention and special treatment needed

If after applying the first aid measures, the person feels unwell go to the doctor/physician.

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media : Not applicable because not a flammable liquid.
Unsuitable extinguishing media : Not applicable because not a flammable liquid.

5.2 Special hazards arising from the substance or mixture

This product does not undergo spontaneous decomposition. Typical combustion products are carbon monoxide, carbon dioxide, nitrogen and water.

5.3 Advice for fire-fighters

Irritant, nonflammable, water soluble, upon contact with water pressure generates foam. Do not inhale gases created by fire.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear rubber gloves, mask and protective lens during spill containment. All clothes used during spill containment should be washed to prevent eye or skin contact.

6.2 Environmental precautions

Prevent discharge into environment.
Do not discharge into rivers, lakes or sea.

6.3 Methods and material for containment and cleaning up

Contain spills and leaks with any environmentally friendly commercial absorbent. Sweep up or vacuum up spillage and collect product in suitable container for disposal. Rinse residue with water.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Use suitable protective clothing; wear rubber gloves and protective lens during product handling. Wash hands after use.

7.1.1 Instruction for fire and explosion protection

This product does not undergo spontaneous decomposition. Typical combustion products are carbon monoxide, carbon dioxide, nitrogen and water.

7.2 Conditions for safe storage including any incompatibilities

Avoid direct sunlight. Store in a dry place at 5-25 °C and ventilated area. Keep tightly closed.

7.2.1 Further instructions for stock-keeping

Quillaja liquid extract is corrosive to non inox iron and steel, copper.

7.2.2 Storage class

12 (nonflammable liquid in a nonflammable container, Self-classification) Non-reactive and very stable.

7.3 Specific end use (s):

Natural foaming and surfactant agent.

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

Not listed in IFA database.

8.2 Exposure controls:

Eye protection : Wear safety goggles
Protection for skin : Use suitable protective clothing

Protection for hands:	:	Wear safety-gloves
Thermal hazards:	:	None
Environmental exposure controls	:	Have available spill/leaks absorbent materials.

Section 9: Physical and Chemical Properties

9.1. Information on basis physical and chemical properties

Appearance and color	:	Liquid, dark red-brown
Odor	:	Characteristic, bittersweet
Odor threshold	:	Not applicable
pH	:	3.7- 4.1
Melting point/freezing point	:	Not available
Initial boiling point and boiling range	:	P = 1atm, the b.p. is 105 ° to 107 °C.
Solid/gas flammability	:	Not applicable
Upper/lower flammability or explosive limits	:	Not applicable
Vapor density	:	Not available
Flash point	:	Not available
Evaporation rate	:	Not available
Vapor pressure	:	Not available
Relative density	:	≥ 1.14
Solubility in water	:	99.9 %
Lipid solubility	:	Not applicable
Partition coefficient (n-octanol/water)	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Not available
Viscosity	:	Not available
Explosive properties	:	Product does not explode
Oxidizing properties	:	Not available

9.2. Other information

No additional information.

Section 10. Stability and Reactivity

10.1. Reactivity

No specific test data related to reactivity is available for this product or its ingredients.

10.2. Chemical stability

The product is stable under recommended storage conditions.

10.3. Possibility of hazard reactions

None known to Omex Agrifluids, Inc. under normal conditions of storage and handling.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

None known to Omex Agrifluids, Inc.

10.6. Hazardous decomposition products

None known to Omex Agrifluids, Inc.

Section 11: Toxicological Information

11.1. Information on toxicological effects

acute toxicity	
Rat, oral:	LD50 oral > 5000 mg/kg (Rattus norvegicus) EPA Class IV
Rat, dermal:	LD50 dermal > 4000 mg/kg (Rattus norvegicus)
Rat, eye:	EPA Class II (Rattus norvegicus)
skin corrosion/irritation	: sensitization study performed by third laboratory showed no skin sensitization potential (contact allergies).
serious eye damage/irritation	: Irritation study (Ocular Irritation Test) performed by an independent laboratory classified the product as a borderline minimal/mild ocular irritant.
respiratory or skin sensitization	: If you breath the liquid, cause difficulty breathing through the nasal duct inflammation.
germ cell mutagenicity	: There is no information about it.
carcinogenicity	: Not carcinogen. Long-term study in rats (DRAKE, J. et al., 1982). Long-term study in mice (PHILLIPS, JC et al., 1978).
reproductive toxicity	: Not listed in PAN Reproductive and Developmental Toxicity Database.
STOT-single exposure	: Harmful
STOT-repeated exposure	: Harmful
aspiration hazard	: Instant body reaction (rejection), nasal passage swelling.
Information on likely routes of exposure	: Inhalation, skin/eye exposure.
Symptoms related to the physical, chemical and toxicological characteristics	: No compound related effects proven in long-term studies in rats (DRAKE, J. et al., 1982) and mice (PHILLIPS, J.C. et al., 1978).
Delayed and immediate effects as well as chronic effects from short and long-term exposure	: Chronic toxicity: duration ≥ 18 months, (DRAKE, J. et al., 1982; PHILLIPS, J.C. et al., 1978).
Interactive effects	: Not available because data never needed before.
Other informations	: No other information available because phase-in substances; substances manufactured or imported at 1-100 tonnes per year; deadline for registration: 31-05-2018

Section 12: Ecological Information

12.1. Toxicity

Avian acute:

The acute oral LD50 in northern bobwhite (*Colinus virginianus*) was greater than 2250 mg Quill Extract/kg body weight, the highest single dose tested. The no-mortality level in northern bobwhite (*Colinus virginianus*) was 1350 mg/kg, and the no-observed-effect level (NOEL) was 292 mg/kg based food aversion, erect posture, and/or ruffled appearance. (GALLAGHER, S.P. and J.B. BEAVERS, 2004).

Avian dietary:

No clinical signs of toxicity were reported for chicks at any dose level. Based on reduced food intake a subsequent weight gain, the LOAEL was 0,9% and the NOAEL was 0,3% Quillaja saponins in the die (JENKINS & ATWAL, 1994)

Fish:

A freshwater fish LC50 study (96-hour static-renewal bioassay) with common carp (*Cyprinus carp*) showed no mortality, and all fish appeared normal during the test. The 96-hour LC50 for common car in this test was >100 mg/l. (Microquim S.A., 2010)

Shrimp:

Kuruma shrimp (*Penaeus japonicus*) were exposed to seven levels of purified Quillaja saponin. The 24 48-, 72-, and 96-hr EC50s were 27.08, 20.83, 18.91, and 18.14 mg/l-1, respectively. The studies indicate potential adverse effects on aquatic invertebrates with a chronic exposure of at least 36 days at ≥0. mg/ l-1. (CHEN et al., 1996).

Plants:

Saponins are widespread in plants and triterpenoid saponins (present in *Quillaja saponaria*) are w known from many cultivated crops like soybeans, chick peas, peanuts and spinach (OAKENFULL, 1981)

Insects:

Commercial saponin from *Quillaja saponaria* bark caused 100% larval mortality in *Aedes aegyptian* *Culex pipiens* after 1 and 5 days at a dosage of 800 and 1000 mg/l respectively (PELAH et al., 2002). 24 hr LC50 is 58 ppm for larval *Culex fatigans* (TABASSUM et al., 1993).

12.2. Persistence and degradability

Surrogate data for saponins show that they have a short half-life in soil and are readily degraded by microorganisms.

Soil aerobic metabolism half life is 7.73 days, (CHEN et al., 1996). Aquatic half life 0.66 days using saponins extracted from berries of the Endod plant *Phytolacca dodecandra* (MØLGAARD et al., 2000).

Aerobic Biodegradability (OECD 301d): NemOmex Nematicide is 100% biodegradable at a concentration of 2 mg/l after 28 days (Microquim, 2010).

Anaerobic Biodegradability (OECD311): NemOmex Nematicide is biodegradable in the range of 70-80% within 60 days. (Eurofins, 2013).

12.3. Bioaccumulative potential

NemOmex Nematicide is expected to desorb fairly rapidly from soil and not bioaccumulate.

12.4. Mobility in soil

NemOmex Nematicide is expected to desorb fairly rapidly from soil.

12.5. Results of PBT and vPvB assessment

Substance not listed in ESIS PBT List.

12.6. Other adverse effects

Not known to Omex Agrifluids, Inc.

Section 13: Disposal Considerations

13.1. Waste treatment methods

Dispose of in accordance to all local regulations.

Section 14: Transport Information

14.1. No limitations to transport known

Product is not flammable, not corrosive, not explosive and not radioactive.

Section 15: Regulatory Information

15.1. Regulatory status

European Union: Food additive for non-alcoholic drinks number E999.

USA: FDA Title 21CFR 172.510. Flavoring agents and related substances. FEMA GRAS number 2973.

Water-dangerous-class 1 (light water-dangerous) according to Umweltbundesamt (Germany, Environmental Ministry).

15.2. Chemical safety assessment



Section 16: Other Information

This safety data sheet cannot cover all possible situations which the user may experience during handling. Each aspect of operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to employees or customers. In no way does it represent a guaranty on the properties described herein.

Rev.01. February 23, 2016.

References literature:

ECHA: <http://echa.europa.eu/web/guest/regulations/reach/registration>

ESIS LIST: <http://esis.jrc.ec.europa.eu/index.php?PGM=pbt>

IFA http://limitvalue.ifa.dguv.de/Webform_gw.aspx

http://www.epa.gov/pesticides/chem_search/reg_actions/registration/decision_PC-097095_11-Sep-09.pdf

CHEN J.C, CHEN K.W. and J.M. CHEN (1996): Effects of saponin on survival, growth, molting and feeding of *Penaeus japonicus* juveniles. *Aquaculture* 144 (1-3): 165-175.

DRAKE J. et al. (1982): Long term toxicity study of quillaja extract in rats. *Food and Chemical Toxicology* 20 (1): 15-23.

FRANCIS G (2001): Effect of low dietary levels of saponins on two common culture fish - common carp (*Cyprinus carpio* L.) and Nile tilapia (*Oreochromis niloticus*). PhD Thesis University of Hohenheim, Germany. Department IV – Agriculture Sciences II

FRANCIS G , MAKKAR HPS & BECKER K (2002): Effects of cyclic and regular feeding of a Quillaja saponin supplemented diet on growth and metabolism of common carp (*Cyprinus carpio* L.), *Fish Physiology and Biochemistry* 24: 343–350.

GALLAGHER S.P. and J.B. BEAVERS (2004), QL Agri: An acute oral toxicity study with the Northern bobwhite (*Colinus virginianus*). Wild Life International Ltd: Project N°581-101, Easton MD.

JENKINS K. J. and A. S. ATWAL (1994): Effect of dietary saponins on fecal bile acids and neutral sterols, and availability of vitamins A and E in the chick. *Journal of Nutritional Biochemistry* 5: 134-137.

MØLGAARD P. et al. (2000): Biodegradability of the Molluscicidal Saponins of *Phytolacca dodecandra*. *Regulatory Toxicology and Pharmacology* 32 (3): 248-255

OAKENFULL, D. (1981): Saponins in Food - A Review. *Food Chemistry* 7 (1): 19-40..

PELAH, D. et al. (2002): The use of commercial saponin from *Quillaja saponaria* bark as a natural larvicidal agent against *Aedes aegypti* and *Culex pipiens*. *J. Ethnopharmacology* 81 (3): 407-409.F331

PHILLIPS, J.C. et al. (1978): Long term toxicity study of quillaja extract in mice. *Fd Cosmet Toxicol* 17: 23-27.

TABASSUM, R. et al. (1993): Toxicity and abnormalities produced by plant products (hydrocarbons and saponin) and dimethoate (Perfekthion) against fourth instar larvae of *Culex fatigans*. *Proceeding of Pakistan Congress of Zoology*, 13: 387-393.

Biodegradability aerobic (OECD 301D): Rapid Biodegradability of Andean Q Ultra. Microquim SA, Study N° MABR 6 - 30106. Buenos Aires, 2010.

Biodegradability anaerobic (OECD311): Anaerobic Biodegradability on "Andean QDP Ultra Organic". Eurofins biolab: Study program 2012/2410SAMi.No. PCSA2012017901. Milano,2013.

Fish Acute Toxicity Test (OECD 203). Acute toxicity (96hrs) of Quillaja Extract in fish (*Cyprinus carpio*). Microquim SA, Study No. BIBR6-30993.Buenos Aires, 2010.

HRIPT Study: BioScreen Testing Services, Study No. 08-016A and 08194A. Ocular Irritation Report No. 582071. Torrance,CA, 2008.

Ocular Irritation Test (OIT) BioScreen Testing Services: Evaluation of Quillaja Ultra. Ocular Irritation Report No. 582072, Torrance,CA, 2008.

Pictogram: <http://www.unece.org/trans/danger/publi/ghs/pictograms.html>

<http://www.umweltbundesamt.de/wgs/vwvws.htm>

PAN Pesticide Database: http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35714#Toxicity

Abbreviations and acronyms

b.p.	Boiling point
CAS	Chemical Abstract Service
CEN	European Committee for Standardization
CFR	Code of Federal Regulations
CLP	Classification, Labeling and Packaging
DPD	Dangerous Preparations Directive
DSD	Dangerous Substance Directive
EC	European Communities
EEC	European Economic Community
EINECS	European Inventory of Existing Commercial Chemical Substances
ESIS	European chemical Substances Information System
FDA	US Food and Drug Administration

FEMA	Flavor and Extract Manufacturers Association
GHS	Globally Harmonized System
GRAS	Generally Recognized as Safe
IFA	Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung
NIOSH	National Institute for Occupational Safety and Health
P	Pressure
PBT	Persistent, Bioaccumulative and Toxic