



QL Agri®

OMRI Listed

SAFETY DATA SHEET

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

- 1.1. **Identification** : Quillaja saponaria EXTRACT
Product name : QL Agri®
DKI Product Code : 30-1-03
CAS number : 68990-67-0
EINECS number : 273-620-4
USA (FDA) : E999 21 CFR 172.510. FEMA GRAS NUMBER 2973.
OMRI Listed : Dk1-3189

1.2. **Relevant identified uses of substance or mixture and uses advised against.**

Recommended use of the chemical: Wetting agent

Restrictions on uses: Not available.

1.3. **Details of supplier for the safety data sheet.**

Supplier:		Manufacturer:
Desert king International LLC 7024 Many Circle, San Diego, CA, 92154, USA Tel: 1+(619) 429 5222 Fax: 1+(619) 429 5001 info@desertking.com www.desertking.com	Desert King Chile S.A. Avenida Industrial 1970 Quilpué, Chile Tel: (56-32) 292 5020 Fax: (56-32) 292 4221 www.desertking.cl	DESERT KING DE MÉXICO, S. DE R.L. DE C.V. Camino Vecinal No. 11500, Col. La Cuestecita, Tijuana, Baja California, México. C.P. 22664, Tel: (664) 636 1124, Fax: (664) 636 1139

1.4. **Emergency telephone number.**

USA: 800-321-6742 (OSHA)

CHILE CITUC: (02)635-3800

MÉXICO: 01-800-681-9531

Section 2: Hazards identification

2.1. **Product definition:**

Quillaja saponaria wood extract liquid.

2.2. **Classification of the substance or mixture.**

According to Regulation criteria 1272/2008 (CLP/GHS): Eye irrit. 2. H319. Causes serious eye irritation.



: warning.

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 : QL *Agri*®

DKI Product Code : 30-1-03

3.2. Identifier : **Quillaja saponaria Wood EXTRACT**

CAS number: 68990-67-0

USA FDA 21 CFR 172.510.

FEMA GRAS NUMBER 2973

EINECS NUMBER: 273-620-4

OMRI Listed: dk-10484

Classification : Liquid. Regulation (EC) No. 1272/2008 [CLP/GHS]: Eye irrit. 2. H319. Causes serious eye irritation.

Additives : None

Purity : 100 % Quillaja saponaria extract.

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

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	:	100.0 %
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 Desert King international under normal conditions of storage and handling.



- 10.4. Conditions to avoid**
None.
- 10.5. Incompatible materials**
None known to Desert King International.
- 10.6. Hazardous decomposition products**
None known to Desert King International.

Section 11: Toxicological Information

11.1. Information on toxicological effects

Quillaja saponaria saponins:

Acute toxicity,

- | | |
|-----------------------------------|--|
| Rat, oral | : LD50 oral > 5000 mg/kg body weight (Rattus norvegicus)
EPA Class IV.
Source: third party laboratory |
| Rat, dermal | : LD50 dermal > 4000 mg/kg body weight (Rattus norvegicus).
Source: third party laboratory |
| Rat, eye | : Moderate irritation. EPA Class II (Rattus norvegicus).
Source: third party laboratory |
| Skin corrosion/irritation | : Sensibilization 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 breathe 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. |
| Lethal Dose 50% (LD50) | : An acute toxicity study of Quillaja saponins in fish, where a purified Quillaja product containing >90% of saponins (Supersap) was given by intragastric route, determined an LD50 greater than 500 mg of product / Kg body weight (BW) [Smit00]. |
| Fish, oral | : A short-term oral toxicity study using Quil A (Quillaja saponin containing 90% of saponin) saponins, by orally (intragastric) in yellowtail fish, to different doses, 0.5; 5 and 50 mg f oproduct / Kg BW, found no injury at the administered doses [Ninomiya et al, 1995b]. |
| Fish, epithelium | : Another study to evaluate the effects of Quillaja saponin extract on the productive response of Chinook salmon and rainbow trout, used a Sigma QBS product containing more than 65% of Quillaja saponin orally at levels of 1500 and 3000 mg of product / Kg of feed (ppm). These levels |



	represented approximately 14 and 21 mg Quillaja saponin / Kg BW. As a result, lesions of the epithelium were observed in the brush of the small intestine of fish at both 1500 and 3000 ppm of product [Bureau et al, 1998].
STOT-single exposure	: STOT SE 3
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

Section 12: Ecological Information

Quillaja saponaria saponins:

Avian acute	: LD50 ≥ 2250 mg Quillaja Extract/kg of body weight. No mortality level: 1350 mg/kg of body weight. No-observed-effect level (NOEL) was 292 mg/kg of body weight. Duration of exposure: 84 weeks Species: northern bobwhite, <i>Colinus virginianus</i> Sources literature value
Avian dietary	: LOAEL: 0.9% NOAEL: 0.3% Duration of exposure: 4 weeks Species: chicks Sources literature value
Fish	: Acute: LC50: >100 mg/L Duration of exposure: 96-hour Species: common carp (<i>Cyprinus carpio</i>) Sources: third party laboratory Chronic: Evaluation: exposure to dietary saponins may be fish reproductive toxicants at 300 mg/kg and endocrine disruptors at 700 mg/kg. Species: Nile tilapia (<i>Oreochromis niloticus</i>) Source: literature value



Shrimp : EC50: 27.08, 20.83, 18091, 18.14 mg/L
Duration of exposure: 24 h, 48 h, 72 h, 96 h
Species: Kuruma shrimp (*Panaeus japonicus*)

Chronic:
Adverse effects: ≥ 0.5 mg/L
Duration of exposure: > 36 days
Evaluation: no toxicity expected
Source: literature value

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

Insects : LC50: 58 mg/L; 100 % larval mortality at 800 mg/L, 1000 mg/L
Duration of exposure: 24 h, 1 day, 5 days
Species: *Aedes aegypti* and *Culex pipiens*
LC50 is 58 ppm for larval *Culex fatigans*
Source: literature value

12.2. Persistence and degradability

Quillaja saponaria:

Aerobic Biodegradability:

Value: 100%

Concentration of 2 mg/L

Duration: 28 days

Method: OECD 311

Source: third party laboratory

Evaluation: completely biologically biodegradable

Anaerobic Biodegradability:

Value: 70-80%

Duration: 60 days

Method: OECD311

Source: third party laboratory

Evaluation readily biodegradable

12.3. Bioaccumulative potential

Quillaja Extract is expected to desorb fairly rapidly from soil and not bioaccumulate.

12.4. Mobility in soil

Quillaja Extract 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 Desert King.

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.

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

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

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

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

SDS: According Commission Regulation (EU) 2015/830.

Regulation (EU) 1272/2008 [CLP/GHS].

Regulation (EC) No 1907/2006 (REACH)

Directive 67/548/EEC [DSD]



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.

ECHA. Guidance on the compilation of safety data sheets, Draft (Public) Version 4.0, April 2020. European Chemicals Agency, 2020.

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.

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
ECHA	European Chemicals Agency
EEC	European Economic Community
E50	Half Maximal Effective Concentration
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
LD50	Median Lethal dose
LC50	Median Lethal Concentration
LOAEL	Lowest Observed Adverse Effect level
NOAEL	No Observable Adverse Effect level
NIOSH	National Institute for Occupational Safety and Health
P	Pressure
PBT	Persistent, Bioaccumulative and Toxic
STOT SE	Specific Target Organ Toxicity Simple Exposure

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