

## Safety Data Sheet(SDS)

### 1. Identification of the substance/mixture and of the company/undertaking

- 1) Product identifier : US-EPA registration name : Lambdastar Urban Cap 9.7% CS (EPA reg. no.: 71532-33)  
Brand name : Lambdastar Ultra Cap 9.7% CS (For Distributor)
- 2) Relevant identified uses of the substance or mixture and uses advised against
  - Relevant identified uses  
Insecticide
  - Uses advised against
- 3) Supplier information
  - Company name [Manufacturer / Supplier]  
Company : LG Chem, Ltd.  
Address : 19, Ijin-ro, Onsan-eup, Ulju-gun, Ulsan, Republic of Korea  
Emergency number : 82-52-231-5208 (International), 1 201-816-2119 (North America)
  - Company name [Distributor]  
Company : FarmHannong America, Inc  
Address : 910 Sylvan Ave, STE 160, Englewood Cliffs, NJ 07632, USA  
Emergency number : 82-52-231-5208 (International), 1 201-816-2119 (North America)

### 2. HAZARD IDENTIFICATION

- 1) Hazard classification
  - Acute toxicity(Inhalation:Dust/mist) Category 4
  - Serious eye damage/eye irritation Category 2B
  - Carcinogenicity Category 1B
  - Germ cell mutagenicity Category 1B
  - Reproductive toxicity Category 2
  - Hazardous to the aquatic environment, short-term (acute) Acute 1
  - Hazardous to the aquatic environment, long-term (chronic) Chronic 1
- 2) Allocation label elements  
Hazard pictograms



- DANGER

Hazard statements

- H320 Causes eye irritation
- H332 Harmful if inhaled
- H340 May cause genetic defects
- H350 May cause cancer
- H361 Suspected of damaging fertility or the unborn child
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

Precautionary statements

- Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing mist/vapours/spray.
- P264 Wash eye, contact areas thoroughly after handling.
- P271 Use only outdoors or in a wellventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

- Response

- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P312 If you feel uncomfortable, receive medical institutions and doctors' consultation.
- P337+P313 If eye irritation persists: Get medical advice/attention.

- Storage

- P405 Store locked up.

- Disposal

- P501 Dispose of contents and containers according to the legislation of the waste

3) Other hazards

o Product NFPA Level

Health	Flamm ability	Reactivity
2	0	0

( ※ 0 = Insufficient , 1 = Slightly , 2 = ordinary , 3 = Highness , 4 = Very high)

**3. Composition/Information on ingredients**

Components	Common name	CAS No.	PCT(wt%)
λ-Cyhalothrin	λ-Cyhalothrin	91465-08-6	9.7

Solvent naphtha (petroleum), light arom.	Solvent naphtha (petroleum), light arom.	64742-95-6	5.5
Bronopol	Bronopol	52-51-7	0.039
Propylene glycol	Propylene glycol	57-55-6	4
Water	Water	7732-18-5	76.211
Total sum of Trade secret substances 1~7			4.55

#### 4. FIRST AID MEASURES

##### 1) Following eye contact

- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Seek immediate medical assistance.

##### 2) Following skin contact

- For minor skin contact, avoid spreading material on unaffected skin.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Seek immediate medical assistance.

##### 3) Following inhalation

- Administer oxygen if breathing is difficult.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Give artificial respiration if victim is not breathing.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Keep victim warm and quiet.
- Move to fresh air.
- Seek immediate medical assistance.

##### 4) Following ingestion

- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Seek immediate medical assistance.

##### 5) Advice to physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Exposures require specialized first aid with contact and medical follow-up .

#### 5. FIRE FIGHTING MEASURES

##### 1) Suitable (and unsuitable) extinguishing media

- o Suitable extinguishing media
  - CO2.
  - Dry chemical.
  - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
  - Use dry sand or earth to smother fire.
  - Water spray.

- Unsuitable extinguishing media

- Direct water.

2) Special hazards arising from the substance or mixture

- Pyrolytic product

- Can decompose at high temperatures forming toxic gases.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

- Risk of fire and explosion

- Containers may explode when heated.
- Some may burn but none ignite readily.

- Other

- Contact may cause burns to skin and eyes.
- Fire may produce irritating and/or toxic gases.
- Inhalation of Asbestos dust may have a damaging effect on the lungs.
- Some liquids produce vapors that may cause dizziness or suffocation.

3) Special protective equipment for firefighters

- Dike fire-control water for later disposal; do not scatter the material.
- Evacuate area and fight fire from a safe distance.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Move containers from fire area if you can do it without risk.
- Rescuers should put on appropriate protective gear.
- Substance may be transported in a molten form.

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## **6. ACCIDENTAL RELEASE MEASURES**

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1) Health considerations and protective equipment

- Clean up spills immediately, observing precautions in Protective Equipment section.
- Cover with plastic sheet to prevent spreading.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Isolate hazard area.
- Keep unnecessary and unprotected personnel from entering.
- Please note that materials and conditions to be avoided.
- Prevent dust cloud.
- Stop leak if you can do it without risk.

2) Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.
- Runoff may cause pollution.

3) For cleaning up

- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.
- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Large Spill: Dike far ahead of liquid spill for later disposal.
- Reduce airborne dust and prevent scattering by moistening with water.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
  
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

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**7. HANDLING AND STORAGE**

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1) Precautions for safe handling

- Avoid breathing vapors from heated material.
- CAUTION: High temperature.
- Do not enter storage area unless adequately ventilated.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
  
- Handling refer to engineering control/personal protection section.
- Loosen closure cautiously before opening.
- Please note that materials and conditions to be avoided.
- Use care in handling/storage.
- Use only in a well-ventilated area.

2) Conditions for safe storage (including any incompatibilities)

- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

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**8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

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1) Chemical exposure limits, Biological exposure standard

Components	Occupational exposure limits	ACGIH	Biological standard
λ-Cyhalothrin	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Solvent naphtha (petroleum), light arom.	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Trade secret substances 1	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Trade secret substances 2	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Bronopol	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Propylene glycol	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable

Trade secret substances 3	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Trade secret substances 4	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Trade secret substances 5	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Water	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Trade secret substances 6	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Trade secret substances 7	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable

## 2) Appropriate engineering controls

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

## 3) Personal protection equipment

- Respiratory protection
  - If high frequency of use or exposure, wear air respirator.
  - Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.
- Eye protection
  - Wear suitable protective goggles and face shields.
- Hand protection
  - Wear suitable protective gloves.
- Body protection
  - Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	No data available
Physical state	Liquid
Colour	Light brown
Odour	Aromatic
Odour threshold	No data available
pH	6
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available

Flammability(solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Solubility(ies)	No data available
Vapour density	No data available
Relative density	0.99 ~ 1.05
n-octanol/water partition coefficient	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight(mass)	No data available

## 10. STABILITY AND REACTIVITY

### 1) Stability and hazardous reactivity

- Can decompose at high temperatures forming toxic gases.
- Contact may cause burns to skin and eyes.
- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- Fire may produce irritating, corrosive and/or toxic gases.
- Inhalation of Asbestos dust may have a damaging effect on the lungs.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Some liquids produce vapors that may cause dizziness or suffocation.
- Some may burn but none ignite readily.

### 2) Conditions to avoid

- Heat.
- Ignition source(heat, spark, flame, etc.).

### 3) Incompatible materials

- Combustibles, reducing material.

### 4) Hazardous decomposition products

- Corrosive/toxic fume.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Irritating and/or toxic gas.
- Irritating, corrosive and/or toxic gas.

## 11. TOXICOLOGICAL INFORMATION

### 1) Exposure route information

- o Inhalation
  - Harmful if inhaled
- o Skin Contact
  - Not applicable
- o Eye Contact

- Causes eye irritation

- Ingestion

- Not applicable

## 2) Health hazard information

- Acute toxicity

- Acute toxicity(Oral) PRODUCT : LD50 > 5000mg/kg

- λ-Cyhalothrin : LD50 56 mg / kg experimental species: Rat, Source: NLM;ChemIDPlus
    - Solvent naphtha (petroleum), light arom. : LD50 8,400 mg / kg experimental species: Rat, Source: RTECS
    - Trade secret substances 6 : LD50 45000 mg / kg experimental species: Rat, Source: Rhone-Poulenc
    - Trade secret substances 7 : No data available
    - Trade secret substances 1 : LD50> 20000 mg / kg experimental species: Rat, Source: HSDB
    - Trade secret substances 2 : No data available
    - Bronopol : LD50 180 mg / kg 180 mg / kg experimental species: Rat, Source: ChemIDplus
    - Propylene glycol : LD50 22000 mg / kg Experimental Arts: Rat,, Source: ECHA
    - Trade secret substances 3 : LD50> 17000 mg / kg experimental species: Rat, Source: National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
    - Trade secret substances 4 : LD50> 10000 mg / kg experimental species: Rat, Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
    - Trade secret substances 5 : LD50 3800 mg / kg experimental species: Rat
    - Water : No data available

- Acute toxicity(Dermal) PRODUCT : LD50 > 5000mg/kg

- λ-Cyhalothrin : LD50 632 mg / kg experimental species: Rat, Source: NLM;ChemIDPlus
    - Solvent naphtha (petroleum), light arom. : LD50> 2000 mg / kg experimental species: Rat (OECD Guideline 402, GLP)), Source: ECHA
    - Trade secret substances 6 : No data available
    - Trade secret substances 7 : No data available
    - Trade secret substances 1 : No data available
    - Trade secret substances 2 : No data available
    - Bronopol : LD50 1,600 mg / kg experimental species: Rat, Source: 유독물질정보요약서
    - Propylene glycol : LD50> 2000 mg / kg experimental species: Rabbit, Source: ECHA
    - Trade secret substances 3 : LD50> 2000 mg / kg experimental species: Rabbit, Source: National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
    - Trade secret substances 4 : No data available
    - Trade secret substances 5 : LD50> 16000 mg / kg experimental species: Rabbit
    - Water : No data available

- Acute toxicity(Inhalation:Gases) PRODUCT : Not classified

- λ-Cyhalothrin : No data available
    - Solvent naphtha (petroleum), light arom. : No data available
    - Trade secret substances 6 : No data available
    - Trade secret substances 7 : No data available

- Trade secret substances 1 : No data available
- Trade secret substances 2 : No data available
- Bronopol : No data available
- Propylene glycol : No data available
- Trade secret substances 3 : No data available
- Trade secret substances 4 : No data available
- Trade secret substances 5 : No data available
- Water : No data available
- Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified
  - λ-Cyhalothrin : No data available
  - Solvent naphtha (petroleum), light arom. : LC50 5.160 mg / l 4 hr experiment Species: Rat ((OECD TG 403, GLP) Rat no remarkable clinical signs and no mortalities), Source: ECHA
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : No data available
  - Propylene glycol : No data available
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : No data available
  - Trade secret substances 5 : No data available
  - Water : No data available
- Acute toxicity(Inhalation:Dust/mist) PRODUCT : LC50 > 2.04mg/kg
  - λ-Cyhalothrin : No data available
  - Solvent naphtha (petroleum), light arom. : No data available
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : LC50 ≥0.588 mg / l 4 hr experiment Species: Rat, Source: ECHA
  - Propylene glycol : LC50> 317042 mg / m<sup>3</sup> 2 hr test Species: Rabbit, Source: ECHA
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : No data available
  - Trade secret substances 5 : No data available
  - Water : No data available
- Skin corrosion/irritation PRODUCT : Not classified
  - λ-Cyhalothrin : This substance stimulates the eyes and skin and respiratory system., Source: (ICSC)
  - Solvent naphtha (petroleum), light arom. : Being observed skin irritation when tested in irritation rabbit ((OECD TG 404) Mean erythema score (5 treated animals; 24, 48, 72 hr average) :. 2.56., Source: ECHA
  - Trade secret substances 6 : No data available

- Trade secret substances 7 : No data available
- Trade secret substances 1 : No data available
- Trade secret substances 2 : No data available
- Bronopol : Skin corrosion / irritation test using rabbits (OECD TG404, GLP) is shown as the result of irritation (primary irritation index 6.2), Source: ECHA
- Propylene glycol : primary dermal irritation index (PDII): 0/8, no irritant, Rabbit, OECD TG 404, Source: ECHA
- Trade secret substances 3 : No data available
- Trade secret substances 4 : Reported that rabbit skin irritation., Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>), International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
- Trade secret substances 5 : No data available
- Water : No data available
- o Serious eye damage/eye irritation PRODUCT : Category 2B
  - λ-Cyhalothrin : This substance stimulates the eyes and skin and respiratory system., Source: (ICSC)
  - Solvent naphtha (petroleum), light arom. : None observed significant eye irritation irritant test at the rabbit Not irritating in rabbit (OECD TG 405). Mean conjunctival score (24, 48, 72 hour average): 0.05, Source: ECHA
  - Trade secret substances 6 : If irritation, Source: THOMSON
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : bronopol 5% solution in the eye of the rabbit (solvent: polyethylene glycol 400) for knocking a result, a strong start polarity (appropriately discharge and conjunctival redness and swelling) after one hour off has been reported depression in all the test animals except for one to seven days the Japanese taken place. Judging from these results, bronopol is represented by a corrosive eye irritant, Source: NLM, HSDB
  - Propylene glycol : Rabbit, corneal opacity (0), iris (0.1), conjunctival hyperemia (0.4), conjunctival edema (0), OECD TG 405, Source: ECHA
  - Trade secret substances 3 : Kids STANDARD Draii amount Rabbit Test: 100mg / 1H; Reaction: Mild (light stimulation), Source: Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
  - Trade secret substances 4 : Rabbit Causes mild irritation., Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>), International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
  - Trade secret substances 5 : No data available
  - Water : No data available
- o Respiratory sensitization PRODUCT : Not classified
  - λ-Cyhalothrin : No data available
  - Solvent naphtha (petroleum), light arom. : No data available
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : No data available
  - Propylene glycol : No data available
  - Trade secret substances 3 : No data available

- Trade secret substances 4 : Reported that respiratory sensitization., Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
- Trade secret substances 5 : No data available
- Water : No data available
- Skin sensitization PRODUCT : Not classified
  - λ-Cyhalothrin : No data available
  - Solvent naphtha (petroleum), light arom. : Buehler TEST (406, GLP OECD Guidelines) in Guinea Pig Non-target sensitization, Source: ECHA
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : Skin sensitization test using guinea pig (analogy to OECD TG 406) the result is shown as a non-sensitizer, Source: ECHA
  - Propylene glycol : People / Draize Test: Not irritable, Source: International Programme on Chemical Safety(IPCS INCHEM)(<http://www.inchem.org/>)
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : Reported that skin sensitization in humans Patch-Test., Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
  - Trade secret substances 5 : No data available
  - Water : No data available
- Carcinogenicity PRODUCT : Category 1B
  - λ-Cyhalothrin : No data available
  - Solvent naphtha (petroleum), light arom. : 1B (EU CLP), Source: EU CLP
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : 2.44 (IARC), Source: IARC
  - Trade secret substances 2 : No data available
  - Bronopol : No data available
  - Propylene glycol : No data available
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : No data available
  - Trade secret substances 5 : No data available
  - Water : No data available
- Germ cell mutagenicity PRODUCT : Category 1B
  - λ-Cyhalothrin : Vivo-gene mutation test / bone marrow / dose: 0.8; 3.1; 6.1 MG / KG / positive, structural change, in vivo - all from the micronucleus test / bone marrow, colon crypt epithelial cells polychromatic erythrocytes, bone marrow is polychromatic erythrocytes / Injection amount: 0.8; 3.06; 6.12 MG / KG / training, Source: (NLM;CCRIS)
  - Solvent naphtha (petroleum), light arom. : \*\* EU CLP: 1B
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available

- Trade secret substances 2 : Some Salmonella / micro analysis of the test results negative observation, Source: HSDB
- Bronopol : Dominant lethal Using an in vivo mouse (male and female) test results, voice (according to the method of Bateman AJ and Bateman AJ and Epstein SS) micronucleus test results using the in vivo mammalian erythrocyte, voice (OECD TG 474, GLP) in vivo mammalian unscheduled DNA synthesis using the liver cells (UDS) test, negative (OECD TG 486, GLP), Source: ECHA
- Propylene glycol : in vivo - chromosome aberration test using mammalian bone marrow cells: negative (rat, male) in vitro - reverse mutation test using bacteria: negative (TA92, TA94, TA98, TA100, TA1535, TA1537, that metabolic activation system), Source: ECHA
- Trade secret substances 3 : No data available
- Trade secret substances 4 : I have been a result of the Ames test negative in that there is no in vitro and in vivo genotoxicity data, this material may be concluded that there is no genotoxic potential. Voice in Syrian hamster embryo cells tested., Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>), National Library of Medicine/genetic toxicology(NLM/GENETOX)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?GENETOX>)
- Trade secret substances 5 : No data available
- Water : No data available
- o Reproductive toxicity PRODUCT : Category 2
  - λ-Cyhalothrin : Rat / TDLo - Route: Oral; Injection amount: 5 mg / kg; Duration: between females Multiplex / Toxicity: parental influence - Other effects on male and maternal effects - Other effects, Source: (ICSC)
  - Solvent naphtha (petroleum), light arom. : No data available
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : Administering over two generations, male and female PVA to 0, 2000, 3500, 5000 mg / kg / day dose in Sprague Dawley rats, parents is administering before autopsy from mating to 70 days, 2000, 5000 mg / kg / day since there were no parent households result slight decrease in the average weight males administered the dose observed being, P0, from the F1 generation of male and female fertility, cub survival, growth, long-term weight side effects, why NOAEL (P0, F1, reproductive toxicity ) = 5000 mg / kg / day being, Source: HSDB
  - Trade secret substances 2 : Reproductive toxicity studies using rats results not observed significant abnormality, Source: HSDB
  - Bronopol : Rats second-generation reproductive toxicity test results using (male and female), their parents are not systemic toxicity, reproductive toxicity has been found, but found. NOAEL (three children 1,2) = 200 mg / kg bw / day, NOAEL (parents) = 70 mg / kg bw / day (SOP of the International Research and Development Corporation, GLP) developmental toxicity test results in the high-dose group reduction of food intake and weight gain during pregnancy, fetal weight loss, cardiovascular instrument type or the sternum and malformation of the spine, skeletal deformity. NOEAL (maternal toxicity) = 40 mg / kg bw / day, NOEAL (recordable) = 40 mg / kg bw / day, (EPA OPP 83-3, GLP), Source: ECHA
  - Propylene glycol : Overall the reproductive effects are not observed, mouse, equivalent or similar to Guideline: OECD TG 414, GLP, Source: HSDB, ECHA
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : Some of the test data is not enough there is a validity determination of reproductive toxicity problems, Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
  - Trade secret substances 5 : No data available
  - Water : No data available
- o Specific target organ toxicity single exposure PRODUCT : Not classified
  - λ-Cyhalothrin : That the substance can cause affecting the peripheral nervous system called a seizure disorder and functions, Source: (ICSC)

- Solvent naphtha (petroleum), light arom. : No data available
- Trade secret substances 6 : No data available
- Trade secret substances 7 : No data available
- Trade secret substances 1 : 1.4% neutral solution of polyvinyl alcohol having a molecular weight of more than 100000 appears that it does not preclude appeared to be harmless when topically applied to the eyes of rabbits, healing, Source: HSDB
- Trade secret substances 2 : The low quartz content bentonite, montmorillonite appears to seolchwi flow is dependent cytotoxicity to the resulting capacity and the particle size of the injected dose in a single center, a temporary local inflammation, as well as contain the swelling also consequently increases the lung weight, Source: HSDB
- Propylene glycol : Oral: also general signs of toxicity comprises the balance loss, depression, pain, coma, and died after the last administration of glycolate after ` ` large capacity large dose of the glycol shortly death state '. / Inspection of the internal organs, and has been a vocal essentially exclude hematological region of the small intestine. Subtle changes in the kidneys were found at a minimum, the nuclear cortical degeneration of the cytoplasm increased and the vacuum has occurred. Between the plants it showed only mild congestion and hypertension do not have local changes. Transdermal coma, diarrhea, fecal and ptosis were observed in isolated cases., Source: ECHA
- Trade secret substances 3 : No data available
- Trade secret substances 4 : No data available
- Trade secret substances 5 : No data available
- Water : No data available
- o Specific target organ toxicity repeated exposure PRODUCT : Not classified
  - λ-Cyhalothrin : TDLo-route: oral; injection volume: 1137.5 mg / kg / 13W intermittent / toxic effects: Action - food intake (animal), nutrition, and overall metabolism - decrease in weight, Source: (TOMES; RTECS)
  - Solvent naphtha (petroleum), light arom. : No data available
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : Repeated toxicity test using rats, such as the incision of the rat inflammation observed with 440mg / kg when injected foreign body granuloma formation and the development of collagen synthesis, Source: HSDB
  - Bronopol : Rats repeated oral toxicity test results using (male and female), body weight and food consumption decreased lesion above a high dose, show symptoms of squamous metaplasia, the death of the salivary glands. NOAEL = 7 mg / kg bw / day rabbit dermal toxicity test repeated using the (male and female), severe skin irritation accompanied by redness and swelling, but no deaths and physical symptoms of toxicity .NOAEL = approximately 0.2% of the items in the acute toxic effects It does not apply in the classification, Source: ECHA
  - Propylene glycol : Oral (chronic): As a result of oral exposure by rats, not materialized catastrophic effects, Rat dermal (chronic): As a result of dermal exposure via the mouse, does not embody the harmful effects, Mouse intake (sub-chronic): Deadly Impact this does not materialize, Rat, Source: ECHA
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : Rats, 4 weeks, causing an NOAEL = 2000mg / kg × 3 = 6000mg / kg rats 90 days 0.1 mg / m3 no no effect on the exposure test, 1mg / m3 exposure in bronchitis, pneumonia, reduction of spermatocytes, effects such as the liver. Restored within 1 month., Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>), International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
  - Trade secret substances 5 : No data available
  - Water : No data available

- Aspiration hazard PRODUCT : Not classified
  - λ-Cyhalothrin : No data available
  - Solvent naphtha (petroleum), light arom. : EU CLP harmonized classification Category 1, Source: EU CLP harmonized classification
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : No data available
  - Propylene glycol : No data available
  - Trade secret substances 3 : No data available
  - Trade secret substances 4 : No data available
  - Trade secret substances 5 : No data available
  - Water : No data available

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## 12. ECOLOGICAL INFORMATION

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### 1) Aquatic toxicity

- Fish>PRODUCT : Acute 1
  - λ-Cyhalothrin : LC50 0.00021 mg / l 96 hr *Lepomis macrochirus* (I because soluble substance (solubility less than 1mg / L) No acute toxicity classification), Source: ECOTOX
  - Solvent naphtha (petroleum), light arom. : LC50 9.22 mg / l 96 hr *Oncorhynchus mykiss*, Source: IUCLID
  - Trade secret substances 6 : LC50 420 mg / l 96 hr *Oncorhynchus mykiss*, Source: ECOTOX
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : LC50 20 mg / l 96 hr *Oncorhynchus mykiss* (NOEC 21.5mg / L time 49day test species *Oncorhynchus mykiss*), Source: NCIS
  - Propylene glycol : LC50 40613 mg / l 40613 mg / l 96 hr *Oncorhynchus mykiss* , (Environment Canada (1990), Equation ring, fresh water, GLP), Source: ECHA
  - Trade secret substances 3 : LC50 37.79 mg / l 96 hr *Lepomis macrochirus*, Source: The ECOTOXicology database (ECOTOX)([http://cfpub.epa.gov/ECOTOX/quick\\_query.htm](http://cfpub.epa.gov/ECOTOX/quick_query.htm))
  - Trade secret substances 4 : LC50 7960 mg / l 96 hr *Pimephales promelas*, Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
  - Trade secret substances 5 : No data available
  - Water : No data available
- Crustacea>PRODUCT : Acute 1
  - λ-Cyhalothrin : EC50 0.0000068 mg / l 48 hr Other (I not so acute toxicity classification soluble substance (solubility less than 1mg / L)), Source: ECOTOX
  - Solvent naphtha (petroleum), light arom. : EC50 6.14 mg / l 48 hr *Daphnia magna*, Source: IUCLID
  - Trade secret substances 6 : No data available
  - Trade secret substances 7 : No data available
  - Trade secret substances 1 : No data available
  - Trade secret substances 2 : No data available
  - Bronopol : EC50 1.4 mg / l 48 hr *Daphnia magna* (NOEC 0.53mg / L (nominal) 0.27 mg / L (measured). 21day test species *Daphnia magna*), Source: ECHA
  - Propylene glycol : LC50 18340 mg / l 18340 mg / l 48 hr *Ceriodaphnia dubia* , (EPA 600 / 4-90 / 0-27, exponential expression, fresh water), Source: ECHA

- Trade secret substances 3 : LC50 44.5 mg / ℓ 48 hr Daphnia magna, Source: The ECOTOXicology database (ECOTOX)([http://cfpub.epa.gov/ECOTOX/quick\\_query.htm](http://cfpub.epa.gov/ECOTOX/quick_query.htm))

- Trade secret substances 4 : LC50 2564 mg / ℓ 48 hr Daphnia magna, Source: The ECOTOXicology database (ECOTOX)([http://cfpub.epa.gov/ECOTOX/quick\\_query.htm](http://cfpub.epa.gov/ECOTOX/quick_query.htm))

- Trade secret substances 5 : EC50 > 10.2 mg / ℓ 21 day, Source: ECOTOX

- Water : No data available

● Aquatic algae>PRODUCT : Acute 1

- λ-Cyhalothrin : No data available

- Solvent naphtha (petroleum), light arom. : EC50 19 mg / ℓ 72 hr Selenastrum capricornutum, Source: IUCLID

- Trade secret substances 6 : No data available

- Trade secret substances 7 : No data available

- Trade secret substances 1 : No data available

- Trade secret substances 2 : No data available

- Bronopol : ErC50 0.02 mg / ℓ 72 hr Scenedesmus subspicatus, Source: NCIS

- Propylene glycol : EC50 34100 mg / ℓ 34100 mg / ℓ 48 hr , (OECD TG 201, exponential expression, fresh water, GLP), Source: ECHA

- Trade secret substances 3 : No data available

- Trade secret substances 4 : No data available

- Trade secret substances 5 : No data available

- Water : No data available

2) Persistence and degradation

● n-octanol water partition coefficient>PRODUCT : Chronic 1

- λ-Cyhalothrin : 7 log Kow, Source: NLM;ChemIDPlus

- Solvent naphtha (petroleum), light arom. : 6 log Kow ~ 2.1 log Kow (estimated), Source: IUCLID

- Trade secret substances 6 : No data available

- Trade secret substances 7 : No data available

- Trade secret substances 1 : No data available

- Trade secret substances 2 : No data available

- Bronopol : 0.18 log Kow (at 25 ° C), Source: ECHA

- Propylene glycol : 0085 0085 (Pow, 20.5 °C), Source: ECHA

- Trade secret substances 3 : No data available

- Trade secret substances 4 : -3 log Kow, Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)

- Trade secret substances 5 : (None)

- Water : No data available

● Degradation>PRODUCT : Chronic 1

- λ-Cyhalothrin : No data available

- Solvent naphtha (petroleum), light arom. : BOD5 / COD 0.43

- Trade secret substances 6 : No data available

- Trade secret substances 7 : No data available

- Trade secret substances 1 : No data available

- Trade secret substances 2 : No data available

- Bronopol : No data available

- Propylene glycol : No data available

- Trade secret substances 3 : No data available

- Trade secret substances 4 : No data available

- Trade secret substances 5 : No data available

- Water : No data available

● Biodegradation>PRODUCT : Chronic 1

- λ-Cyhalothrin : (Recalcitrant - high potential to accumulate inside does not decompose in vivo (estimated)), Source: EPI SUITE
- Solvent naphtha (petroleum), light arom. : No data available
- Trade secret substances 6 : No data available
- Trade secret substances 7 : No data available
- Trade secret substances 1 : 100 01 100 01 30 day , (search easily biodegradable), Source: HSDB
- Trade secret substances 2 : No data available
- Bronopol : 80% ~ 70% 28 day (OECD Guideline 301 B, GLP), Source: ECHA
- Propylene glycol : 81.7 01 81.7 01 28 day , (CO2 evolution), Source: ECHA
- Trade secret substances 3 : No data available
- Trade secret substances 4 : No data available
- Trade secret substances 5 : No data available
- Water : No data available

3) Bioaccumulative potential>PRODUCT : Chronic 1

- λ-Cyhalothrin : 1063 (possibility estimate, bioconcentration), Source: EPI SUITE
- Solvent naphtha (petroleum), light arom. : No data available
- Trade secret substances 6 : No data available
- Trade secret substances 7 : No data available
- Trade secret substances 1 : 7.5 BCF 7.5 BCF, Source: HSDB
- Trade secret substances 2 : No data available
- Bronopol : 3.16 ((calculated using SRC BCFWIN v3.01)), Source: ECHA
- Propylene glycol : 0.09 BCF 0.09 BCF , (BCF), Source: ECHA
- Trade secret substances 3 : No data available
- Trade secret substances 4 : 0.5, Source: OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
- Trade secret substances 5 : No data available
- Water : No data available

4) Mobility in soil>PRODUCT : Chronic 1

- λ-Cyhalothrin : 151 200 (estimate, which can be adsorbed by the soil), Source: EPI SUITE
- Solvent naphtha (petroleum), light arom. : No data available
- Trade secret substances 6 : No data available
- Trade secret substances 7 : No data available
- Trade secret substances 1 : No data available
- Trade secret substances 2 : No data available
- Bronopol : Blanket 1416 ~ 388.3 blanket, Source: ECHA
- Propylene glycol : No data available
- Trade secret substances 3 : No data available
- Trade secret substances 4 : No data available
- Trade secret substances 5 : No data available
- Water : No data available

5) Other adverse effects>PRODUCT : Chronic 1

- λ-Cyhalothrin : No data available
- Solvent naphtha (petroleum), light arom. : No data available
- Trade secret substances 6 : No data available
- Trade secret substances 7 : No data available
- Trade secret substances 1 : No data available
- Trade secret substances 2 : No data available
- Bronopol : No data available
- Propylene glycol : No data available
- Trade secret substances 3 : No data available

- Trade secret substances 4 : No data available
- Trade secret substances 5 : No data available
- Water : No data available

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### 13. DISPOSAL CONSIDERATIONS

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#### 1) Disposal methods

- Every commercial waste producer shall either treat wastes generated from his/her place of business by him/herself or commission the treatment of such wastes to a person who has license for a waste treatment business under Article 26(3), a person who recycles of such wastes under Article 44(2), a person who has installed and operates a waste disposal facility under Article 4 or 5, a person who has completed the registration of a business of discharging wastes into the sea under Article 18 of the Marine Environment Management Act.

#### 2) Precautions (including disposal of contaminated container of package)

- Do not allow spill material to enter sewers, storm water drains, soil, etc.

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### 14. TRANSPORT INFORMATION

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1) UN No. : 3082

2) Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

3) Class or division : 9

4) Packing group : III

5) Marine pollutant : Not applicable

6) Special safety response for transportation or transportation measure :

Emergency measures in case of fire : F-A

Emergency measures in the effluent : S-F

- ADR

· Tunnel restriction code : E

- IMDG

· Marine pollutant : Not applicable

- Air transport(IATA)

· UN No. : 3082

· Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

· Class or division : 9

· Packing group : III

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### 15. REGULATORY INFORMATION

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● Global Inventory - USA. Toxic Substances Control Act (TSCA) Chemical Substances Inventory (12 April 2018)

- Solvent naphtha (petroleum), light arom.

- Trade secret substances 1

- Bronopol

- Propylene glycol

- Trade secret substances 3
- Trade secret substances 4
- Trade secret substances 5
- Water
- Trade secret substances 6

**\* FIFRA Classification**

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also included other important information, including direction for use. Following is the hazard information as required on the pesticide label:

**CAUTION**

Cause moderate eye irritation.

Avoid contact with eyes, skin or clothing.

Avoid breathing spray mist.

Wear protective eyewear.

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

Remove and wash contaminated clothing before reuse.

- ETC regulation - EPCRA (SARA Title III) Section 302 Extremely Hazardous Substance (EHS) (40 CFR 355, Appendix A)

Not applicable

- ETC regulation - OSHA Hazard Communication Standard: On One of the Floor Lists of the OSHA HCS (29 CFR 1910.1200)

Not applicable

- ETC regulation - EPCRA (SARA Title III) Section 313 Toxic Chemical Release Inventory (TRI) Reporting for RY 2013 (as amended Sep. 30, 2014)

Not applicable

- ETC regulation - CERCLA Hazardous Substances [other than radionuclides] (40 CFR 302.4) (as amended by 75 FR 78918, Dec. 17, 2010)

Not applicable

- ETC regulation - RCRA Appendix VII: Hazardous Wastes (40 CFR 261, App. VII, Basis for Listing Hazardous Waste)

Not applicable

- ETC regulation - CERCLA. Radionuclides and their Reportable Quantities (40 CFR 302.4, App. B)

Not applicable

- ETC regulation - RCRA D List of Characteristic Hazardous Wastes (40 CFR 261.21-24)

Not applicable

- ETC regulation - RCRA F List of Hazardous Wastes from Non-Specific Sources (40 CFR 261.31(a)) (as amended by 73 FR 31756, June 4, 2008)

Not applicable

- ETC regulation - RCRA K List of Hazardous Wastes from Specific Sources (40 CFR 261.32)

Not applicable

- ETC regulation - RCRA P List of Hazardous Wastes (40 CFR 261.33(e) and 40 CFR 302 [CERCLA])

Not applicable

- ETC regulation - RCRA U List of Hazardous Wastes (40 CFR 261.33(f) and 40 CFR 302 [CERCLA], as amended 75 FR 78918, Dec 17, 2010

Not applicable

- ETC regulation - DOT Hazardous Materials Table Listings (49 CFR 172.101, as amended through October 31, 2013)

- ETC regulation - EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Respo

Not applicable

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## 16. OTHER INFORMATION

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### 1) Reference

- (ICSC)
- (NLM;CCRIS)
- (TOMES;RTECS)
- ChemIDplus
- Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
- ECHA
- ECOTOX
- EPA
- EPI SUITE
- EU CLP harmonized classification
- HSDB
- HSDB, ECHA
- IUCLID
- International Programme on Chemical Safety(IPCS INCHEM)(<http://www.inchem.org/>)
- NCIS
- NLM, HSDB
- NLM;ChemIDPlus
- National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
- OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
- OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>), International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
- OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>), National Library of Medicine/genetic toxicology(NLM/GENETOX)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?GENETOX>)
- OSHA
- RTECS
- Rhone-Poulenc
- THOMSON
- The ECOTOXicology database (ECOTOX)([http://cfpub.epa.gov/ECOTOX/quick\\_query.htm](http://cfpub.epa.gov/ECOTOX/quick_query.htm))

2) Print date : 2022-09-01

3) Revision date

- Revised date count : 0

- Last revised date : 2022-09-01

- Last revised history :

4) Other