



TULSI ENTERPRISES LTD.

Safety Data Sheet ATAK

SECTION 1: Identification

1.1 Product identifier

Product name	ATAK
Brand	Optic Foliar

1.3 Recommended use of the chemical and restrictions on use

Plant Foliar Spray

1.4 Supplier's details

Name	Tulsi Enterprises Ltd.
Address	PO BOX 31016, Sunshine Village, Delta BC V4E 3M9

Telephone	(604) 218-8567
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1.5 Emergency phone number(s)

(604) 218-8567

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: (US) OSHA (29 CFR 1910.1200)

Not a hazardous substance or mixture.

2.2 GHS label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Other hazards which do not result in classification

Not a hazardous substance or mixture.

SECTION 3: Composition/information on ingredients

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3.2 Mixtures

Components

1. Potassium nitrate

Concentration 1 - 3 %
CAS no. 7757-79-1

- Oxidizing solids, Cat. 3

H272 May intensify fire; oxidizer

2. Copper sulfate (anhydrous)

Concentration 1 - 3 %
EC no. 231-847-6
CAS no. 7758-98-7

- Acute toxicity, oral, Cat. 4
- Skin corrosion/irritation, Cat. 2
- Eye damage/irritation, Cat. 2A
- Hazardous to the aquatic environment, short-term (acute), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1

H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

3. Water

Concentration 95 - 98 %
EC no. 231-791-2
CAS no. 7732-18-5

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Remove to fresh air and promote deep breathing. Get medical attention if effects persist.
In case of skin contact	Wash with plenty of water for at least 15 minutes. Call a poison center or doctor if irritation develops or persists. Take off contaminated clothing and wash it before reuse. Acute and delayed symptoms and effects: Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.
In case of eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention/advice.

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Acute and delayed symptoms and effects: Causes serious eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

If swallowed

Do not induce vomiting. Never give anything by mouth to an unconscious person. Give water to drink if conscious. Get medical attention if effects persist.

Acute and delayed symptoms and effects: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

4.2 Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Treat symptomatically and supportively.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical

None known

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2 Environmental precautions

Do not discharge product into natural waters without pre-treatment or adequate dilution.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of in accordance with applicable local or national requirements. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Do not eat, drink or smoke while handling. Wash hands with soap and water after handling. Keep out of the reach of children. For precautions see section 2.

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7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.2 Appropriate engineering controls

Under manufacturers recommended use, no particular controls necessary.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Chemical goggles or safety glasses.

Skin protection

Wear suitable protective clothing.

Body protection

Manufacturing Sites:

Wear suitable protective clothing.

Distribution, Workplace and Household Settings:

No special protective equipment required

Respiratory protection

Distribution, Workplace and Household Settings: No special protective equipment required. Product Manufacturing Plant (needed at Product-Producing Plant ONLY): In case of insufficient ventilation wear suitable respiratory equipment

Thermal hazards

No data available.

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Dark Green colour liquid
Odor	Medium Smell
Odor threshold	No data available.
pH	6.5
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 limits	No data available.
Upper/lower explosive limits	No data available.
Vapor pressure	No data available.

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Vapor density	No data available.
Relative density	No data available.
Solubility(ies)	No data available.
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

Other safety information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Contact with incompatible materials. Sources of ignition. Exposure to heat.

10.2 Chemical stability

Stable under normal storage conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

10.5 Incompatible materials

Avoid contact with strong oxidizers, strong mineral acids such as sulphuric acid, nitrating agents, halogenating agents, alkali metals or aluminum.

10.6 Hazardous decomposition products

Nitrogen oxides, ammonia, hydrogen cyanide, nitriles, isocyanates, nitrosamines, formaldehyde, carbon monoxide, carbon dioxide and other unidentified hydrocarbons in smoke may occur.

Water: In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

As Mixture: No Data Available.

Potassium nitrate: Acute Oral Toxicity: LD50 >2000 mg/kg bw

Acute Dermal Toxicity: LD50 >2000 mg/kg bw

Acute Inhalation Toxicity: LC50 >0.527 mg/L (highest attainable concentration)

Copper sulfate (anhydrous): Acute Oral Toxicity: LD50 481 mg/L

Acute Dermal Toxicity: LD50 >2000 mg/kg bw.

Skin corrosion/irritation

As Mixture: No Data Available.

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Potassium nitrate: No reliable skin irritation study with potassium nitrate itself is present. However, in a reliable skin irritation study in rabbits (performed comparable to OECD 404) with ammonium nitrate, no signs of skin irritation was observed up to 72 hours.

Copper sulfate (anhydrous): Not Skin Irritant.

Serious eye damage/irritation

As Mixture: No Data Available.

Potassium nitrate: Potassium nitrate did not show irritation effects in an in vitro and in vivo eye irritation study according to the respective OECD guidelines.

Copper sulfate (anhydrous): Causes serious eye irritation.

Respiratory or skin sensitization

As Mixture: No Data Available.

Potassium nitrate: Not Sensitizer.

Copper sulfate (anhydrous): Not Sensitiser.

Germ cell mutagenicity

As Mixture: No Data Available.

Potassium nitrate: Potassium nitrate is not mutagenic in Salmonella typhimurium strains TA 1535, TA 1537, A 1538, TA 98, TA 100, and TA 92 with and without metabolic activation. No chromosomal aberrations were induced in a Chinese hamster fibroblast cell line without metabolic activation. In a study comparable to OECD guideline 479, no SCEs were induced in lymphocytes. In addition, an OECD guideline 476 and EC guideline B.17 study showed no effects on the thymidine kinase locus in L5178Y mouse lymphoma cells.

No in vivo studies are required, as all in vitro studies showed no genotoxicity.

Copper sulfate (anhydrous): Not Mutagenic.

Carcinogenicity

As Mixture: No Data Available.

Potassium nitrate: Potassium nitrate is not genotoxic and no substance related neoplastic lesions were observed in the chronic toxicity study. There is no positive correlation between nitrate intakes and the incidence of cancer.

Copper sulfate (anhydrous): Although the available animal and human data on the carcinogenicity of copper and its compounds are deficient in several respects, the findings do not raise concerns with respect to carcinogenic activity. Consequently, further tests investigating this end-point are not recommended. The studies on carcinogenicity also give information on the chronic effects of copper on rats and mice. The studies, although limited, indicate that at the doses tested, the pivotal endpoint was a reduction in weight gain at the highest dose rates tested. These results indicate that the NOAEL values derived from the sub-chronic effects observed in the NTP study, 1993 could be regarded as worst case for the risk assessment of copper and copper compounds.

Reproductive toxicity

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As Mixture: No Data Available.

Potassium nitrate: Based on the results of a combined repeated dose toxicity study with a reproduction/developmental toxicity screening performed according to OECD 422 guideline and GLP principles, the NOAEL of potassium nitrate was found to be $\geq 1,500$ mg/kg/day for developmental toxicity. According to Annex I of Regulation (EC) No. 1272/2008 potassium nitrate is not classified based on the available data

Copper sulfate (anhydrous): The existing data base is sufficient to adequately evaluate the developmental toxicity of copper with particular reference to the newly available two-generation study in the rat. It is therefore considered inappropriate to consider copper and copper compounds as potential teratogenic compounds due to the complex role of copper in regulating normal foetus development in humans at levels considered higher than would be expected to occur through the normal production and use of any copper compound. NOAEL: 24 mg/kg bw/day

Summary of evaluation of the CMR properties

As Mixture: No Data Available.

Potassium nitrate: No CMR Classification.

STOT-single exposure

As Mixture: No Data Available.

Potassium nitrate: No STOT SE toxicity.

Copper sulfate (anhydrous): No STOT SE Toxicity.

STOT-repeated exposure

As Mixture: No Data Available.

Potassium nitrate: No STOTO RE Toxicity.

Copper sulfate (anhydrous): No STOT RE Toxicity.

Aspiration hazard

As Mixture: No Data Available.

Potassium nitrate: Not Applicable.

Additional information

No Data Available.

SECTION 12: Ecological information

Toxicity

As Mixture: No Data Available.

Potassium nitrate: Fish LC50 > 100 mg/L, NOEC 58 mg/L
Daphnia Magna EC50 > 100 mg/L

Copper sulfate (anhydrous): Fish LC50 38.4 µg/L

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Persistence and degradability

As Mixture: No Data Available.

Potassium nitrate: Readily biodegradation study does not need to be conducted since the substance is an inorganic salt (Annex VII REACH). In addition, biodegradation of nitrate can occur under anaerobic conditions, both under natural conditions and as a controlled process in many wastewater treatment plants, resulting in degradation products like nitrite, oxide of nitrogen, nitrogen, or ammonia. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N₂, N₂O and NH₃, the biodegradation rate in wastewater plant at 20 degrees Celsius is 70 g N/kg dissolved solid/day.

Copper sulfate (anhydrous): Biodegradation as used for organic substances does not apply to inorganic substances such as copper and its compounds, but attenuation of the toxicity is observed.

Bioaccumulative potential

As Mixture: No Data Available.

Potassium nitrate: Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation.

Copper sulfate (anhydrous): There is a considerable amount of copper accumulation data available. The data have been reviewed by two authors in view of assessing the relation between the CuBCF/BAF values and the copper concentrations in the water and sediment. Additionally some researchers have assessed the influence of water chemistry (dissolved organic matter), and the physiology of the organisms (species, age, seasons...) on the observed BCF/BAF values.
The information demonstrates that copper is well regulated in all living organisms and that BCF and BAF values have no meaning for a hazard assessment.
The data also demonstrate that waterborne exposure is most the critical exposure route and that copper is not biomagnified in aquatic ecosystems.
The section further includes critical data related to (1) the accumulation of copper on critical target tissues (eg gills in aquatic organisms); (2) the influence of environmental parameters (eg Organic Carbon, pH, Cationic Exchange Capacity) as well as food intake on the accumulation of copper. This information is relevant to the understanding of the accumulation as well as the mechanism of actions, described in the section "ecotoxicological information".
Information relevant to assessing copper toxicity from dietary exposure - of relevance to a secondary poisoning assessment is included in the section "ecotoxicological information".

Mobility in soil

As Mixture: No Data Available.

Potassium nitrate: No Data Available.

Results of PBT and vPvB assessment

As Mixture: No Data Available.

Potassium nitrate: No Data Available.

SECTION 13: Disposal considerations

Disposal of the product

Disposal should be in accordance with applicable Federal, State and local laws and regulations. Local regulations may be more stringent than State or Federal requirements.

Disposal of contaminated packaging

Dispose of as unused product.

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SECTION 14: Transport information

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

New Jersey Right To Know Components

Common name: POTASSIUM NITRATE

CAS number: 7757-79-1

Pennsylvania Right To Know Components

Chemical name: Nitric acid, potassium salt

CAS number: 7757-79-1

Canadian Domestic Substances List (DSL)

Chemical name: Nitric acid potassium salt

CAS: 7757-79-1

Canadian Domestic Substances List (DSL)

Chemical name: Sulfuric acid copper(2++) salt (1:1)

CAS: 7758-98-7

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Water

CAS-No. 7732-18-5

New Jersey Right To Know Components

Water

CAS-No. 7732-18-5

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California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Canadian Domestic Substances List (DSL)

Chemical name: Water

CAS: 7732-18-5

SECTION 16: Other information

DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of information for their particular purposes. In no event shall Tulsi Enterprises Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, whatsoever arising, even if Tulsi Enterprises Ltd. has been advised of the possibility of such damages.