TULSI ENTERPRISES LTD.

Safety Data Sheet
Watts

SECTION 1: Identification

1.1 Product identifier

Product name	Watts
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

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

3.2 Mixtures

Components

1. Potassium sulfate

Concentration	2-3 %
EC no.	231-915-5
CAS no.	7778-80-5

2. Potassium phosphate Monobasic

Concentration	2-3 %
CAS no.	7778-77-0

3. Magnesium sulfate anhydrous

Concentration	0.1-0.3 %
CAS no.	7487-88-9

4. Sodium feredetate

Concentration	0.001-0.003 %
CAS no.	15708-41-5

5. 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. 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 knwon

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.

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.)	Clear light Blue liquid
Odor	No Odor
Odor threshold	No data available.
pH	6.0
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.
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 a Mixture: No data available.

Potassium phosphate Monobasic: Acute Oral Toxicity: LD50>2000 mg/kg bw.
Acute Dermal Toxicity: LD50 >2000 mg/kg bw.
Acute Inhalation Toxicity: LC50>0.83 mg/L (maximum attainable concentration)

Potassium sulfate: With potassium sulphate a reliable acute dermal toxicity study in rats (according to OECD 402) has been performed showing an LD50 > 2000 mg/kgbw. A reliable acute oral toxicity study with rats according to OECD 425 with potassium magnesium sulphate has been performed, showing LD50>2000 mg/kg bw. An inhalation study with ammonium sulphate investigating mucociliary clearance did not show effects in rats at 3.6 mg/m3.

Based on reliable studies on potassium magnesium sulphate and ammonium sulphate for acute oral route, the LD50 for the sulphate category is >2000 mg/kg. Based on a reliable acute inhalation study on ammonium sulphate, the LC50 for the sulphate category is >1200 mg/m3.

Magnesium sulfate anhydrous: Acute Toxicity Oral: LD50 > 2000 mg/kg bw.
Acute Toxicity Dermal: LD50 > 2000 mg/kg bw.

Sodium feredetate: LD50 (oral, rat) exceeds 2000 mg/kg bw
LD50 (dermal, rat) exceeds 2000 mg/kg bw
LC50 (rat, 4h) exceeded 2.75 +/- 0.19 mg/L, the maximum attainable concentration.

Skin corrosion/irritation
As a Mixture: No data available.

Potassium phosphate Monobasic: Not irritant

Potassium sulfate: An in vitro human skin irritation study according to the EU guideline, performed with Potassium sulfate (containing 15% KHSO4) does not show irritation.

Magnesium sulfate anhydrous: No studies with magnesium sulphate are available. Based on reliable studies with potassium sulphate showing no to minimal irritation to the skin, it is concluded that that magnesium sulphate is not irritating to skin. Results with ammonium sulphate are in agreement with this.

Sodium feredetate: Not Irritating

Serious eye damage/irritation
As a Mixture: No data available.

Potassium phosphate Monobasic: Not irritant

Potassium sulfate: An in vivo eye irritation study according to OECD guideline 405 with potassium sulphate 99% pure is not irritating in rabbits. Additionally an in vitro eye irritation study according to OECD guideline 437 with potassium sulphate containing 15% KHSO4, is severely irritating in bovine cornea.

Magnesium sulfate anhydrous: No studies with magnesium sulphate are available. Based on reliable studies with potassium sulphate showing no to minimal irritation to the eyes, it is concluded that that magnesium sulphate is not irritating to eyes. Results with ammonium sulphate are in agreement with this.

Sodium feredetate: Not Irritating

Respiratory or skin sensitization
As a Mixture: No data available.

Potassium phosphate Monobasic: Not sensitiser.

Potassium sulfate: According to Directive 67/548/EC and the CLP Directive no classification of potassium sulphate for sensitisation is required based on the data present.

Magnesium sulfate anhydrous: According to Directive 67/548/EC and the CLP Directive no classification of magnesium sulphate for sensitisation is required based on the reliable data present.

Sodium feredetate: Not a Skin sensitiser

Potassium phosphate Monobasic: Not irritant

Germ cell mutagenicity
As a Mixture: No data available.

Potassium phosphate Monobasic: Not Mutagenic

Potassium sulfate: The available data indicate that no classification is required with regard to mutagenicity for potassium sulphate according to Directive 67/548/EC and the CLP directive.

Magnesium sulfate anhydrous: The available data indicate that no classification is required with regard to mutagenicity for magnesium sulphate according to Directive 67/548/EC and the CLP directive.

Sodium feredetate: The test substance gave negative results in three in vitro mutagenicity studies, viz. the Ames test, the WP2 Mutoxitest, and the micronuclueus test following exposure for 4 h (with and without S9 mix) but gave positive results (aneugenicity) following exposure for 20 h (without S9 -mix). The latter was most probably explained by induction of Zn deficiency. The ambiguous results in the mouse lymphoma test were ascribed to cytotoxicity. Overall, it was concluded that classification for genotoxicity is not warranted.

Carcinogenicity
As a Mixture: No data available.

Potassium phosphate Monobasic: A number of recent publications have hypothesised a link between very high or very low dietary phosphate levels and tumourigeneisis (typically using potassium or sodium orthophosphates as the test substance). The most recent publications have been included as a representation of the typical investigations performed in this area. These data are not sufficient to fulfil the guideline requirement for carcinogenicity and are not considered to be adequate or reliable for use in risk assessment and/or classification and labelling. As such these studies are provided for completeness of the data set only.

Potassium sulfate: Although no carcinogenicity study seems to be required for potassium sulphate as the substance is not genotoxic, a reliable chronic/carcinogenicity study is available for ammonium sulphate. No evidence of a carcinogenic potential was observed in this study with rats following closely the requirements of OECD testguideline 453.

Magnesium sulfate anhydrous: No relevant data found.

Sodium feredetate: Not Carcinogenic

Reproductive toxicity
As a Mixture: No data available.

Potassium phosphate Monobasic: One key study is available for the endpoint '8.7.2. Developmental toxicity study'. This study assesses the teratogenic potential of potassium dihydrogenorthophosphate (Bailey, 1975) in rats and mice. This study is considered to be adequate to fulfil this endpoint. In addition, supporting data on an additional analogous substance; sodium dihydrogenorthophosphate is also provided to support the lack of developmental toxicity potential of sodium and potassium orthophosphates as a group of chemicals.

Potassium sulfate: A reliable subacute oral toxicity study available on potasium sulphate shows a NOAEL of 1500 mg/kg bw/day, the highest dose tested. The study was performed according to OECD 422. In addition, repeated dose toxicity data on ammonium sulphate are considered. The 90-day oral study in rats showing a NOAEL of 886 mg/kg bw/day (LOAEL 1792 mg/kg bw/day) and the chronic oral toxicity study in rats showing a NOAEL of 256 mg/kg bw/day (LOAEL 1527 mg/kg bw/day). Based on these reliable studies with potassium sulphate and ammonium sulphate for oral repeated dose toxicity, the rat oral NOAEL for the sulphate category is 1500 mg/kg bw/day for subacute toxicity. For chronic toxicity the NOAEL for the sulphate category is 256 mg/kg bw/day.

Magnesium sulfate anhydrous: No reliable study on magnesium sulphate is available.
In a reliable OECD screening study in rats with potassium sulphate no effects were found up to the highest dose tested (1500 mg/kg bw/d). No further studies with potassium sulphate itself were present. However, in repeated dose studies with ammonium sulphate no effects on reproduction organs were found and in addition in a limited one-generation study where only females were treated with sodium sulphate no effects were found. In addition, magnesium sulphate dissociates into Mg+ and sulphate ions which are nutritional components regulated by the body. The overall conclusion for magnesium sulphate is that there is no evidence that the substance may present a risk for developmental toxicity.

Sodium feredetate: As EDTA and the zinc chelate of EDTA obviously lack a specific teratogenic potential (RAR, 2004), it is expected that this applies to EDTA-FeNa too. In addition, because malformations caused by EDTA compounds have been demonstrated at relatively high oral dose levels (i.e. 1000 mg/kg bw and above) and a steep dose response relationship can be assumed (RAR, 2004), no classification for reprotoxicity is needed.

Summary of evaluation of the CMR properties
As a Mixture: No data available.

Potassium phosphate Monobasic: No CMR classification.

STOT-single exposure
As a Mixture: No data available.

Potassium phosphate Monobasic: No STOT SE Toxicity

Potassium sulfate: No STOT SE classification

Magnesium sulfate anhydrous: No STOT SE Classification.

Sodium feredetate: No STOT SE classification.

STOT-repeated exposure
As a Mixture: No data available.

Potassium phosphate Monobasic: No STOT RE toxicity

Potassium sulfate: No STOT RE classification

Magnesium sulfate anhydrous: No STOT RE Classification.

Sodium feredetate: No STOT RE classification.

Aspiration hazard
As a Mixture: No data available.

Potassium phosphate Monobasic: Not applicable

Potassium sulfate: Not Applicable

Additional information
No data available.

SECTION 12: Ecological information

Toxicity
As a Mixture: No data available.

Potassium sulfate: Fish (Fathead minnow) showed a 96hr LC50 of 680 mg/L.
Daphnia magna showed a 48 hr EC50 of 720 mg/L.

Magnesium sulfate anhydrous: No reliable data on acute toxicity to fish are available for magnesium sulphate. Based on a reliable study on potassium sulphate the LC50 for freshwater fish for the sulfate category is 680 mg/L. No reliable study is present for magnesium sulphate. Based on a reliable study with ammonium sulphate and the results being confirmed by studies with potassium and magnesium sulphate, the EC50 for freshwater algae is determined to be 2700 mg/L and the NOEC is ≥ 100 mg/L.

Sodium feredetate: Fish 96 h LC50= >100 mg/l
Daphnia magna 48h-EC50= 100.9 mg/l

Persistence and degradability
As a Mixture: No data available.

Potassium phosphate Monobasic: Potassium dihydrogenorthophosphate is an inorganic substance, biodegradation studies are not applicable. No further testing is deemed to be necessary.

Potassium sulfate: Due to the inorganic nature of the substance standard testing systems are not applicable.

Sulfates can be retained in soil, both by incorporation intoorganic matter (e.g. as sulfate esters of humic acids) and adsorbed tosoil particles such as hydrous iron and aluminum sesquioxides.

Sodium feredetate: EDTA (acid form) and its salts are not readily biodegradable according to OECD criteria, for justification for read-across see IUCLID 5, Chapter 13. It was shown that under special conditions like adaptation or slightly alkaline pH, which is realistic under environmental surface water conditions, the biodegradability of EDTA is considerable enhanced. Therefore it can be concluded that EDTA is ultimately biodegradable under such environmental conditions.

Bioaccumulative potential
As a Mixture: No data available.

Potassium phosphate Monobasic: No experimental data on bioaccumulation exist. However due to the hydrophilic nature of the substance, bioaccumulation is not expected as accumulation in fats is not possible. The substance when dissolved in water (and so animal tissues/fluids) will effectively separate into/become simply the two ions "phosphate" and "potassium" which are natural ionic components of blood, cell fluids, etc and therefore no further testing is considered to be necessary. In addition, no risk of secondary poisoning is anticipated for the same reasons. The potential for bioaccumulation is therefore considered to be minimal.

Potassium sulfate: 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.

Magnesium sulfate anhydrous: No potential for bioaccumulation.

Sodium feredetate: Bioaccumulation testing for EDTA-FeNa.3H2O is not required, as the substance has a low potential for bioaccumulation (the log Kow is <3). A 28- day BCF study in fish (Lepomis macrochirus) for EDTA-Na4 (CAS 64 -02 -8, see IUCLID section 13 for read-across justification) supports this, as this study showed that 14C-EDTA exhibited an extremely low bioaccumulation potential with a BCF between 1 and 2 (Bishop & Maki, 1980).

Mobility in soil
As a Mixture: No data available.

Potassium phosphate Monobasic: No Data Found

Magnesium sulfate anhydrous: No relevant information found.

Sodium feredetate: No relevant data available.

Results of PBT and vPvB assessment
As a Mixture: No data available.

Potassium phosphate Monobasic: No potential for bioaccumulation

---
Magnesium sulfate anhydrous: No relevant information found.

Sodium feredetate: No relevant data available.

Other adverse effects
As a Mixture: No data available.

Potassium phosphate Monobasic: Potassium dihydrogenorthophosphate is not considered to pose a risk to the environment and as such is neither classified as harmful nor dangerous to the environment, in accordance with Regulation (EC) No. 1272/2008 (EU CLP).

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.

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

Canadian Domestic Substances List (DSL)
Chemical name: Sulfuric acid dipotassium salt
CAS: 7778-80-5

Canadian Domestic Substances List (DSL)
Chemical name: Phosphoric acid, monopotassium salt
CAS: 7778-77-0

Canadian Domestic Substances List (DSL)
Chemical name: Phosphoric acid, potassium salt
CAS: 16068-46-5

Canadian Domestic Substances List (DSL)
Chemical name: Sulfuric acid magnesium salt (1:1)
CAS: 7487-88-9

Canadian Domestic Substances List (DSL)
Chemical name: Sulfuric acid magnesium salt (1:1), heptahydrate
CAS: 10034-99-8

Canadian Domestic Substances List (DSL)
Chemical name: Ferrate(1-), [[N,N'-1,2-ethanediylbis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']-, sodium, (OC-6-21)-
CAS: 15708-41-5

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

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.