Section 1: Identification of the Hazardous Chemical and of the Supplier

* 1. Product Identifier

Product Name: Liquid NPK Foliar Fertilizer

Trade Name: Selama 8-8-6

Active Ingredient: Nitrogen, Phosphate, Potassium and other micro-nutrients CAS No.(AI): Please refer Section 3

Structural Formula: -

Recommended Usage: Plant nutrition

* 1. Supplier’s Information

Address: Agricultural Chemicals (M) Sdn. Bhd.

962, Lorong Perusahaan 8 Taman Perindustrian Perai 13600 Perai , Pulau Pinang Malaysia

Tel.: +6-04-3907988

Fax: +6-04-3905703

Web: [www.agrichem.com.my](http://www.agrichem.com.my/)

Emergency Phone: +6-04-3907988

Section 2: Hazard Identification

Classification: Serious eye damage, category 1 Skin irritation, category 2

Specific target organ toxicity – single exposure, category 3

Pictogram:



Signal Word: Danger Hazard Statement:

H315 Causes skin irritation

H318 Causes serious eye damage

H335 May cause respiratory irritation

Precautionary Statement:



P261 Avoid breathing vapours/spray

P264 Wash exposed body parts thoroughly after handling

P271 Use only outdoor or in a well ventilated area

P280 Wear rubber gloves, protective clothing, safety goggles and face protection

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P501 Dispose of containers in accordance to Environmental Quality (Scheduled Waste) Regulations or any local regulations.

Section 3: Composition and Information of the Ingredients of the Hazardous Chemical

|  |  |  |  |
| --- | --- | --- | --- |
| **Component** | **CAS No.** | **Weight, %** | **Hazard Code** |
| Ammonium  Molybdate | 12054-85-2 |  | H302, H315, H319, H335 |
| Boric Acid | 10043-35-3 | < 0.1% | H360FD |
| Chelating agent | - | < 1% | H302, H318 |
| Copper Sulphate | 7758-99-8 | < 0.1% | H302, H315, H319 |
| Ferrous Sulphate | 7782-63-0 | < 0.1% | H302, H315, H319 |
| Manganese Sulphate | 7785-87-7 | < 0.1% | H411 |
| Phosphoric Acid | 7664-38-2 | < 5% | H302, H314 |
| Potassium Nitrate | 7757-79-1 | < 15% | H272, H315, H319, H335 |
| Zinc Chloride | 7646-85-7 | < 0.1% | H302, H314, H318, H335, H373, H400, H410 |

\*This product contains other materials which are not classified as hazardous under CLASS Regulations.

Section 4: First-aid Measures

Call a POISON CENTER or doctor/physician if you feel unwell.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin Contact: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion: DO NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

Symptoms: No data available Notes to Physician: No data available

Section 5: Fire-fighting Measures

Suitable Extinguishing Media: Water, carbon dioxide (CO2), chemical foam, dry chemical

Specific Hazard During Fire: Carbon oxides, nitrogen oxides, sulfur oxides, phosphorous oxides,

zinc oxides, hydrogen chloride may evolve upon combustion Special Protective Equipment: Fire fighters should wear full-faced self-contained breathing

apparatus and protective clothing.

Section 6: Accidental Release Measures

Personal Precautions: Do not handle until all safety precautions have been read and

understood. Use personal protective equipment as required.

Environmental Precautions: Avoid release to the environment.

Method for Cleaning Up: Turn off all ignition sources. Wear protective clothing as indicated

in Section 8. Evacuate non essential personnel. Absorb spills with inert material such as clay, sand, earth, sawdust etc. and collect in a drum. Cover up the contaminated area with household detergent and small amount of water. Brush the slurry and spread inert absorbents on the slurry liquid and collect the absorbed material in a drum. Seal drum and dispose of. Do not contaminate water resources.

Section 7: Handling and Storage

Precautions for Safe Handling: Do not handle until all safety precautions have been read and

understood. Use personal protective equipment as required. Avoid release to the environment.

Conditions for Safe Storage: Store in a well ventilated place. Store away from combustible

materials. Keep away from heat/sparks/open flames/hot surfaces - No smoking. Keep container tightly closed.

Incompatibles: Strong oxidizing, strong reducing materials.

Section 8: Exposure Control and Personal Protection

Exposure Limit:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Source** | **Component** | **CAS No.** | **Limit** | |
|  | Ammonium  Molybdate | 12054-85-2 | Contains no substances with OEL value | |
| ACGIH | Boric Acid | 10043-35-3 | TWA inhalable fraction | 2mg/m3 |
| STEL/ceiling inhalable fraction | 6mg/m3 |
| Australia | Chelating agent | - | TWA- 8hr | 10mg/m3 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source** | **Component** | **CAS No.** | **Limit** | | |
| ACGIH TLV | Copper Sulphate | 7758-99-8 | TWA | | 1mg/m3 |
| NIOSH  IDLH | IDLH | | 100mg/m3 |
| TWA | | 1mg/m3 |
|  | Ferrous Sulphate | 7782-63-0 | No data | | |
|  | Manganese  Sulphate | 7785-87-7 | No data | | |
| OES | Phosphoric Acid | 7664-38-2 | TWA-8hr | 1mg/m3 | |
| STEL-15min | 2mg/m3 | |
|  | Potassium Nitrate | 7757-79-1 | No data | | |
| ACGIH TLV | Zinc Chloride-fume | 7646-85-7 | TWA | 1mg/m3 | |
| STEL | 2mg/m3 | |
| US.NIOSH | REL | 1mg/m3 | |
| STEL | 2mg/m3 | |
| US.OSHA | PEL | 1mg/m3 | |
| STEL | 2mg/m3 | |
| TWA | 1mg/m3 | |

Engineering Control: Local exhaust ventilation

Individual Protection Measure: Do not handle until all safety precautions have been read and

understood. Use personal protective equipment as required.

Personal Protective Equipment:

Eye Protection: Protective goggles

Skin Protection: Rubber gloves and boots Respiratory Protection: Respirator

Section 9: Physical and Chemical Properties

Appearance: Light yellowish green – light greenish liquid

Odour: Characteristic odour

Odour Threshold: No data

pH: 6.5

Melting/Freezing Point: No data

Initial Boiling Point: No data

Boiling Range: No data

Flash Point: Not applicable

Evaporation Rate: No data

Flammability: Not applicable Upper Flammability Limit: Not applicable Lower Flammability Limit: Not applicable Vapour Pressure: No data

Vapour Density: No data

Relative Density: 1.2g/ml

Solubility in Water: Soluble Partition Coefficient Po/w: No data Auto-ignition Temperature: No data

Decomposition Temperature: No data Viscosity: No data

Section 10: Stability and Reactivity

Reactivity: No data

Chemical Stability: The material is stable under normal storage condition

Hazardous Reaction: Carbon oxides, nitrogen oxides, sulfur oxides, phosphorous oxides,

zinc oxides, hydrogen chloride may evolve upon combustion Condition to Avoid: Direct sunlight, extreme temperature, open flame, sparks Incompatible Material: Strong reducing agent, strong oxidizing agents

Hazardous Decomposition

Product: No data

Section 11: Toxicological Information

* 1. Acute Toxicity

|  |  |  |  |
| --- | --- | --- | --- |
| Component: Ammonium Molybdate | | | |
|  | Ingestion, Oral LD50: | | |
|  |  | Rat | 333mg/kg |
| Component: Boric Acid | | | |
|  | Ingestion, Oral LD50: | | |
|  |  | Rat | 3765mg/kg |
|  | Dermal, LD50 | | |
|  |  | Rabbit | > 2000mg/kg |
|  | Inhalation, LC50 | | |
|  |  | Rat | > 2.03mg/L |
| Component: Phosphoric Acid | | | |
|  | Ingestion, Oral LD50: | | |
|  | | Rat | 1530mg/kg |
|  | Dermal, LD50 | | |
|  | | Rat | 2740mg/kg |
|  | Inhalation, LC50 | | |
|  |  | Rat | 850mg/kg/1hr |
| Component: Potassium Nitrate | | | |
|  | Ingestion, Oral LD50: | | |
|  |  | Rat | 3750mg/kg |
| Component: Zinc Chloride | | | |
|  | Ingestion, Oral LD50: | |  |
|  |  | Rat | 350mg/kg |
|  |  | Mouse | 1260mg/kg |
|  | Inhalation, LC50 | |  |
|  |  | Rat, 10 min | 1975mg/m3 |

* 1. Chronic Effect from Short and Long Term Exposure Skin Contact: Causes skin irritation

Eye Contact: Causes serious eye damage

Inhalation: No data available

Ingestion: No data available

Carcinogenicity: No data available

Mutagenicity: No data available Teratogenecity:

*Boric Acid*

Adverse effect on fertility:

Multigeneration study: NOAEL (fertility, male rats): 17.5mg B/kg bw/day Developmental effects have been observed in laboratory animals. The critical effect is considered to be decrease fetal body weight in rats. There is no evidence of developmental effects in hunman attributable to boron in studies of populations with high exposure to boron

Boric acid is classified and labeled as “Presumed human reproductive toxicant, category 1B”, in accordance with Appendix A to 29CFR section 1910.1200, OSHA-GHS

* 1. Symptoms No data available

Section 12: Ecological Information

Ecotoxicity:

|  |  |  |  |
| --- | --- | --- | --- |
| Component: Ammonium Molybdate | | | |
|  | Acute Toxicity: | | |
|  |  | *Onchorynchus mykiss*, LC50, 96hr | 320mg/L |
|  |  | *Daphnia magna,* EC50, 48 hr | 140mg/L |
|  |  | *Desmodesmus subspicatus*, EC50, 48 hr | 41mg/L |
| Component: Boric Acid | | | |
|  | Acute Toxicity | | |
|  |  | Fish, LC50, 96 hr | 74 - 725mg/L |
|  |  | Aquatic invertebrates, EC50, 48hr | 45-1376mg/L |
|  |  | *Pseudokirchneriella subcapitata*, EC50, 72hr | 40mg B/L |
|  | Chronic Toxicity | | |
|  |  | Fish, NOEC/EC10 | 2.89 - 16.65mg B/L |
|  |  | Higher plants/Alga/Clorophita, NOEC/EC10 | 4 - 50mg B/L |
|  |  | Crustacea/Amphibian, NOEC/EC10 | 5.67 - 40.62 mg B/L |
|  |  | Aquatic micro-organisms, EC50, 3hr | > 175mg B/L |
| Component: Chelating agent | | | |
|  | Acute Toxicity | | |
|  |  | Fish (*Leuciscus idus*), LC50, 96hr | > 500mg/L |
| Component: Copper Sulphate | | | |
|  | Acute Toxicity | | |
|  |  | Freshwater fish, LC50, 96 hr | 0.1mg/L |
|  |  | Water flea, EC50, 48hr | 0.024mg/L |
| Component: Potassium Nitrate | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Acute Toxicity | | | |
|  |  | Fish, LC50, 96 hr | 162mg/L | |
|  |  | *Poecilia reticulata*, LC50 | 1378mg/L | |
|  |  | *Lepomis macrochirus*, TLM, 96hr | 3000mg/L | |
|  |  | *Gambusia affinis*, TLM, 96hr | 162mg/L | |
|  |  | *Daphnia magna,* LC50, 96 hr | 39mg/L | |
|  |  | *Daphnia magna,* LC50, 48 hr | 490mg/L | |
|  |  | *Daphnia magna,* TLM, 96 hr | 39mg/L | |
|  |  | *Daphnia magna,* TLM, 48 hr | 490mg/L | |
|  |  | Plankton*,* EC50 | 200 - 1000mg/L | |
| Component: Zinc Chloride | | | | |
|  | Acute Toxicity | | | |
|  |  | *Onchorynchus mykiss*, LC50, 96hr | 0.179 - 0.393mg/L | Mortality |
|  |  | Lymnaea stagnalis, EC50, 6hr | 64mg/L | Intoxication |
|  |  | Callianassa australienses, EC50, 7d | 1.61 - 2.45mg/L | Intoxication |
|  |  | Callianassa australienses, EC50, 10d | 1.38 - 1.71mg/L | Intoxication |
|  |  | Callianassa australienses, EC50, 14d | 0.97 - 1.22mg/L | Intoxication |

Persistence and Degradability: No data available Bioaccumulative Potential: No data available Mobility in Soil: No data available

Other Adverse Effect: No data available

Section 13: Disposal Information

Dispose of contents/container to Kualiti Alam / authorized body by DOE.

Section 14: Transportation Information

|  |  |
| --- | --- |
| **Land (ADR/RID)** | Not regulated |
| **Sea (IMDG)** | Not regulated |
| **Air (IATA)** | Not regulated |

Section 15: Regulatory Information

Classification: Serious eye damage, category 1 Skin irritation, category 2

Specific target organ toxicity – single exposure, category 3

Signal Word: Danger

Pictogram:



Pesticides Act: Not applicable

Classification: Not applicable

Section 16: Other Information

Date of Preparation: 14 December 2015

Date of Revision: 17 November 2016

Reference Document: ICOP on Chemicals Classification and Hazard Communication 2014

GHS Purple Book MSDS:

|  |  |  |
| --- | --- | --- |
| Material | Source | Date |
| Ammonium Molybdate Tetrahydrate | Columbus Chemical Industries | 6/11/2012 |
| Boric Acid | SQM North America | Oct 2012 |
| Chelating agent | Orica Australia Pty Ltd, | 21/10/2013 |
| Copper Sulphate | Fisher Scientific | 20 May 2014 |
| Ferrous Sulphate Monohydrate | Kimleigh Chemicals SA Pty Ltd | 14 Feb 2012 |
| Manganese Sulphate Monohydrate | Numinor Chemicals Ind. Ltd | Oct 2010 |
| Phosphoric Acid | The Carbon Group | 30/3/2011 |
| Potassium Nitrate | LabChem Inc | 26/6/2013 |
| Zinc Chloride | Avantos Performance Material Inc | 16/5/2014 |

Disclaimer: To the best of our knowledge, the information contained herein is accurate. However, we cannot assume any liability whatsoever for the accuracy or completeness of the information contained herein.

