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

1.1 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

1.2 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
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 (CO_2), 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/m^3
			STEL/ceiling inhalable fraction	6mg/m^3
Australia	Chelating agent	-	TWA- 8hr	10mg/m^3

Source	Component	CAS No.	Limit	
ACGIH TLV	Copper Sulphate	7758-99-8	TWA	1mg/m^3
NIOSH IDLH			IDLH	100mg/m^3
			TWA	1mg/m^3
	Ferrous Sulphate	7782-63-0	No data	
	Manganese Sulphate	7785-87-7	No data	
OES	Phosphoric Acid	7664-38-2	TWA-8hr	1mg/m^3
			STEL-15min	2mg/m^3
	Potassium Nitrate	7757-79-1	No data	
ACGIH TLV	Zinc Chloride-fume	7646-85-7	TWA	1mg/m^3
			STEL	2mg/m^3
US.NIOSH			REL	1mg/m^3
			STEL	2mg/m^3
US.OSHA			PEL	1mg/m^3
			STEL	2mg/m^3
			TWA	1mg/m^3

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 $P_{o/w}$: 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

11.1 Acute Toxicity

Component: Ammonium Molybdate			
	Ingestion, Oral LD_{50}:		
		Rat	333mg/kg
Component: Boric Acid			
	Ingestion, Oral LD_{50}:		
		Rat	3765mg/kg
	Dermal, LD_{50}		
		Rabbit	> 2000mg/kg
	Inhalation, LC_{50}		
		Rat	> 2.03mg/L
Component: Phosphoric Acid			
	Ingestion, Oral LD_{50}:		
		Rat	1530mg/kg
	Dermal, LD_{50}		
		Rat	2740mg/kg
	Inhalation, LC_{50}		
		Rat	850mg/kg/1hr
Component: Potassium Nitrate			
	Ingestion, Oral LD_{50}:		
		Rat	3750mg/kg
Component: Zinc Chloride			
	Ingestion, Oral LD_{50}:		
		Rat	350mg/kg
		Mouse	1260mg/kg
	Inhalation, LC_{50}		
		Rat, 10 min	1975mg/m^3

11.2 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

11.3 Symptoms No data available

Section 12: Ecological Information

Ecotoxicity:

Component: Ammonium Molybdate			
	Acute Toxicity:		
		Onchorynchus mykiss, LC_{50}, 96hr	320mg/L
		Daphnia magna, EC_{50}, 48 hr	140mg/L
		Desmodesmus subspicatus, EC_{50}, 48 hr	41mg/L
Component: Boric Acid			
	Acute Toxicity		
		Fish, LC_{50}, 96 hr	74 - 725mg/L
		Aquatic invertebrates, EC_{50}, 48hr	45-1376mg/L
		Pseudokirchneriella subcapitata, EC_{50}, 72hr	40mg B/L
	Chronic Toxicity		
		Fish, NOEC/EC_{10}	2.89 - 16.65mg B/L
		Higher plants/Alga/Clorophita, NOEC/EC_{10}	4 - 50mg B/L
		Crustacea/Amphibian, NOEC/EC_{10}	5.67 - 40.62 mg B/L
		Aquatic micro-organisms, EC_{50}, 3hr	> 175mg B/L
Component: Chelating agent			
	Acute Toxicity		
		Fish (*Leuciscus idus*), LC_{50}, 96hr	> 500mg/L
Component: Copper Sulphate			
	Acute Toxicity		
		Freshwater fish, LC_{50}, 96 hr	0.1mg/L
		Water flea, EC_{50}, 48hr	0.024mg/L
Component: Potassium Nitrate			

	Acute Toxicity			
		Fish, LC_{50}, 96 hr	162mg/L	
		Poecilia reticulata, LC_{50}	1378mg/L	
		Lepomis macrochirus, TLM, 96hr	3000mg/L	
		Gambusia affinis, TLM, 96hr	162mg/L	
		Daphnia magna, LC_{50}, 96 hr	39mg/L	
		Daphnia magna, LC_{50}, 48 hr	490mg/L	
		Daphnia magna, TLM, 96 hr	39mg/L	
		Daphnia magna, TLM, 48 hr	490mg/L	
		Plankton, EC_{50}	200 - 1000mg/L	
Component: Zinc Chloride				
	Acute Toxicity			
		Onchorynchus mykiss, LC_{50}, 96hr	0.179 - 0.393mg/L	Mortality
		Lymnaea stagnalis, EC_{50}, 6hr	64mg/L	Intoxication
		Callianassa australienses, EC_{50}, 7d	1.61 - 2.45mg/L	Intoxication
		Callianassa australienses, EC_{50}, 10d	1.38 - 1.71mg/L	Intoxication
		Callianassa australienses, EC_{50}, 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