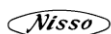


<b>Section 1 Chemical Product and Company Identification</b>				
Product Name	<b>Senator 70WP Fungicide</b>			
Chemical Name	Wettable powder containing thiophanate-methyl as active ingredient			
Primary Use	Fungicide for agricultural use			
Distributor	Name	Engage Agro Corporation		
	Address	1030 Gordon Street, Guelph, Ontario, Canada, N1G 4X5		
	TEL. No.	866-613-3336	Fax No.	877-220-2223
Manufacturer	Name	Nippon Soda Co., Ltd.		
	Address	2-1, Ohtemachi 2-Chome, Chiyoda-ku, Tokyo 100-8165, Japan		
	TEL. No.	+81-3-3245-6041	Fax No.	+81-3-3245-6287
Emergency	TEL. No	+1-866-336-2983	Fax No.	
Date Prepared	August 26, 2009 (Ver.2)		Date Revised	July 8, 2013

<b>Section 2 Hazardous Identification</b>			
Route of Entry	Skin : no	Inhalation : yes	Ingestion : no
Emergency Overview	<p>Pale brown powder with a faint odor as sulfur-containing compounds.</p> <p>Stable in normal condition.</p> <p>Harmful if inhaled.</p> <p>Suspected of causing genetic defects.</p> <p>May cause damage to chest and respiratory system through prolonged or repeated exposure.</p> <p>Toxic to aquatic life.</p> <p>Toxic to aquatic life with long lasting effects.</p>		

<b>Section 3 Composition/Information on Ingredient</b>				
Component	% (wt.)	Exposure Limits		
		OSHA PEL (mg/m3)	ACGIH TLV (mg/m3)	NIOSH REL (mg/m3)
<u>Active Ingredient</u> dimethyl 4,4'-(o-phenylene)bis(3-thioallophanate) ; { 1,2-di-(3-methoxycarbonyl-2-thioureido)benzene } ; { Dimethyl [1,2-phenylenebis(iminocarbonothioyl)bis-carbamate] } ; (CASNo.23564-05-8) Thiophanate-methyl (ISO name)	70.0	Not listed.	Not listed.	Not listed.
<u>Inactive Ingredient</u> Amorphous-Diatomaceous earth,<1% crystalline SiO <sub>2</sub> (CASNo.61790-53-2)	22.0	80	10	6
Amorphous-gel & precipitated silica (CASNo.112926-00-8)	4.1	80	10	6
Surfactants	3.9	Not listed.	Not listed.	Not listed.

<b>Section 4 First Aid Measures</b>	
Eye	Immediately flush eyes with plenty of water for at least 15min. Get medical advice if irritation persists.
Skin	Wash skin with soap and water while removing contaminated clothing and shoes.
Inhalation	Remove to fresh air and call a physician.
Ingestion	Induce vomiting immediately, as directed by a physician. Wash out mouth with water. Never give anything by mouth to an unconscious person. Call a physician.



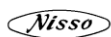
Note to Physicians	Not known.
--------------------	------------

<b>Section 5 Fire Fighting Measures</b>	
Flammable Properties	Not flammable.
Unusual Fire & Explosion Hazards	Thermal decomposition or combustion may produce carbon dioxide, carbon monoxide, sulfur oxide and nitrogen oxides.
Extinguishing Media	Water spray, foam, dry chemicals, carbon dioxide.
Fire Fighting Instructions	Protective equipment Wear self-contained breathing apparatus and complete personal protective equipment. Fire-Fighting procedure Move containers away from fire area if it can be done. If impossible to remove containers from fire zone, cool them with water spray.

<b>Section 6 Accidental Release Measures</b>
Protective equipment Wear personal protective equipment. Refer to Section 8 for personal protective equipment.
Personal precaution Avoid raising dust.
Environment precaution Prevent from releasing it to the environment as this product is toxic to aquatic organisms.
Cleaning procedure Obey all Federal, State or local regulations for health & safety and environmental protection when the accidental release is treated. Sweep up, place in a bag and hold for waste disposal. Wash spill site with soap and plenty of water after material pick-up is complete. Do not discharge to river, sea, lake, waterway or sewer systems directly.

<b>Section 7 Handling and Storage</b>	
Handling	Wear personal protective equipment. Refer to Section 8 for personal protective equipment. Handle as an organic dust. Avoid release to environment. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Use only in a well ventilated areas, or chemical fume hood. Wash thoroughly after handling. Keep out of the reach of children.
Storage	Keep in container tightly closed. Store at a room temperature. Protect from direct contact with water or excessive moisture, acids or bases.

<b>Section 8 Exposure Control/Personal protection</b>			
Specific Engineering Controls	Use general and/or local exhaust ventilation to control dusts.		
Personal Protection Equipment			
Respiratory	Appropriate respirator for dust.	Gloves	Outside: Polyvinyl chloride, Polyethylene or Rubber Inside: Cotton , Rayon
Eye/Face	Use safety glasses. If there is a potential to exposure for dust, wear safety goggles.	Footwear	Working shoes with socks.
Clothing	Working cloths with long sleeves and long	Others	None



	pants.		
--	--------	--	--

**Section 9 Physical and Chemical Properties**

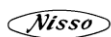
Appearance	Off-white fine powder.	Odor	Faint sulfur odor.
Density	Not applicable.	Bulk Density	Ca 0.2 g/cm <sup>3</sup>
Melting Point	Not applicable.	Boiling Point	Not available.
Vapor Density (air=1)	Not applicable.	Vapor Pressure	Not available.
Evaporation Rate (Ethyl acetate=1)	Not applicable.	pH	4.0 – 7.0 (CIPAC method)
Solubility in water	Negligible but dispersible.	Solubility in solvent	Not available.
Log Po/w	1.44 (active ingredient)		
Flash Point	Not applicable.	Autoignition Temp.	Not applicable.
Dust Explosion Limit	225 g/m <sup>3</sup>		

**Section 10 Stability and Reactivity**

Chemical Stability	Stable	<input checked="" type="checkbox"/>	<u>If unstable, condition to avoid unstable reaction.</u> Stable in normal condition.
	Unstable	<input type="checkbox"/>	
Hazardous Polymerization	May occur	<input checked="" type="checkbox"/>	<u>If polymerization may occur, condition to avoid it.</u>
	Will not occur	<input type="checkbox"/>	
Reactivity	May react with strong oxidizing agents.		
Incompatible materials	Oxidizing agents, strong acids or bases.		
Hazardous Decomposition Product	CO, CO <sub>2</sub> , SO <sub>x</sub> , NO <sub>x</sub> .		
Others	Avoid high temperature.		

**Section 11. Toxicological Information**

Effect of Acute Exposure
Acute Toxicity
Oral (rat) LD <sub>50</sub> >5000 mg/kg(male), 4350 mg/kg(female)
Dermal(rat) LD <sub>50</sub> >5000 mg/kg(male, female)
Inhalation(rat) LC <sub>50</sub> (4hr) >1.8 mg/L(male, female)
(The following data is for Thiophanate- Methyl)
Inhalation(rat) LC <sub>50</sub> (4hr) 1.7mg/L(male), 1.9mg/L(female)
Sensitization(skin):
Negative



Irritation:			
Eyes(rabbit):		Mild	
Dermal(rabbit):		Negative	
Mutagenicity (Active ingredient)	Ames test :	Chromosomal aberration test:	
		Negative	
	UDS test :	Micronucleus test :	
		Positive	
Carcinogenicity	NTP : no	IARC : no	ACGIH Regulated: no
Subacute Toxicity (Active ingredient)			
90-days repeated dose test			
NOEL(rat) : 13.9mg/kg/day: 90days			
Chronic Toxicity and Carcinogenicity (Active ingredient)			
Chronic toxicity/Carcinogenicity test(2years)			
NOEL(mouse) : 16mg/kg/day(male), 64mg/kg/day(female)			
NOEL(rat) : 8.8mg/kg/day(male), 10.2 mg/kg/day(female)			
Teratogenicity (Active ingredient)			
Teratogenicity(rat) : Negative			
Teratogenicity (rabbit) : Negative			
Reproductive Toxicity (Active ingredient)			
3 generations reproductive test(rat) :			
Reproductive Toxicity : Negative			

**Section 12 Ecological Information**

## Environmental Fate

Bio-Degradability :

No information.

Bio-Accumulative Potential :

No information.

## Ecological Toxicity

Acute Toxicity to aquatic organisms

Acute Toxicity to Fish :

LC<sub>50</sub>(Carp) >100 mg/L (96hrs) (RD 8923)LC<sub>50</sub>(Trout) 2.2 mg/L (96hrs) (RD 8329)

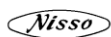
Acute Toxicity to Daphnia:

EC<sub>50</sub>(Daphnia magna) 15.6 mg/L (48hrs) (RD8303)

Acute Toxicity to Algae:

EbC<sub>50</sub>(Green Algae) 4.7 mg/L (72hrs) (RD 8305)**Section 13 Disposal Considerations**

- 1) Mix the material with sawdust or combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
- 2) Do not discharge into waterway or sewer systems unless permission has been obtained by the local authority and suitable dilution has been established.
- 3) Contaminated empty containers must be disposed of as chemical waste.
- 4) Obey all Federal, State and local regulations concerning health & safety and environmental protection.

**Section 14 Transport Information**

## International marine transportation(IMDG)

Classified as dangerous goods in IMDG Code.

UN No.	3077
Class	9
Proper shipping name	Environmentally hazardous substance, solid, N.O.S.(Thiophanate-methyl mixture)
Packing group	III
Marine pollutant :	applicable

## IATA Dangerous Goods Regulations

Classified as dangerous goods in IATA-DGR.

UN No.	3077
Class	9
Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Thiophanate-methyl mixture)
Packing group	III
Marine pollutant :	applicable

## DOT Regulations

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Thiophanate-methyl mixture), RQ
Hazard Class :	9
Identification No. :	UN 3077
Packing Group :	III
Emergency Response Guide No.	171

**Section 15 Regulatory Information**

TSCA	Not listed(CAS No. : 23564-05-8)
OSHA	Not listed(CAS No. : 23564-05-8)
SARA	Listed(CAS No. : 23564-05-8)
CERCLA	Listed(CAS No. : 23564-05-8)
Others	None

**Section 16 Other Information**

## Label Information

NFPA Rating : Health ; **1** Flammability; **1** Instability; **0**

## Revised Information

ENCS(JAPAN)	Not listed(CAS No. : 23564-05-8)
EINECS(EU)	Listed(CAS No. : 23564-05-8)
DSL(Canada)	Listed(CAS No. : 23564-05-8)
IECSC(China)	Listed(CAS No. : 23564-05-8)



Revised Information

This MSDS was prepared according to ANSI Z400.1-2003

This information is taken from sources or based upon data believed to be reliable.  
However, Nippon Soda Co., LTD. makes no warranty as to the absolute correctness or  
sufficiency of any of the foregoing or that additional or other measures may not be required  
under particular conditions.