Section 1 Identification				
Product identifier		**Thiophanate-methyl 70WP**		
Other means of identification		Wettable powder containing thiophanate-methyl as active ingredient		
Recommended Use of the chemical and restrictions on use		Fungicide for agricultural use		
Distributor	Name			
	Address			
	TEL. No.		Fax No.	
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	+1-703-741-5970 (CHEMTREC)	Fax No.	

Section 2 Hazard(s) Identification	
Classification	Acute Toxicity-Inhalation: Hazard category 4 Germ Cell Mutagenicity: Hazard category 2 Carcinogenicity: Hazard category 1A Specific Target Organ Toxicity (repeated exposure):Hazard category 2 Hazardous to the Aquatic Environment-Acute Hazard: Hazard category 2 Hazardous to the Aquatic Environment-Long-Term Hazard: Hazard category 2
Signal word	Danger
Hazard statement	H332 Harmful if inhaled H341 Suspected of causing genetic defects H350 May cause cancer H373 May cause damage to lung(inhalation) through prolonged or repeated exposure H401 Toxic to aquatic life H411 Toxic to aquatic life with long lasting effects
Symbol	

Precautionary statement	**Prevention** P261 Avoid breathing dust. P271 Use only outdoors or in a well-ventilated area. P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P280 Wear protective gloves/protective clothing/eye protection/face protection. P260 Do not breathe dust. P273 Avoid release to the environment.
	Response P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P308+P313 IF exposed or concerned: Get medical advice/attention. P314 Get medical advice/attention if you feel unwell. P391 Collect spillage. **Storage** P405 Store locked up. **Disposal** P501 Dispose of contents/container in accordance with local/national/international regulation.
Description of any hazards not otherwise classified	None

Section 3 Composition/Information on Ingredients

Chemical name Common name and synonyms	CAS No.	Concentration (wt/vol%)
Dimethyl 4,4'-(o-phenylene)bis(3-thioallophanate) ; {1,2-di-(3-methoxycarbonyl-2-thioureido)benzene } ; {Dimethyl [1,2-phenylenebis(iminocarbonothioyl)]bis-[carbamate] }; Thiophanate-methyl (ISO name)	23564-05-8	70.0
Amorphous-Diatomaceous earth Contained Crystalline Silica Aluminum oxide	61790-53-2 14808-60-7 1344-28-1	22.0 (≧0.1) (≧1.0, <10)
Amorphous-gel & precipitated silica	112926-00-8	4.1
Additives(Surfactants etc)		3.9

Section 4 First-Aid Measures	
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.
Skin contact	Remove/Take off immediately all contaminated clothing. Wash with soap and plenty of water. If skin irritation occurs: Get medical advice/attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Ingestion	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
Most important symptoms/effects, acute and delayed	Not available
Indication of immediate medical attention and special treatment needed, if necessary	No specific antidote. Supportive care. Treatment based on judgment of physician in response to symptoms of patient.

Section 5 Fire-Fighting Measures	
Suitable (and unsuitable) extinguishing media	Suitable extinguishing media: Carbon dioxide, dry chemicals, foam or water spray. Unsuitable extinguishing media: Not known
Specific hazards arising from the chemical	This product may evolve harmful and irritant gas and fume such as CO, CO_2, SO_X, NOx , organic compounds by heating or on combustion. The containers may explode by heating.
Special protective equipment and precautions for fire-fighters	Protective equipment Wear self-contained breathing apparatus and complete personal protective equipment for fire-fighting as it may evolve harmful and irritant gas/fume such as CO, CO_2, SO_X, NOx , organic compounds in heating or combusting. Precautions for fire-fighters Move containers away from fire area if it can be done without risk. If impossible to remove containers from fire zone, cool them with water spray.

Section 6 Accidental Release Measures	
Personal precautions, protective equipment, and emergency procedures	Wear personal protective equipment. Refer to Section 8 for personal protective equipment. Avoid contact with skin, eye and clothing.
Methods and materials for containment and cleaning up	This material may be toxic to aquatic organisms. Prevent from releasing to the environment. Keep away from all ignition sources. Ventilate area. Bank up sand or soil around spill to avoid releasing this material to the environment. Scoop up spill with tool such as shovel, place in closable containers and hold for waste disposal. Use inert absorbent such as vermiculite and sand to complete pick up. Wash spill site after material pickup is complete. Obey all Federal, State and local regulations for health & safety and environmental protection in treating spill.

Section 7 Handling and Storage	
Precautions for safe handling	Wear personal protective equipment. Refer to Section 8 for personal protective equipment. Avoid contact with skin, eye and clothing. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid breathing dust. Avoid contact of this product with moisture, water and acid. Keep away from all ignition sources. Perfectly ground the equipments to avoid charging static electricity. Use nitrogen pad to prevent from catching fire if necessary.
Conditions for safe storage	Keep tightly closed. Store in a cool, dry, well-ventilated place. Keep away from direct sunlight, oxidizing agents. Store locked up.

Section 8 Exposure Controls/Personal protection			
Control parameters	The following data is for Amorphous-Diatomaceous earth Amorphous-gel & precipitated silica OSHA PEL 80 mg/m3 ACGIH TLV 10 mg/m3 NIOSH REL 6 mg/m3		
Appropriate engineering controls	Use general and/or local exhaust ventilation to control vapor. Provide safety shower and eye washes in work area.		
Individual protection measures, such as personal protective equipment			
Respiratory	Wear NIOSH/MSHA –approved respirator for dusts.	Gloves	Impermeable gloves such as rubber or polyvinyl chloride.
Eye/Face	Safety goggles.	Footwear	Working shoes.
Clothing	Working wear with long sleeves and long pants.	Others	None

Section 9 Physical and Chemical Properties			
Appearance	Off-white fine powder.	Odor	Faint sulfur odor.
Specific Gravity	Not applicable.	Bulk Density	0.17～0.21 g/cm^3
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 (20% suspension at 20℃)
Solubility in water	Insoluble but dispersible.	Solubility in solvent	Not available.
Log Po/w	1.44（Thiophanate-Methyl）		
Flash Point	Not applicable.	Autoignition Temp.	Not applicable.
Dust explosion limit	225 g/m^3		

Section 10 Stability and Reactivity

Reactivity	This product is stable in normal handling and storing condition.		
Chemical Stability	Unstable	x	If unstable, condition to avoid unstable reaction. Oxidizing agents, strong acids or bases.
	Stable		
Possibility of hazardous reactions	If polymerization may occur, condition to avoid it.		
Conditions to avoid	High temperature.		
Incompatible Materials	Oxidizing agents, strong acids or bases.		
Hazardous decomposition Products	Thermal decomposition or combustion may produce CO, CO_2, SO_X, NOx , various organic compounds.		

Section 11. Toxicological Information

Acute Toxicity

Oral (rat) LD_{50} >5000 mg/kg(male)、4350 mg/kg(female)>500
Dermal(rat) LD_{50} >5000 mg/kg(male, female)
Inhalation(rat) LC_{50}(4hr) >1.8 mg/L(male, female)

（The following data is for Thiophanate- Methyl）

Inhalation(rat) LC_{50}(4hr) 1.7mg/L(male), 1.9mg/L(female)

Skin corrosion/irritation

Dermal (rabbit): No irritation.

Serious eye damage/irritation

Eyes (rabbit): Minimally irritation.

Respiratory or skin sensitization

Dermal (guinea pig): No sensitization.

Respiratory: Not available.

Germ cell mutagenicity

＊This product was classified as hazard category 2 because the content of Thiophanate-methyl for hazard category 2 is ≧1.0%.

（The following data is for Thiophanate- Methyl）

Ames test: Negative
Chromosomal aberration test: Negative
UDS test: Negative
Micronucleus test: Positive
Rec-Assay: Negative

Carcinogenicity

Rat: Negative

Mouse: Negative

	NTP	IARC Monograph	OSHA
Thiophanate-methyl	Not listed.	Not listed.	Not listed.

＊This product was classified as hazard category 1A because the content of Crystalline silica for hazard category 1A is ≧0.1%. Crystalline silica is classified as Group 1 carcinogen by IARC[1)] and as Group K carcinogen by NTP[2)].

Reproductive toxicity

Thiophanate-methyl 3generations reproductive test(rat): Negative

STOT-single exposure: Not available.

STOT-repeated exposure: Not available.

＊This product was classified as hazard category 2 (lung:inhalation) because the content of Aluminum oxide for hazard category 1 (lung:inhalation) is ≧1.0% and <10%.

Aspiration hazard: Not available.

Others

Chronic Toxicity and Carcinogenicity (Active ingredient)

Chronic toxicity/Carcinogenicity test

NOAEL(mouse) : 98.6 mg/kg/day(male), 28.7 mg/kg/day(female): 1.5years

NOAEL(rat) : 8.8mg/kg/day(male), 10.2 mg/kg/day(female): 2years

Teratogenicity (Active ingredient)

rat : Negative

rabbit : Negative

Section12 Ecological Information

Ecotoxicity

Acute Toxicity to aquatic organisms

Acute Toxicity to Fish :	LC_{50}(Carp)	>100 mg/L (96hrs)
	LC_{50}(Trout)	2.2 mg/L (96hrs)
Acute Toxicity to Daphnia:	EC_{50}(Daphnia Magna)	15.6 mg/L (48hrs)
Acute Toxicity to Algae:	ErC_{50}(Green Algae)	6.1 mg/L (72hrs)

Persistence and degradability

Bio-Degradability : Not good degradability(Thiophanate-Methyl).

Bioaccumulative potential

Since the value of logPo/w is low, it is estimated that bio-accumulative potential is low (Thiophanate-Methyl).

Mobility in soil

Not available.

Other adverse effects

Not available.

Section 13 Disposal Considerations

1) Directly burn the material or dissolve it in a combustible solvent and burn it in a chemical incinerator with an afterburner and an alkaline scrubber, in accordance with Federal, State or local regulation.
2) Dispose of contents/container in accordance with local/national/international regulation.

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

ICAO/IATA Dangerous Goods Regulations

Classified as dangerous goods in ICAO/IATA-DGR.

UN No. 3077

Class 9

Proper shipping name

Environmentally hazardous substance, solid, n.o.s. (Thiophanate-methyl mixture)

Packing group III

Environmentally hazardous: applicable

Special precautions for use

Not applicable.

Section 15 Regulatory Information

Substance (CAS No.)	Thiophanate-methyl (23564-05-8)	Amorphous-Diatomaceous earth (61790-53-2)	Crystalline Silica (14808-60-7)	Aluminum oxide (1344-28-1)	Amorphous-gel & precipitated silica （112926-00-8）
TSCA	Not applicable. (pesticide)	Listed	Listed	Listed	Not listed.
OSHA	Not listed.	Listed	Listed	Listed	Listed
SARA	Listed	Not listed.	Not listed.	Listed	Not listed.
CERCLA	Listed	Not listed.	Not listed.	Not listed.	Not listed.
Others	None	None	None	None	None

Section 16 Other Information, including date of preparation or last revision

Label Information

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

Substance (CAS No.)	Thiophanate-methyl (23564-05-8)	Amorphous-Diatomaceous earth (61790-53-2)	Crystalline Silica (14808-60-7)	Aluminum oxide (1344-28-1)	Amorphous-gel & precipitated silica （112926-00-8）
ENCS(JAPA	Not applicable.	Not listed.	Listed(1-548)	Listed(1-23)	Listed(1-548)

N)	(pesticide)				
EINECS(EU)	Listed (EC No. 245-740-7)	Not listed.	Listed (238-878-4)	Listed (215-691-6)	Not listed.
DSL(Canada)	Listed	Not listed.(DSL) Listed（NDSL）	Listed	Listed	Listed
ECL(South Korea)	Listed (KE-28330)	Listed.(KE-21794)	Listed(KE-29983)	Listed (KE-01012)	Listed (KE-32733)
IECSC(China)	Listed	Listed	Listed	Listed	Listed

Revised Information

This SDS was prepared according to ANSI Z400.1/Z129.1-2010.

References

1) Silica (IARC Summary & Evaluation, Volume 68 , 1997)
2) NTP 11th report on carcinogens for silica (2005)

Date Prepared	Jun. 18, 2008	Date Revised	Sep. 26, 2017(Ver.6)