BION M

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
1.1	2023/08/10	S164435441	

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BION M

Design code : A10946A

Manufacturer or supplier's details

Company : PT. Syngenta Indonesia

Address : CIBIS Nine Lantai 6, Jl. TB. Simatupang No.2

12560 Jakarta
Indonesia

Telephone : (62-21) 3042 1000

Emergency telephone number : (62-21) 5735175

Telefax : (62-21) 8068 2838

Recommended use of the chemical and restrictions on use

Recommended use : Fungicide

2. HAZARDS IDENTIFICATION

GHS Classification

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : H400 Very toxic to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P273 Avoid release to the environment.

Response:

P391 Collect spillage.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

May form combustible dust concentrations in air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
mancozeb (ISO)	8018-01-7	>= 30 -< 60
citric acid	77-92-9	< 10
sodium dibutylnaphthalenesulphonate	25417-20-3	>= 0,25 -< 2,5
acibenzolar-S-methyl	135158-54-2	>= 1 -< 2,5

4. FIRST AID MEASURES

General advice : Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

If inhaled : Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required.

If swallowed : If swallowed, seek medical advice immediately and show this container or label.
Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed : Nonspecific
No symptoms known or expected.

Notes to physician : There is no specific antidote available.
Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
Alcohol-resistant foam
or
Water spray

Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during fire-fighting	:	Fire will spread by smouldering or slow decomposition. As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.
Specific extinguishing methods	:	Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.
Special protective equipment for firefighters	:	Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8. Avoid dust formation.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13). Do not create a powder cloud by using a brush or compressed air. Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

7. HANDLING AND STORAGE

Advice on safe handling	:	This material is capable of forming flammable dust clouds in air, which, if ignited, can produce a dust cloud explosion. Flames, hot surfaces, mechanical sparks and electrostatic discharges can serve as ignition sources for this material. Electrical equipment should be compatible with the flammability characteristics of this material. The flammability characteristics will be made worse if the material contains traces of flammable solvents or is handled in the presence of flammable solvents. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8.
Conditions for safe storage	:	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
mancozeb (ISO)	8018-01-7	TWA	1 mg/m3	Supplier
acibenzolar-S-methyl	135158-54-2	TWA	5 mg/m3	Syngenta

Engineering measures : Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.
Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : 0,5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : No special protective equipment required.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Remove and wash contaminated clothing before re-use.
Wear as appropriate:
Dust impervious protective suit

Protective measures : The use of technical measures should always have priority over the use of personal protective equipment.
When selecting personal protective equipment, seek appropriate professional advice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	powder
Colour	:	light yellow to dark brown
Odour	:	weak
Odour Threshold	:	No data available
pH	:	3 - 7 Concentration: 1 %w/v
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	May form combustible dust concentrations in air.
Burning number	:	4 (20 °C) 4 (100 °C)
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	No data available
Bulk density	:	0,2 - 0,3 g/cm3
Solubility(ies)		
Solubility in other solvents	:	not soluble
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive

Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Surface tension	:	45,7 mN/m, 4,000 g/l, 20 °C
Minimum ignition energy	:	> 1.000 mJ
Particle size	:	No data available

10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	No decomposition if used as directed.
Incompatible materials	:	None known.
Hazardous decomposition products	:	No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 4,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Highest attainable concentration

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:

mancozeb (ISO):

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5,14 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhala-

tion toxicity

Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg

acibenzolar-S-methyl:

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.000 mg/m3
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Species : Rabbit
Result : No skin irritation

Components:

mancozeb (ISO):

Species : Rabbit
Result : No skin irritation

sodium dibutylnaphthalenesulphonate:

Result : Irritating to skin.

acibenzolar-S-methyl:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : No eye irritation

Components:

mancozeb (ISO):

Species : Rabbit
Result : No eye irritation

citric acid:

Result : Eye irritation

sodium dibutylnaphthalenesulphonate:

Result : Risk of serious damage to eyes.

acibenzolar-S-methyl:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitisation

Product:

Species : Guinea pig
Result : Did not cause sensitisation on laboratory animals.

Components:

mancozeb (ISO):

Species : Guinea pig
Result : May cause sensitisation by skin contact.

acibenzolar-S-methyl:

Species : Guinea pig
Result : The product is a skin sensitiser, sub-category 1B.

Germ cell mutagenicity

Components:

mancozeb (ISO):

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

acibenzolar-S-methyl:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

mancozeb (ISO):

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

acibenzolar-S-methyl:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:

mancozeb (ISO):

Reproductive toxicity - As- : Clear evidence of adverse effects on development, based on

sessment | animal experiments.

acibenzolar-S-methyl:

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

STOT - single exposure

Components:

citric acid:

Exposure routes : Inhalation
Target Organs : Respiratory system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure

Components:

mancozeb (ISO):

Target Organs : Thyroid, Nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

acibenzolar-S-methyl:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 1,4 mg/l
Exposure time: 96 h

Components:

mancozeb (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,088 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,073 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0,032 mg/l
Exposure time: 120 h

EC10 (Raphidocelis subcapitata (freshwater green alga)): 0,009 mg/l
End point: Growth rate
Exposure time: 120 h

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : EC10 (Pimephales promelas (fathead minnow)): 0,00127 mg/l
Exposure time: 215 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 0,0109 mg/l
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity) : 10

sodium dibutylnaphthalenesulphonate:

Ecotoxicology Assessment

Acute aquatic toxicity : Harmful to aquatic life.

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

acibenzolar-S-methyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,88 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Americamysis): 0,88 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 1,7 mg/l
Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): 0,4 mg/l
End point: Growth rate
Exposure time: 72 h

EC50 (Lemna gibba (gibbous duckweed)): 0,31 mg/l
End point: Frond growth
Exposure time: 7 d

NOEC (Lemna gibba (gibbous duckweed)): 0,019 mg/l
End point: Frond growth
Exposure time: 7 d

ErC50 (Skeletonema costatum (marine diatom)): 0,22 mg/l
Exposure time: 72 h

NOEC (Skeletonema costatum (marine diatom)): 0,061 mg/l
End point: Growth rate
Exposure time: 72 h

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic tox- : NOEC (Oncorhynchus mykiss (rainbow trout)): 0,026 mg/l

icity)		Exposure time: 87 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna Straus): 0,044 mg/l Exposure time: 22 d
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h

Persistence and degradability

Components:

mancozeb (ISO):

Biodegradability	:	Result: Not readily biodegradable.
Stability in water	:	Degradation half life: 5,8 - 55 h Remarks: Product is not persistent.

acibenzolar-S-methyl:

Biodegradability	:	Result: Not readily biodegradable.
Stability in water	:	Remarks: Product is not persistent.

Bioaccumulative potential

Components:

mancozeb (ISO):

Bioaccumulation	:	Bioconcentration factor (BCF): < 100 Remarks: Low bioaccumulation potential.
Partition coefficient: n-octanol/water	:	log Pow: 1,38

acibenzolar-S-methyl:

Bioaccumulation	:	Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 3,1 (25 °C)

Mobility in soil

Components:

mancozeb (ISO):

Distribution among environmental compartments	:	Remarks: Low mobility in soil.
Stability in soil	:	Dissipation time: 6 - 15 h Percentage dissipation: 50 % (DT50) Remarks: Product is not persistent.

acibenzolar-S-methyl:

Distribution among environ-	:	Remarks: Slightly mobile in soils

mental compartments

Other adverse effects

Components:

mancozeb (ISO):

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

citric acid:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

acibenzolar-S-methyl:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Empty remaining contents.
Triple rinse containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(MANCOZEB)
Class : 9
Packing group : III
Labels : 9
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA-DGR

UN/ID No.	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (MANCOZEB)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	956
Packing instruction (passenger aircraft)	:	956
Environmentally hazardous	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANCOZEB)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances Hazardous to Health

Hazardous substances that must be registered : Not applicable

Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances

Hazardous substances approved for use	:	Not applicable
Prohibited substances	:	Not applicable
Restricted substances	:	Not applicable

Regulation of the Ministry of Trade No. 7 of 2022 on Distribution and Control of Hazardous Materials

Type of hazardous materials subject to distribution and control, Annex I	:	Not applicable
Type of hazardous materials subject to distribution and control, Annex II	:	Not applicable

16. OTHER INFORMATION

Revision Date	:	2023/08/10
Date format	:	yyyy/mm/dd

Full text of other abbreviations

Syngenta	:	Syngenta Occupational Exposure Limit
Syngenta / TWA	:	Time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Trans-

portation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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