

SAFETY DATA SHEET



EQUATION®

Version 2.5
Document no. 130000000279

Revision Date 24.06.2019
Issue Date 25.06.2019

This SDS adheres to the standards and regulatory requirements of Malaysia and may not meet the regulatory requirements in other countries.

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name : EQUATION®

Other names : B10474623

Recommended use of the chemical and restriction on use

Recommended use : Fungicide

Restrictions on use : Do not use product for anything outside of the above specified uses.

Manufacturer, importer, supplier, representative office

Company : Du Pont Production Agriscience (Malaysia) Sdn Bhd
Street address : B-3-3, The Ascent Paradigm, SS 7 /26A, Kelana Jaya 47301, Selangor.
Malaysia
Telephone : +60 3 7800 0280
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Emergency telephone number : +60 3 7800 0287

2. HAZARDS IDENTIFICATION

Product hazard classification

Acute toxicity (Oral) : Category 4

Specific target organ toxicity - repeated exposure : Category 2

Hazardous to the aquatic environment - acute hazard : Category 1

Hazardous to the aquatic environment - chronic hazard : Category 1

Endpoints which are not classified, cannot be classified or are not applicable are not shown.

Label content

Pictogram :



Signal word : Warning

Hazardous warnings : Harmful if swallowed.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

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Precautionary statements : Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
Get medical advice/ attention if you feel unwell.
Collect spillage.
Dispose of contents/ container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Components

Chemical name	CAS-No.	Concentration
Cymoxanil	57966-95-7	30 %
Famoxadone	131807-57-3	22.5 %
Modified Lingin Sulfonate Salt		15 - 20%
Alkanediester, derivatives		1 - 5%
Other Ingredients		17.5 - 31.5%

4. FIRST AID MEASURES

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

Inhalation : Remove person to fresh air. If signs/symptoms continue, get medical attention. Artificial respiration and/or oxygen may be necessary. Call a poison control center or doctor for treatment advice.

Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Ingestion : Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Call a poison control center or doctor for treatment advice.

Most important symptoms/effects, acute and delayed : No information available.

Protection of first-aiders : No information available.

Notes to physician : No information available.

5. FIREFIGHTING MEASURES

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- Suitable extinguishing media** : Water spray, Dry chemical, Foam, Carbon dioxide (CO₂)
- Unsuitable extinguishing media** : High volume water jet, (contamination risk)
- Specific hazards** : Under severe dusting conditions, this material may form explosive mixtures in air.
- Special protective equipment for firefighters** : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
- Specific extinguishing methods** : No information available.
- Further information** : Prevent fire extinguishing water from contaminating surface water or the ground water system. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
(on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures** : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
- Environmental precautions** : Prevent material from entering sewers, waterways, or low areas.
- Methods and materials for containment and cleaning up** : Sweep up and shovel into suitable containers for disposal.
If spill area is on ground near valuable plants or trees, remove 5 cm of top soil after initial clean-up.
- Additional advice** : Dispose of in accordance with local regulations.

7. HANDLING AND STORAGE

Handling

- Technical measures/Precautions** : Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use.
- Precautions for safe handling** : Keep away from heat and sources of ignition.

Storage

- Suitable storage conditions** : Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Keep tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

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No occupational exposure limit values are applicable.

Engineering measures : Use only with adequate ventilation.**Biological occupational exposure limits** : No information available.**Personal protective equipment****Respiratory protection** : Where there is potential for airborne exposures in excess of applicable limits, wear approved respiratory protection with dust/mist cartridge.**Hand protection** : Material: Protective gloves**Eye protection** : Wear protective eyewear to prevent contact with this substance.**Skin protection** : Wear protective clothing such as gloves, apron, boots, or coveralls, as appropriate.**Hygiene measures** : Avoid contact with skin, eyes and clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Wash all protective clothing after use.**Protective measures** : Use this product in accordance with its label. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance (Physical state, form, colour, etc.)****Physical state** : solid
Form : granules
Colour : brown**Odour** : sweet**Odour Threshold** : No information available.**pH** : 5.7**Melting point/freezing point****Melting point/range** : Not available for this mixture.**Initial boiling point and boiling range**

No information available.

Flash point : No information available.**Evaporation rate** : No information available.

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Flammability (solid, gas) : No information available.

Upper/lower flammability or explosive limits

Upper explosion limit : No information available.

Lower explosion limit : 0.031 g/l

Vapour pressure : No information available.

Vapour density : No information available.

Density

Bulk density : 580 kg/m³

Solubility(ies)

Water solubility : dispersible

Partition coefficient: n-octanol/water : No information available.

Auto-ignition temperature

Ignition temperature : > 360 °C

Decomposition temperature : No information available.

Viscosity

Viscosity, kinematic : No information available.

Molecular weight : No information available.

Oxidizing properties : No information available.

10. STABILITY AND REACTIVITY

Reactivity : No information available.

Chemical stability : Stable at normal temperatures and storage conditions.

Possibility of hazardous reactions : No information available.

Conditions to avoid : None reasonably foreseeable.

Materials to avoid : None reasonably foreseeable.

Hazardous decomposition products : No information available.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral

EQUATION® : LD50/Rat: 1,333 mg/kg

Inhalation

Cymoxanil : LC50/4 h/Rat(dust/mist): > 5.06 mg/l

Famoxadone : LC50/4 h/Rat(dust/mist): > 5.3 mg/l

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	Method: OECD Test Guideline 403
	The substance or mixture has no acute inhalation toxicity
Modified Lingin Sulfonate Salt	: Toxic effects cannot be excluded
Alkanediester, derivatives	: Toxic effects cannot be excluded
Dermal	
EQUATION®	: LD50/Rabbit: > 5,000 mg/kg
Skin corrosion/irritation	
EQUATION®	: Species: Rabbit
	Result: No skin irritation
Serious eye damage/eye irritation	
EQUATION®	: Species: Rabbit
	Result: No eye irritation
Respiratory or skin sensitisation	
EQUATION®	: Species: Guinea pig
	Result: Animal test did not cause sensitization by skin contact.
Germ cell mutagenicity	
Cymoxanil	: Animal testing did not show any mutagenic effects. Evidence suggests this substance does not cause genetic damage in cultured bacterial cells. Tests on mammalian cell cultures showed mutagenic effects.
Famoxadone	: Animal testing did not show any mutagenic effects. Test on bacterial cultures did not show mutagenic effects. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
Alkanediester, derivatives	: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Overall weight of evidence indicates that the substance is not mutagenic. Information given is based on data obtained from similar substances.
Carcinogenicity	
Cymoxanil	: Not classifiable as a human carcinogen. Did not show carcinogenic effects in animal experiments.
Famoxadone	: Animal testing did not show any carcinogenic effects.
Alkanediester, derivatives	: Weight of evidence does not support classification as a carcinogen Overall weight of evidence indicates that the substance is not carcinogenic.
Reproductive toxicity	
Cymoxanil	: Reproductive toxicity: No toxicity to reproduction Teratogenicity: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Famoxadone	: Reproductive toxicity: Weight of evidence does not support classification for reproductive toxicity Animal testing showed effects on reproduction at levels equal to or above those causing parental toxicity. No effects on or via lactation Teratogenicity: Animal testing showed no developmental toxicity.

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Alkanediester, derivatives : Reproductive toxicity: No toxicity to reproduction
 Animal testing showed no reproductive toxicity.
 No effects on or via lactation
 Teratogenicity: Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Specific Target Organ Toxicity

Specific target organ toxicity - single exposure

Cymoxanil : The substance or mixture is not classified as specific target organ toxicant, single exposure.
 Famoxadone : The substance or mixture is not classified as specific target organ toxicant, single exposure.
 Alkanediester, derivatives : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ toxicity - repeated exposure

Cymoxanil : Likely route of exposure: Ingestion
 Target Organs: thymus
 The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.
 Famoxadone : Target Organs: Eyes
 The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.
 Alkanediester, derivatives : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Cymoxanil : No aspiration toxicity classification
 Famoxadone : No aspiration toxicity classification
 Modified Lingin Sulfonate Salt : No aspiration toxicity classification
 Alkanediester, derivatives : No aspiration toxicity classification

Other

Cymoxanil : Repeated dose toxicity:
 The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.
 Oral/multiple species
 altered blood chemistry, No effect to neurotoxicity.
 Oral - feed/Dog 90 d
 Target Organs: thymus
 Thymus effects
 Famoxadone : Repeated dose toxicity:
 The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.
 Oral - feed/Dog
 Target Organs: Eyes
 eye effects
 Oral - feed/Rat
 Reduced body weight gain, Organ weight changes, Increased liver enzyme levels in serum, Liver effects, Red blood cell destruction causing abnormal decrease in number of red blood cells (anaemia)
 Dermal/Rat

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Alkanediester, derivatives : Increased liver weight, Increased liver enzyme levels in serum

: Repeated dose toxicity:
Ingestion/Rat 90 d
NOAEL: > 750 mg/kg
Method: OECD Test Guideline 408
No toxicologically significant effects were found.

12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Acute and prolonged toxicity to fish

EQUATION® : LC50/96 h/Oncorhynchus mykiss (rainbow trout): 0.038 mg/l

Toxicity to aquatic plants

EQUATION® : ErC50/72 h/Pseudokirchneriella subcapitata (microalgae): 10.98 mg/l

Acute toxicity to aquatic invertebrates

EQUATION® : EC50/48 h/Daphnia magna (Water flea): 0.054 mg/l

Chronic toxicity to fish

Cymoxanil : NOEC/21 d/Oncorhynchus mykiss (rainbow trout): 0.22 mg/l

Famoxadone : NOEC/90 d/Oncorhynchus mykiss (rainbow trout): 0.0014 mg/l

Chronic toxicity to aquatic Invertebrates

Cymoxanil : NOEC/21 d/Daphnia magna (Water flea): 0.067 mg/l
Information source: Internal study report

Famoxadone : NOEC/21 d/Daphnia magna (Water flea): 0.0037 mg/l

Persistence and degradability

Famoxadone : Result: Not biodegradable

Modified Lingin Sulfonate Salt : Result: Not biodegradable

Alkanediester, derivatives : Result: Biodegradable

Bioaccumulation

Famoxadone : Bioaccumulation is unlikely.

Modified Lingin Sulfonate Salt : Bioaccumulation is unlikely.

Alkanediester, derivatives : Bioaccumulation is unlikely.

Mobility in soil

No information available.

Other adverse effects

EQUATION® : Environmental Hazards: See product label for additional application instructions relating to environmental precautions.

13. DISPOSAL CONSIDERATIONS**Waste disposal methods** : In accordance with local and national regulations. The product should not be allowed to enter drains, water courses or the soil.**Contaminated packaging** : Do not re-use empty containers.

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14. TRANSPORT INFORMATION

IMDG

UN number : 3077
UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Famoxadone, Cymoxanil)
Transport hazard class : 9
Packing group : III
Marine pollutant : yes (Famoxadone, Cymoxanil)

IATA

UN number : 3077
UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Famoxadone, Cymoxanil)
Transport hazard class : 9
Packing group : III

Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises : Not applicable

15. REGULATORY INFORMATION

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.
Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.
Pesticides Act 1974 (Act 149) (Incorporating all amendments up to 1 January 2006).

16. OTHER INFORMATION

References

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Revision Date/Version

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Significant change from previous version is denoted with a double bar.

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