

SAFETY DATA SHEET

DOW AGROSCIENCES (MALAYSIA) SDN BHD

Product name: COPTON™ Insecticide

Issue Date: 12.02.2020

Print Date: 14.02.2020

DOW AGROSCIENCES (MALAYSIA) SDN BHD encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

1. IDENTIFICATION OF THE HAZARDOUS CHEMICAL AND OF THE SUPPLIER

Product name: COPTON™ Insecticide

Recommended use of the chemical and restrictions on use

Identified uses: End use insecticide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES (MALAYSIA) SDN BHD

B-3-3, THE ASCENT PARADIGM

NO. 1, JALAN SS7/26A, KELANA JAYA

47301 PETALING JAYA

Selangor Darul Ehsan

MALAYSIA

Customer Information Number:

603-7800 0280

SDS@corteva.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 999

Local Emergency Contact: 603-7800 0287

2. HAZARDS IDENTIFICATION

GHS Classification

Classified as hazardous according to regulatory criteria.

Hazardous to the aquatic environment - acute hazard - Category 1

Hazardous to the aquatic environment - chronic hazard - Category 1

GHS label elements

Hazard pictograms



Signal word: **WARNING!**

Hazard statements

Very toxic to aquatic life with long lasting effects.

Precautionary statements**Prevention**

Avoid release to the environment.

Response

Collect spillage.

Disposal

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

Other hazards

No data available

3. COMPOSITION AND INFORMATION OF THE INGREDIENTS OF THE HAZARDOUS CHEMICAL

This product is a mixture.

Component	CASRN	Concentration
Hexaflumuron	86479-06-3	0.5%
Cellulose	9004-34-6	99.0%
Balance	Not available	0.5%

4. FIRST AID MEASURES

Description of first aid measures**General advice:**

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

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

Eye contact: Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride.

Unusual Fire and Explosion Hazards: No data available

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact the company for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Hexaflumuron	Dow IHG	TWA	0.05 mg/m ³
Cellulose	ACGIH	TWA	10 mg/m ³
	MY PEL	TWA	10 mg/m ³

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection),

potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Solid.
Color	White
Odor	Odorless
Odor Threshold	Odorless
pH	No test data available
Melting point/range	No test data available
Freezing point	No data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup No test data available
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No test data available
Water solubility	No test data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	No test data available
Explosive properties	No
Oxidizing properties	No
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures.

Incompatible materials: Avoid contact with oxidizing materials. Avoid contact with: Strong bases.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include trace amounts of: Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined. Based on information for component(s):

LD50, Rat, > 5,000 mg/kg Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined. Based on information for component(s):

LD50, Rat, > 2,000 mg/kg Estimated.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Solid or dust may cause irritation or corneal injury due to mechanical action.

Sensitization

Based on information for component(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Available data are inadequate to determine single exposure specific target organ toxicity.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

In animals, effects have been reported on the following organs:

Blood.

Liver.

Spleen.

May cause methemoglobinemia, thereby impairing the blood's ability to transport oxygen.

Carcinogenicity

Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity

Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

For the major component(s): In animal studies, cellulose has been shown to interfere with fertility and reproduction as a result of nutritional deficiencies associated with extremely high dietary concentrations of cellulose.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Hexaflumuron

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

LC50, Rat, male and female, 4 Hour, dust/mist, > 7.0 mg/l

Cellulose

Acute inhalation toxicity

The LC50 has not been determined.

Balance

Acute inhalation toxicity

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity

Hexaflumuron

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, > 0.5 mg/l

LC50, *Lepomis macrochirus* (Bluegill sunfish), 96 Hour, > 100 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour, 0.000111 mg/l

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, > 3.2 mg/l

Toxicity to bacteria

EC50, activated sludge, 3 Hour, > 100 mg/l, OECD 209 Test

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), 21 d, 0.000003 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).

oral LD50, *Colinus virginianus* (Bobwhite quail), > 2000mg/kg bodyweight.

dietary LC50, *Colinus virginianus* (Bobwhite quail), 5 d, 4786mg/kg diet.

contact LD50, *Apis mellifera* (bees), 48 Hour, > 100micrograms/bee

oral LD50, *Apis mellifera* (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, 880 mg/kg

Cellulose

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Fish, 96 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants

EC50, Algae, 96 Hour, Growth rate inhibition, > 100 mg/l

Toxicity to bacteria

LC50, Bacteria, > 100 mg/l

Balance

Acute toxicity to fish

No relevant data found.

Persistence and degradability

Hexaflumuron

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 76 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 4.72 mg/mg

Stability in Water (1/2-life)

, half-life, 22 d, pH 7

Cellulose

Biodegradability: Biodegradation rate may increase in soil and/or water with acclimation.

Theoretical Oxygen Demand: 1.18 mg/mg

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Hexaflumuron

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient: n-octanol/water(log Pow): 5.68 Estimated.

Bioconcentration factor (BCF): 3,800 - 5,600 Fish 28 d Measured

Cellulose

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Balance

Bioaccumulation: No relevant data found.

Mobility in Soil

Hexaflumuron

Potential for mobility in soil is slight (Koc between 2000 and 5000).

Partition coefficient (Koc): 3096 - 41170 Estimated.

Cellulose

No data available.

Balance

No relevant data found.

Results of PBT and vPvB assessment

Hexaflumuron

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Cellulose

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Balance

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects

Hexaflumuron

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Cellulose

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Balance

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL INFORMATION

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORTATION INFORMATION

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Hexaflumuron)
UN number	UN 3077
Class	9
Packing group	III
Environmental hazards	Hexaflumuron

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Hexaflumuron)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Hexaflumuron
Transport in bulk according to Annex I or II	Consult IMO regulations before transporting ocean bulk

of MARPOL 73/78 and the
IBC or IGC Code

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Hexaflumuron)
UN number	UN 3077
Class	9
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Flammability	Instability
0	0	0

Revision

Identification Number: 11104211 / A155 / Issue Date: 12.02.2020 / Version: 2.1

DAS Code: GF-1407

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
MY PEL	Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.
TWA	Time Weighted Average (TWA):

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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 - Transportation of Dangerous Goods; 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

DOW AGROSCIENCES (MALAYSIA) SDN BHD urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

MY