Dow AgroSciences India Pvt. Ltd. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Identification of the substance/preparation and of the company/undertaking

Product Name
Systhane 10WP Fungicide

Identified uses
Plant Protection Product

COMPANY IDENTIFICATION
Dow AgroSciences India Pvt. Ltd.
A Subsidiary of The Dow Chemical Company
1st Floor, Block B, 02, Godrej IT Park
Pirojshanangar, L.B.S. Marg
Chembur
Mumbai, MA 400 079
India

Customer Information Number: 91-22-55985700
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 91-2356-272046
Local Emergency Contact: 91 22 67978600

2. Composition/information on ingredients

Component	Amount	Classification:	CAS #	EC #
myclobutanil	10.3 %	Repr. 3: R63; Xn: R22; Xi: R36; N: R51, R53	88671-89-0	410-400-0
Kaolin	> 60.0 - < 70.0 %	Not classified.	1332-58-7	310-194-1
Silica gel, precipitated, crystalline-free	> 10.0 - < 20.0 %	Not classified.	112926-00-8	231-545-4
Sodium lignosulfonate	< 10.0 %	Not classified.	8061-51-6	Polymer
Silica, crystalline (quartz)	< 1.0 %	Not classified.	14808-60-7	238-878-4

See Section 16 for full text of R-phrases.

3. Hazards Identification

Possible risk of harm to the unborn child.
Harmful if swallowed.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. First-aid measures

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). 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. Suitable emergency eye wash facility should be immediately available.
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), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

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. Fire Fighting Measures

Suitable extinguishing media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.
Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

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: Nitrogen oxides. Hydrogen cyanide. Hydrogen chloride. Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents.

Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. 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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. 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.
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 Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling
General Handling: Keep out of reach of children. Keep away from heat, sparks and flame. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Use with adequate ventilation. Keep container closed. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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

Exposure Limits

Component	List	Type	Value
myclobutanil	Dow IHG	TWA	0.5 mg/m3
Kaolin	ACGIH	TWA Respirable fraction.	2 mg/m3 The value is for particulate matter containing no asbestos and <1% crystalline silica.
Silica gel, precipitated, crystalline-free	IN OEL	TWA Total dust.	10 mg/m3

Silica, crystalline (quartz)	IN OEL	TWA Respirable dust.	0.098 mg/m3 96 million particles / m3 The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.
	IN OEL	TWA Total dust.	0.291 mg/m3 96 million particles / m3 The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.
	ACGIH	TWA Respirable fraction.	0.025 mg/m3

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.

Personal Protection

Eye/Face Protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). When prolonged or frequently repeated contact may occur, a glove is recommended to prevent contact with the solid material. 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.

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, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance	
Physical State	Powder
Color	White to tan
Odor	Odorless
Odor Threshold	Odorless
pH	5.6
Melting Point	No test data available

Freezing Point	Not applicable
Boiling Point (760 mmHg)	Not applicable.
Flash Point - Closed Cup	Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Non-flammable
Flammable Limits In Air	**Lower**: Not applicable **Upper**: Not applicable
Vapor Pressure	Not applicable
Vapor Density (air = 1)	Not applicable
Specific Gravity (H2O = 1)	No test data available
Solubility in water (by weight)	Dispersible
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	Not applicable
Decomposition Temperature	No test data available
Dynamic Viscosity	Not applicable
Explosive properties	no data available
Oxidizing properties	no data available
Bulk Density	No test data available

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. Generation of gas during decomposition can cause pressure in closed systems. Avoid moisture. Avoid direct sunlight.

Incompatible Materials: Avoid contact with: Strong oxidizers.

Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials.
Decomposition products can include and are not limited to: Hydrogen chloride. Hydrogen cyanide.

11. Toxicological Information

Acute Toxicity
Ingestion

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): Estimated. LD50, rat > 5,000 mg/kg

Aspiration hazard

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

Dermal

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): Estimated. LD50, > 5,000 mg/kg

Inhalation

Prolonged excessive exposure to dust may cause adverse effects. Dust may cause irritation to upper respiratory tract (nose and throat).
As product: The LC50 has not been determined.

Based on information for component(s): Estimated. LC50, Aerosol > 5 mg/l

Eye damage/eye irritation

May cause moderate eye irritation. May cause corneal injury.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Sensitization

Skin

For the active ingredient(s): Did not cause allergic skin reactions when tested in guinea pigs. Did not demonstrate the potential for contact allergy in mice.

Respiratory

No relevant data found.

Repeated Dose Toxicity

For the active ingredient(s): In animals, effects have been reported on the following organs: Liver. Adrenal gland. Kidney. Testes. Thyroid. For the major component(s): Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs.

Chronic Toxicity and Carcinogenicity

Active ingredient did not cause cancer in laboratory animals.

Developmental Toxicity

For the active ingredient(s): Has been toxic to the fetus in lab animals at doses nontoxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive Toxicity

For the active ingredient(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Data for Component: **myclobutanil**

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 h: 2.3 - 4.2 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, Daphnia magna (Water flea), static test, 48 h, immobilization: 17 mg/l
LC50, saltwater mysid Mysidopsis bahia, 96 h: 0.24 mg/l
EC50, eastern oyster (Crassostrea virginica), flow-through test, 96 h, shell growth inhibition: 0.72 mg/l

Aquatic Plant Toxicity

ErC50, alga Scenedesmus sp., Growth rate inhibition, 96 h: 2.655 mg/l

Toxicity to Above Ground Organisms

dietary LC50, Anas platyrhynchos (Mallard duck): > 5000 mg/kg diet.
oral LD50, Colinus virginianus (Bobwhite quail): 510 mg/kg bodyweight.
contact LD50, Apis mellifera (bees): > 100 micrograms/bee

Toxicity to Soil Dwelling Organisms

LC50, Earthworm, Lumbricus terrestris, 14 d: 250 mg/kg

Data for Component: **Kaolin**

Not expected to be acutely toxic to aquatic organisms.

Data for Component: **Silica gel, precipitated, crystalline-free**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity
LC50, Danio rerio (zebra fish), 96 h: 5,000 - 10,000 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, Daphnia magna (Water flea), 24 h, immobilization: > 10,000 mg/l
Aquatic Plant Toxicity
EC50, Pseudokirchneriella subcapitata (green algae), biomass growth inhibition, 72 h: 440 mg/l

Data for Component: **Sodium lignosulfonate**
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Fish Acute & Prolonged Toxicity
LC50, Oncorhynchus mykiss (rainbow trout), 96 h: > 100 mg/l
Aquatic Invertebrate Acute Toxicity
For this family of materials: LC50, Daphnia magna (Water flea), static test, 48 h, immobilization: > 100 mg/l

Data for Component: **Silica, crystalline (quartz)**
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Persistence and Degradability

Data for Component: **myclobutanil**
No relevant data found.

Data for Component: **Kaolin**
Biodegradation is not applicable.

Data for Component: **Silica gel, precipitated, crystalline-free**
Biodegradation is not applicable.

Data for Component: **Sodium lignosulfonate**
No relevant information found.
Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.089E-10 cm3/s	0.098 d	Estimated.

Data for Component: **Silica, crystalline (quartz)**
Biodegradation is not applicable.

Bioaccumulative potential

Data for Component: **myclobutanil**
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): 2.94 Measured

Data for Component: **Kaolin**
Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Data for Component: **Silica gel, precipitated, crystalline-free**
Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Data for Component: **Sodium lignosulfonate**
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -3.45 Estimated.
Bioconcentration Factor (BCF): 3.2; Fish

Data for Component: **Silica, crystalline (quartz)**
Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Mobility in soil

Data for Component: **myclobutanil**
Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient, soil organic carbon/water (Koc): 518**Henry's Law Constant (H):** 4.28E-09 atm*m3/mole Measured

Data for Component: **Kaolin**

Mobility in soil: No relevant data found.

Data for Component: **Silica gel, precipitated, crystalline-free**

Mobility in soil: No relevant data found.

Data for Component: **Sodium lignosulfonate**

Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient, soil organic carbon/water (Koc): > 99,999 Estimated.
Henry's Law Constant (H): 9.43E-25 atm*m3/mole; 25 °C Estimated.

Data for Component: **Silica, crystalline (quartz)**

Mobility in soil: No relevant data found.

13. Disposal Considerations

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. Transport Information

ROAD & RAIL
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical Name: Myclobutanil
Hazard Class: 9 **ID Number:** UN3077 **Packing Group:** PG III

Classification: M7
Hazard identification No: 90
Environmental Hazard: Yes

OCEAN
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical Name: Myclobutanil
Hazard Class: 9 **ID Number:** UN3077 **Packing Group:** PG III
Marine pollutant.: Yes

AIR
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical Name: Myclobutanil
Hazard Class: 9 **ID Number:** UN3077 **Packing Group:** PG III
Cargo Packing Instruction: 956
Passenger Packing Instruction: 956
Environmental Hazard: Yes

INLAND WATERWAYS
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Technical Name: Myclobutanil
Hazard Class: 9 **ID Number:** UN3077 **Packing Group:** PG III
Classification: M7
Hazard identification No: 90
Environmental Hazard: Yes

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. 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

Classification and User Label Information

Hazard Symbol:

Repr. 3 - Toxic for reproduction - category 3.

Xn - Harmful.

Risk Phrases :

R63 - Possible risk of harm to the unborn child.

R22 - Harmful if swallowed.

R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases :

S36/37 - Wear suitable protective clothing and gloves.

S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

Contains: myclobutanil

16. Other Information

Risk-phrases in the Composition section

R22	Harmful if swallowed.
R36	Irritating to eyes.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R63	Possible risk of harm to the unborn child.

Revision

Identification Number: 77504 / 4068 / Issue Date 2012/05/08 / Version: 2.0

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

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation

Dow AgroSciences India Pvt. Ltd. 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

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