

Material Safety Data Sheet

DOW AGROSCIENCES INDIA PVT. LTD.

Product Name: Diclosulam 84WDG**Issue Date:** 10.01.2017**Print Date:** 10 Jan 2018

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

Diclosulam 84WDG

Identified uses

Plant Protection Product

COMPANY IDENTIFICATION

DOW AGROSCIENCES INDIA PVT. LTD.
1ST FLOOR, BLOCK B, 02, GODREJ IT PARK
GODREJ BUSINESS DISTRICT
PIROJSHANAGAR, L.B.S MARG.,
400079 VIKHROLI, MUMBAI
INDIA

Customer Information Number:

(91) 22-6674-1500
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER**24-Hour Emergency Contact:**

(91-2356-272046)

Local Emergency Contact:

22-6674-1800

2. Composition/information on ingredients

Component	Amount	Classification:	CAS #	EC #
Diclosulam: n-(2,6-dichlorophenyl)-5-ethoxy-7-fluoro-{1,2,4}-triazolo-{1,5c}-pyrimidin e-2-sulfonamide (DE-564)	84.0 %	N: R50/53	145701-21-9	Not available
Sodium lignosulfonate	< 10.0 %	Not classified.	8061-51-6	Polymer
Starch	< 5.0 %	Not classified.	9005-25-8	232-679-6
Alkyl naphthalene sulfonate, sodium salt	< 5.0 %	Xi: R36	26264-58-4	247-564-6

Methanol	< 1.0 %	F: R11; T: R23/24/25, R39/23/24/25	67-56-1	200-659-6
Quinoline Hydrochloride	< 1.0 %	Carc. 2: R45; Muta. 3: R68; Xn: R21/22; Xi: R36/38; N: R51, R53	530-64-3	208-489-4
Naphthalene	< 1.0 %	Carc. 3: R40; Xn: R22; N: R50, R53	91-20-3	202-049-5

See Section 16 for full text of R-phrases.

3. Hazards Identification

This product is not classified as dangerous according to EC criteria.

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 effects occur, consult a physician.

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. Suitable emergency safety shower facility should be available in work area.

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 available in work area.

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 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. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

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: Sulfur oxides. Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate. Dense smoke is produced when product burns.

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. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. 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. Spilled material may cause a slipping hazard. Refer to Section 7, Handling, for additional precautionary measures. 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 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. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Use with adequate ventilation. 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
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Diclosulam: n-(2,6-dichlorophenyl)-5-ethoxy-7-fluoro-{1,2,4}-triazolo-{1,5c}-pyrimidin e-2-sulfonamide (DE-564)	Dow IHG	TWA	3 mg/m3
Starch	ACGIH	TWA	10 mg/m3
Dichloromethane; methylene chloride	ACGIH	TWA	50 ppm BEI
Quinoline Hydrochloride	AIHA WEEL AIHA WEEL	TWA SKIN	0.005 mg/m3 0.001 ppm Can be absorbed through the skin.
Methanol	ACGIH ACGIH EU IOELV IN OEL IN OEL	TWA STEL TWA TWA STEL	200 ppm SKIN, BEI 250 ppm SKIN, BEI 260 mg/m3 200 ppm SKIN 260 mg/m3 200 ppm SKIN 310 mg/m3 250 ppm SKIN

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.

A BEI notation following the exposure guideline refers to a guidance value for assessing biological monitoring results as an indicator of the uptake of a substance from all routes of exposures.

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Personal Protection

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

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: 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"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Neoprene. 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, 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. 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 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.

9. Physical and Chemical Properties

Appearance

Physical State	Granules.
Color	Brown
Odor	Fragrant
Odor Threshold	No test data available
pH	7.28 (@ 10 %) (10% mixture in water)
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
Flammable Limits In Air	Lower: Not applicable Upper: Not applicable
Vapor Pressure	Not applicable
Vapor Density (air = 1)	Not applicable
Specific Gravity (H ₂ O = 1)	
Solubility in water (by weight)	Disperses in water
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
Kinematic Viscosity	Not applicable
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Bulk Density	0.55 g/ml <i>Loose Volumetric</i> (Room Temperature)

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible Materials: None known.

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: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides. Sulfur oxides.

11. Toxicological Information

Acute Toxicity

Ingestion

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

As product: LD50, rat, male and female > 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: LD50, rabbit, male and female > 2,000 mg/kg

No deaths occurred at this concentration.

Inhalation

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

As product: LC50, 4 h, Aerosol, rat, male and female > 6.7 mg/l

No deaths occurred at this concentration.

Eye damage/eye irritation

May cause pain disproportionate to the level of irritation to eye tissues. May cause moderate eye irritation. Solid or dust may cause irritation or corneal injury due to mechanical action.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness. May cause more severe response if skin is abraded (scratched or cut).

Sensitization**Skin**

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

Respiratory

No relevant data found.

Repeated Dose Toxicity

For the active ingredient(s): In animals, effects have been reported on the following organs: Liver. Kidney. Bone marrow.

Chronic Toxicity and Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals. For the minor component(s):

For similar material(s): Has caused cancer in laboratory animals.

Developmental Toxicity

For the active ingredient(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive Toxicity

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

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative. For the minor component(s): For similar material(s): In vitro genetic toxicity studies were positive. Animal genetic toxicity studies were positive.

12. Ecological Information

Toxicity

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

Aquatic Plant Toxicity

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 h: > 0.0136 mg/l

Persistence and Degradability

Data for Component: **Diclosulam: n-(2,6-dichlophenyl)-5-ethoxy-7-fluoro-{1,2,4}-triazolo-{1,5c}-pyrimidin e-2-sulfonamide (DE-564)**

No relevant information found.

Data for Component: Sodium lignosulfonate

No relevant information found.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.089E-10 cm ³ /s	0.098 d	Estimated.

Data for Component: Starch

Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Data for Component: Alkyl naphthalene sulfonate, sodium salt

No relevant data found.

Data for Component: Methanol

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

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
99 %	28 d	OECD 301D Test	pass

Data for Component: Quinoline Hydrochloride

For similar material(s): Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Data for Component: Naphthalene

Material is expected to be readily biodegradable.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
99.9 %	15.2 d	Other guidelines	Not applicable

Bioaccumulative potentialData for Component: Diclosulam: n-(2,6-dichlophenyl)-5-ethoxy-7-fluoro-{1,2,4}-triazolo-{1,5c}-pyrimidin e-2-sulfonamide (DE-564)

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 1.282 Estimated.

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: Starch

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

Data for Component: Alkyl naphthalene sulfonate, sodium salt

Bioaccumulation: No relevant data found.

Data for Component: Methanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): -0.77 Measured

Bioconcentration Factor (BCF): < 10; Fish; Measured

Data for Component: Quinoline Hydrochloride

Bioaccumulation: No relevant data found.

Data for Component: Naphthalene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 3.3 Measured

Bioconcentration Factor (BCF): 40 - 300; Fish; Measured

Mobility in soil

Data for Component: **Diclosulam: n-(2,6-dichlophenyl)-5-ethoxy-7-fluoro-{1,2,4}-triazolo-{1,5c}-pyrimidin e-2-sulfonamide (DE-564)**

Mobility in soil: Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient, soil organic carbon/water (Koc): 90 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: **Starch**

Mobility in soil: No relevant data found.

Data for Component: **Alkyl naphthalene sulfonate, sodium salt**

Mobility in soil: No relevant data found.

Data for Component: **Methanol**

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, soil organic carbon/water (Koc): 0.44 Estimated.

Henry's Law Constant (H): 4.40E-06 - 6.94E-06 atm*m3/mole; 25 °C Measured

Data for Component: **Quinoline Hydrochloride**

Mobility in soil: No relevant data found.

Data for Component: **Naphthalene**

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient, soil organic carbon/water (Koc): 240 - 1,300 Measured

Henry's Law Constant (H): 2.92E-04 - 5.53E-04 atm*m3/mole; 25 °C Measured

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: Diclosulam

Hazard Class: CLASS 9 **ID Number:** UN3077 **Packing Group:** PG III

OCEAN

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Name: Diclosulam

Hazard Class: CLASS 9 **ID Number:** UN3077 **Packing Group:** PG III

EMS Number: F-A,S-F

AIR

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Name: Diclosulam

Hazard Class: CLASS 9 **ID Number:** UN3077 **Packing Group:** PG III

Cargo Packing Instruction: 956

Passenger Packing Instruction: 956

INLAND WATERWAYS

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Name: Diclosulam

Hazard Class: CLASS 9 **ID Number:** UN3077 **Packing Group:** PG III

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

Classification and User Label Information

This product is not classified as dangerous according to EC criteria.

To avoid risks to man and the environment, comply with the instructions for use.

16. Other Information

Risk-phrases in the Composition section

R11	Highly flammable.
R21/22	Harmful in contact with skin and if swallowed.
R22	Harmful if swallowed.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R36	Irritating to eyes.
R36/38	Irritating to eyes and skin.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R40	Limited evidence of a carcinogenic effect.
R45	May cause cancer.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R68	Possible risk of irreversible effects.

Revision

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DAS Code: BF-309

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 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.*