

Product Name: TRANSFORM (TM) WG Insecticide**Issue Date:** 12/06/2013**Print Date:** 06 Dec 2013

Dow AgroSciences LLC 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. Product and Company Identification

Product Name

TRANSFORM™ WG Insecticide

COMPANY IDENTIFICATION

Dow AgroSciences LLC
A Subsidiary of The Dow Chemical Company
9330 Zionsville Road
Indianapolis, IN 46268-1189
United States

Customer Information Number:

800-992-5994

SDSQuestion@dow.com**EMERGENCY TELEPHONE NUMBER****24-Hour Emergency Contact:**

800-992-5994

Local Emergency Contact:

352-323-3500

2. Hazards Identification

Emergency Overview**Color:** White**Physical State:** Granules.**Odor:** Mild**Hazards of product:**

CAUTION! May cause eye irritation. May form explosive dust-air mixture. Isolate area. Slipping hazard. Highly toxic to fish and/or other aquatic organisms.

OSHA Hazard Communication Standard

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects**Eye Contact:** May cause slight eye irritation. May cause slight corneal injury.**Skin Contact:** Essentially nonirritating to skin.**Skin Absorption:** Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: Prolonged exposure is not expected to cause adverse effects. Based on the available data, respiratory irritation was not observed.

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

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

Effects of Repeated Exposure: For the active ingredient(s): In animals, effects have been reported on the following organs: Liver.

Cancer Information: Has caused cancer in laboratory animals. However, the effects are species specific and are not relevant to humans. These concentrations exceed relevant human dose levels. For the minor component(s): Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

Birth Defects/Developmental Effects: For the active ingredient(s): Has caused birth defects in lab animals at high doses. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring. However, the effects are species specific and are not relevant to humans. These concentrations exceed relevant human dose levels.

Reproductive Effects: For the active ingredient(s): In animal studies, has been shown to interfere with reproduction. However, the effects are species specific and are not relevant to humans. These concentrations exceed relevant human dose levels.

3. Composition Information

Component	CAS #	Amount
Sulfoxaflor	946578-00-3	50.0 %
Kaolin	1332-58-7	24.5 %
Titanium dioxide	13463-67-7	0.5 %
Balance	Not available	25.0 %

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. 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), 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. 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: Nitrogen oxides. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: 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. Dense smoke is produced when product burns.

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). 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. Spilled material may cause a slipping hazard. 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. See Section 13, Disposal Considerations, for additional information. Large spills: Contact Dow AgroSciences for clean-up assistance.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Keep away from heat, sparks and flame. No smoking, open flames or sources of ignition in handling and storage area. Avoid contact with eyes, skin, and clothing. Do not swallow. 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
Kaolin	ACGIH	TWA Respirable fraction.	2 mg/m ³ The value is for particulate matter containing no asbestos and <1% crystalline silica.
	OSHA Table Z-1	PEL Respirable fraction.	5 mg/m ³
	OSHA Table Z-1	PEL Total dust.	15 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.

Personal Protection

Eye/Face Protection: Use chemical goggles.

Skin Protection: No precautions other than clean body-covering clothing should be needed.

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

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, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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.

9. Physical and Chemical Properties

Appearance

Physical State	Granules.
Color	White
Odor	Mild
Odor Threshold	No test data available
pH	7.05 (@ 1 %) <i>CIPAC MT 75.1</i>
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 (H₂O = 1)	No test data available

Solubility in water (by weight)	No test data available
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	<i>EC Method A16</i> none below 400degC
Decomposition Temperature	No test data available
Kinematic Viscosity	not applicable
Explosive properties	Not explosive <i>Mechanical Impact @ 20.25 inches</i>
Oxidizing properties	No significant increase (>5C) in temperature. <i>EPA OPPTS 830.6314 (Oxidizing or Reducing Action)</i>
Bulk Density	0.42 g/ml @ 24.1 °C <i>CIPAC MT 33</i>

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Thermally stable at typical use temperatures.

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.

Nitrogen oxides. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Ingestion

As product: LD50, rat > 2,000 mg/kg

No deaths occurred at this concentration.

Dermal

As product: LD50, rat > 5,000 mg/kg

No deaths occurred at this concentration.

Inhalation

As product: LC50, 4 h, Aerosol, rat, male and female > 5.35 mg/l

Eye damage/eye irritation

May cause slight eye irritation. May cause slight corneal injury.

Skin corrosion/irritation

Essentially nonirritating to skin.

Sensitization

Skin

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.

Chronic Toxicity and Carcinogenicity

Has caused cancer in laboratory animals. However, the effects are species specific and are not relevant to humans. These concentrations exceed relevant human dose levels. For the minor

component(s): Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in

two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

Developmental Toxicity

For the active ingredient(s): Has caused birth defects in lab animals at high doses. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring. However, the effects are species specific and are not relevant to humans. These concentrations exceed relevant human dose levels.

Reproductive Toxicity

For the active ingredient(s): In animal studies, has been shown to interfere with reproduction. However, the effects are species specific and are not relevant to humans. These concentrations exceed relevant human dose levels.

Genetic Toxicology

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

12. Ecological Information

Toxicity

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). 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), semi-static test, 96 h: 19.5 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), semi-static test, 48 h, immobilization: > 100 mg/l

EC50, Midge (*Chironomus riparius*), static test, 96 h, immobilization: 0.48 mg/l

Aquatic Plant Toxicity

ErC50, diatom *Navicula* sp., Growth inhibition, Growth rate inhibition, 72 h: > 100 mg/l

Toxicity to Above Ground Organisms

oral LD50, *Colinus virginianus* (Bobwhite quail): 1655 mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees): 0.153 micrograms/bee

contact LD50, *Apis mellifera* (bees): 0.224 micrograms/bee

Toxicity to Soil Dwelling Organisms

LC50, *Eisenia fetida* (earthworms), 14 d: 1.050 mg/kg

NOEC, *Eisenia fetida* (earthworms), 28 d: 0.16 mg/kg

Persistence and Degradability

Data for Component: **Sulfoxaflor**

Material is not readily biodegradable according to OECD/EEC guidelines.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
0 %	28 d	OECD 310/ISO 14593	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.65365E-11 cm ³ /s	7.762 h	Estimated.

Theoretical Oxygen Demand: 1.90 mg/mg

Data for Component: **Kaolin**

Biodegradation is not applicable.

Data for Component: **Titanium dioxide**

Biodegradation is not applicable.

Bioaccumulative potential

Data for Component: Sulfoxaflor

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

Partition coefficient, n-octanol/water (log Pow): 0.802 Measured

Data for Component: Kaolin

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Data for Component: Titanium dioxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Mobility in soilData for Component: Sulfoxaflor

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

Partition coefficient, soil organic carbon/water (Koc): 40 Measured

Henry's Law Constant (H): 6.8E-07 Pa*m³/mole. Measured

Data for Component: Kaolin

Mobility in soil: No relevant data found.

Data for Component: Titanium dioxide

Mobility in soil: No data available.

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

DOT Non-Bulk
NOT REGULATED

DOT Bulk
NOT REGULATED

IMDG

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

Technical Name: Sulfoxaflor

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

EMS Number: F-A,S-F

Marine pollutant: Yes

ICAO/IATA

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

Technical Name: Sulfoxaflor

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

Cargo Packing Instruction: 956

Passenger Packing Instruction: 956

Additional Information

MARINE POLLUTANT

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

OSHA Hazard Communication Standard

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	No
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Kaolin	1332-58-7	24.5%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	1	1	0

Revision

Identification Number: 1042484 / 1016 / Issue Date 12/06/2013 / Version: 1.2
DAS Code: GF-2372

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
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

Dow AgroSciences LLC 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.