

Product Name: Transform™ Insecticide**Issue Date:** 07.02.2014

Dow AgroSciences (NZ) 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. Product and Company Identification**Product Name:** Transform™ Insecticide**Purpose:** Insecticide**COMPANY IDENTIFICATION**

Dow AgroSciences (NZ) Ltd
89 Paritutu Road
4342 New Plymouth
New Zealand

Customer Information Number:

0800-803-939

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

+64 6 751 2407

Local Emergency Contact:

0800 844 455

For medical advice, contact the New Zealand Poisons Information Centre:

0800 POISON (0800 764 766)

Transport Emergency Only Dial: 111

This SDS may not provide exhaustive guidance for all the HSNO controls assigned to this substance. The NZ EPA website www.epa.govt.nz should be consulted for a full list of triggered controls and cited regulations

2. Hazards Identification**Classification of the substance or mixture:** NEW ZEALAND HAZARDOUS SUBSTANCES**CLASSIFICATION:** Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Refer to Section 15 for HSNO Approval Number.**HSNO Hazard Classification:** 6.9A, 9.1B, 9.2A, 9.4A**Hazards:**

Toxic to aquatic life with long lasting effects

Very toxic to the soil environment

Very toxic to terrestrial invertebrates

Prevention:

Do not breathe spray

Wash thoroughly after handling

Do not eat, drink or smoke when using this product

Response:

IF exposed call a POISON CENTRE or doctor
Collect spillage

3. Composition Information

Component	CAS #	Amount
Sulfoxaflor	946578-00-3	21.8 %
Propylene glycol	57-55-6	4.0 %
Balance	Not available	74.2 %

4. First Aid Procedures

Consult the National Poisons Information Centre (0800 POISON (0800 764 766)) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

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. 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), 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.

5. Fire Fighting Measures

Hazchem Code: 2X

Suitable extinguishing media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion

products may include and are not limited to: Sulfur oxides. Nitrogen oxides. Hydrogen fluoride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. 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.

See Section 9 for related Physical Properties

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. 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: Absorb with materials such as: Clay. Dirt. Sand. 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

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Use with adequate ventilation. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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

This substance is subject to a requirement for an emergency management plan, secondary containment and signage, whenever it is held in quantities of 100 L or more, either alone or in aggregate with other hazardous substances. See Hazardous Substances Emergency Management and Identification Regulations.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Propylene glycol	NZ OEL	TWA Vapor and particulates.	474 mg/m ³ 150 ppm
	NZ OEL	TWA Particulate.	10 mg/m ³
	WEEL	TWA Aerosol.	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.

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields).

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. Local exhaust ventilation may be necessary for some operations.

Other Information

Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:

AS/NZS 1336: Recommended practices for eye protection in the industrial environment.

AS/NZS 1337: Eye protectors for industrial applications.

AS/NZS 1715: Selection, use and maintenance of respiratory protective devices.

AS/NZS 2161: Occupational protective gloves.

AS/NZS 2210: Occupational protective footwear.

AS/NZS 4501: Occupational protective clothing.

9. Physical and Chemical Properties

Appearance

Physical State	Liquid.
Color	Tan
Odor	Mild
Odor Threshold	No test data available
pH	4.67 (@ 1 %) <i>pH Electrode</i>
Melting Point	Not applicable
Freezing Point	No test data available
Boiling Point (760 mmHg)	No test data available.
Flash Point - Closed Cup	> 100 °C <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammable Limits In Air	Lower: No test data available

Vapor Pressure	Upper: No test data available
Vapor Density (air = 1)	Not applicable
Specific Gravity (H₂O = 1)	No test data available
Solubility in water (by weight)	1.1066
Partition coefficient, n-octanol/water (log Pow)	Not applicable
Autoignition Temperature	No data available for this product. See Section 12 for individual component data.
Decomposition Temperature	350 °C <i>EC Method A15</i>
Explosive properties	No test data available
Oxidizing properties	No
Liquid Density	No significant increase (>5 ⁰ c) in temperature. 1.1066 g/ml @ 20 °C <i>Digital density meter</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: Some components of this product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Acute oral toxicity

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

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

Acute dermal toxicity

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

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

Acute inhalation toxicity

No adverse effects are anticipated from inhalation.

As product: LC₅₀, 4 h, Aerosol, rat, male and female > 2.21 mg/l. Maximum attainable concentration. No deaths occurred at this concentration.

Eye damage/eye irritation

May cause slight eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Sensitization

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization: No relevant data found.

Repeated Dose Toxicity

For the active ingredient: In animals, effects have been reported on the following organs: Liver.
For the minor component(s): In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Chronic Toxicity and Carcinogenicity

For the active ingredient: 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.

Developmental Toxicity

For the active ingredient: 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: 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

Animal genetic toxicity studies were negative.

Aspiration hazard

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

12. Ecological Information

Ecotoxicity

For similar material(s): Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
As product: Material is practically non-toxic to birds on an acute basis (LD50 > 2,000 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 h: > 939 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, *Daphnia magna* (Water flea), static test, 48 h, lethality: > 880 mg/l

For similar material(s): LC50, *Mysidopsis bahia* saltwater mysid, 96 h: > 1 - < 10 mg/l

Aquatic Plant Toxicity

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

Toxicity to Above Ground Organisms

LD50, *Colinus virginianus* (Bobwhite quail): > 2,250 mg/kg
oral LD50, *Apis mellifera* (bees): 0.23 micrograms/bee
contact LD50, *Apis mellifera* (bees): 0.59 micrograms/bee

Toxicity to Soil Dwelling Organisms

NOEC, *Eisenia fetida* (earthworms): 0.25 mg/kg
LC50, *Eisenia fetida* (earthworms), 14 d: 6.41 mg/kg

Persistence and Degradability

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

Propylene glycol

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
81 %	28 d	OECD 301F Test	pass
96 %	64 d	OECD 306 Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
1.28E-11 cm ³ /s	10 h	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
69.0 %	70.0 %	86.0 %	

Chemical Oxygen Demand: 1.53 mg/mg

Theoretical Oxygen Demand: 1.68 mg/mg

Bioaccumulative potential**Sulfoxaflor**

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

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

Propylene glycol

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

Partition coefficient, n-octanol/water (log Pow): -1.07 Measured

Bioconcentration Factor (BCF): 0.09; Estimated.

Mobility in soil**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

Propylene glycol

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

Partition coefficient, soil organic carbon/water (Koc): < 1 Estimated.

Henry's Law Constant (H): 1.2E-08 atm*m³/mole Measured

13. Disposal Considerations

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.

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

14. Transport Information

PUBLIC PASSENGER VEHICLE TRANSPORT: To be transported **ONLY** in the sealed original container.

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sulfoxaflor)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Sulfoxaflor

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sulfoxaflor)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Sulfoxaflor

Classification for AIR transport (IATA/ICAO):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sulfoxaflor)
UN number	UN 3082
Class	9
Packing group	III

Hazchem code: 2X

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.

Compliance with the above land, rail, marine and air requirements is deemed to comply with the applicable requirements of the Hazardous substances Identification and Emergency Management Regulations.

15. Regulatory Information**ACVMG APPROVAL NUMBER:** P008535**NZ EPA New Zealand Approval Code:** HSR100901

ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer to Environment Protection Authority publication; User Guide to the HSNO Controls Regulations. <http://www.epa.govt.nz>

16. Other Information**Revision**

Identification Number: 101191190 / A157 / Issue Date 07.02.2014 / Version: Replaces 17.07.2013
DAS Code: GF-2032

Legend

OEL	Occupational Exposure Limit
TWA	Time Weighted Average
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level

Dow AgroSciences (NZ) 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.

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