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
TRELLIS ™ SC Herbicide

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: Suspension
Odor: Odorless
Hazards of product:

Highly toxic to fish and/or other aquatic organisms.

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects
Eye Contact: Essentially nonirritating to eyes.
Skin Contact: Brief contact is essentially nonirritating to skin.
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: No adverse effects are anticipated from inhalation. 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. Kidney.
Cancer Information: For the active ingredient(s): An increase in nonmalignant liver tumors was observed with isoxaben in one of two species tested.
Birth Defects/Developmental Effects: For the active ingredient(s): Has caused birth defects in laboratory animals only at doses toxic to the mother.
Reproductive Effects: For the active ingredient(s): In animal studies, has been shown to interfere with reproduction in females. Effects have been seen only at doses that produced significant toxicity to the parent animals.

3. Composition Information

Component	CAS #	Amount
Isoxaben	82558-50-7	45.45 %
Propylene glycol	57-55-6	4.5 %
Ethanol	64-17-5	0.2 %
Balance	Not available	49.85 %

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), 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
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: Nitrogen oxides. Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

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.

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: 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

Handling

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

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.

Shelf life: Use within	**Storage temperature:**
24 Months	0 - 30 °C

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Propylene glycol	WEEL	TWA Aerosol.	10 mg/m3

Ethanol	OSHA Table Z-1	PEL	1,900 mg/m3 1,000 ppm
	ACGIH	STEL	1,000 ppm

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: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). 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, 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	Suspension
Color	White
Odor	Odorless
Odor Threshold	No test data available
pH	7.7 (@ 1 %) *pH Electrode* (1% aqueous suspension)
Melting Point	Not applicable
Freezing Point	No test data available
Boiling Point (760 mmHg)	> 100 °C (> 212 °F) .
Flash Point - Closed Cup	> 100 °C (> 212 °F)
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No
Flammable Limits In Air	**Lower**: No test data available **Upper**: No test data available
Vapor Pressure	Not applicable
Vapor Density (air = 1)	No test data available
Specific Gravity (H2O = 1)	1.09 20 °C/4 °C
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	> 400 °C (> 752 °F) *Unspecified*
Decomposition Temperature	No test data available

Kinematic Viscosity	not applicable
Explosive properties	Not explosive
Oxidizing properties	No significant increase (>5C) in temperature.

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: Active ingredient decomposes 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. 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 > 5,000 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, Aerosol, rat, male and female > 5.71 mg/l
No deaths occurred at this concentration.
Eye damage/eye irritation
Essentially nonirritating to eyes.
Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.
Sensitization
Skin
For similar material(s): 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. Kidney.
Chronic Toxicity and Carcinogenicity
For the active ingredient(s): An increase in nonmalignant liver tumors was observed with isoxaben in one of two species tested.
Developmental Toxicity
For the active ingredient(s): Has caused birth defects in laboratory animals only at doses toxic to the mother.
Reproductive Toxicity
For the active ingredient(s): In animal studies, has been shown to interfere with reproduction in females. Effects 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 predominantly negative.

12. Ecological Information

Toxicity

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

Fish Acute & Prolonged Toxicity
LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 h: > 200 mg/l
Aquatic Invertebrate Acute Toxicity
EC50, Daphnia magna (Water flea), static test, 48 h, immobilization: 544 mg/l
Aquatic Plant Toxicity
ErC50, Desmodesmus subspicatus (green algae), static test, Growth rate inhibition, 72 h: 60.21 mg/l
EbC50, Lemna minor (duckweed), static test, biomass growth inhibition, 14 d: 0.044 mg/l
Fish Chronic Toxicity Value (ChV)
Pimephales promelas (fathead minnow), semi-static test, 33 d, growth, NOEC:0.4 mg/l
Aquatic Invertebrates Chronic Toxicity Value
Daphnia magna (Water flea), semi-static test, 21 d, growth, NOEC: 0.69 mg/l
Toxicity to Above Ground Organisms
contact LD50, Apis mellifera (bees): > 100 micrograms/bee
oral LD50, Apis mellifera (bees): > 100 micrograms/bee
Toxicity to Soil Dwelling Organisms
LC50, Eisenia fetida (earthworms), 14 d: > 1,000 mg/kg

Persistence and Degradability

Data for Component: **Isoxaben**

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Biodegradation rate may increase in soil and/or water with acclimation.

Stability in Water (1/2-life):
> 5 d; pH 7.0

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
2.045E-10 cm3/s	0.052 d	Estimated.

Chemical Oxygen Demand: 1.77 mg/mg
Theoretical Oxygen Demand: 1.98 mg/mg

Data for Component: **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 cm3/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

Data for Component: **Ethanol**

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

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
> 70 %	5 d	OECD 301D Test	pass

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
3.58E-12 cm3/s	2.99 d	Estimated.

Theoretical Oxygen Demand: 2.08 mg/mg

Bioaccumulative potential

Data for Component: **Isoxaben**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): 2.64 Measured

Data for Component: **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.

Data for Component: **Ethanol**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -0.31 Measured

Mobility in soil

Data for Component: **Isoxaben**

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient, soil organic carbon/water (Koc): 700 - 1,290**Henry's Law Constant (H):** 1.96E-04 atm*m3/mole; 25 °C Measured

Data for Component: **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

Data for Component: **Ethanol**

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient, soil organic carbon/water (Koc): 1.0 Estimated.
Henry's Law Constant (H): 5.00E-06 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

DOT Non-Bulk
NOT REGULATED

DOT Bulk
NOT REGULATED

IMDG
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Isoxaben
Hazard Class: CLASS 9 **ID Number:** UN3082 **Packing Group:** PG III
EMS Number: F-A,S-F
Marine pollutant.: Yes

ICAO/IATA
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Isoxaben
Hazard Class: CLASS 9 **ID Number:** UN3082 **Packing Group:** PG III
Cargo Packing Instruction: 964
Passenger Packing Instruction: 964
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 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	Yes
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
Propylene glycol	57-55-6	4.5%

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
	0	1	0

Revision

Identification Number: 52879 / 1016 / Issue Date 09/24/2013 / Version: 1.0
DAS Code: EAF-496
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.