



Material Safety Data Sheet

Dow AgroSciences Canada Inc.

Product Name: Entrust* 80 W Naturalyte* Insect Control Product

Issue Date: 2010.05.03

Dow AgroSciences Canada Inc. 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

Entrust* 80 W Naturalyte* Insect Control Product

COMPANY IDENTIFICATION

Dow AgroSciences Canada Inc.
A Subsidiary of The Dow Chemical Company
Suite 2100, 450 1st Street SW,
Calgary, AB T2P 5H1
Canada

For MSDS updates and Product Information: 800-667-3852

Prepared By:
Revision

Prepared for use in Canada by EH&S, Hazard Communications.
2010.05.03

Customer Information Number: 800-667-3852

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666
Local Emergency Contact: 613-996-6666

2. Hazards Identification

Emergency Overview

Color: White to off-white

Physical State: Powder

Odor: Musty

Hazards of product:

CAUTION! May cause eye irritation. May form explosive dust-air mixture. Isolate area. Slipping hazard.

Potential Health Effects

Eye Contact: May cause pain disproportionate to the level of irritation to eye tissues. May cause slight eye irritation. Corneal injury is unlikely. Dust may irritate eyes.

Skin Contact: Prolonged contact is essentially nonirritating to skin.

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

Inhalation: Vapors are unlikely due to physical properties. No adverse effects are anticipated from single exposure to dust.

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: In animals, Spinosad has been shown to cause vacuolization of cells in various tissues. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. Diatomaceous earth or amorphous silica is considered a nuisance dust and does not cause the lung injury associated with crystalline silica. However, repeated excessive exposures to dust of amorphous silica (which is the main component in this product) may cause potentially reversible lung effects.

Reproductive Effects: 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.

3. Composition/information on ingredients

Component	CAS #	Amount W/W
Spinosad A & D		80.0 %
Kaolin	1332-58-7	3.4 %
Silica gel, precipitated, crystalline-free	112926-00-8	2.0 %
Balance		14.6 %

Amounts are presented as percentages by weight.

Spinosad is comprised of Spinosyn A (CAS # 131929-60-7) and Spinosyn D (CAS # 131929-63-0)

4. First-aid measures

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.

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.

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.

Ingestion: No emergency medical treatment necessary.

Notes to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Emergency Personnel Protection: 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.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct water stream. Use fine water spray or foam. Use water spray to cool fire exposed containers and fire

affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. 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. Move container from fire area if this is possible without hazard. 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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. 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.

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.

See Section 9 for related Physical Properties

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: 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.

Personal Precautions: 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.

7. Handling and Storage

Handling

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

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
Silica gel, precipitated, crystalline-free	CAD BC OEL	TWA Total	4 mg/m ³

Spinosad Kaolin	CAD BC OEL	TWA Respirable.	1.5 mg/m3
	CAD ON OEL	TWAEV	10 mg/m3
	OEL (QUE)	TWA Total dust.	10 mg/m3
	OEL (QUE)	TWA Respirable dust.	6 mg/m3
	Dow IHG	TWA	0.3 mg/m3
	OEL (QUE)	TWA Total dust.	10 mg/m3
	CAD BC OEL	TWA Respirable.	2 mg/m3
	CAD ON OEL	TWAEV Respirable.	2 mg/m3
	ACGIH	TWA Respirable fraction.	2 mg/m3 The value is for particulate matter containing no asbestos and <1% crystalline silica.
	CAD MB OEL	TWA Respirable fraction	2 mg/m3
	OEL (QUE)	TWA Respirable dust.	5 mg/m3
	CAD AB OEL	TWA Respirable.	2 mg/m3

Consult local authorities for recommended exposure limits.

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). If there is a potential for exposure to particles which could cause eye discomfort, wear 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: Particulate 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.

9. Physical and Chemical Properties

Physical State	Powder
Color	White to off-white
Odor	Musty
Odor Threshold	No test data available
Flash Point - Closed Cup	> 100 °C
Flammable Limits In Air	Lower: Not applicable Upper: Not applicable
Autoignition Temperature	Not applicable
Vapor Pressure	Not applicable
Boiling Point (760 mmHg)	Not applicable.
Vapor Density (air = 1)	Not applicable
Specific Gravity (H2O = 1)	Not applicable
Liquid Density	Not applicable
Bulk Density	0.38 g/ml
Freezing Point	Not applicable
Melting Point	No test data available
Solubility in water (by weight)	Soluble
pH	9.4 (@ 1 %) <i>pH Electrode</i> 1% aqueous solution.
Decomposition Temperature	No test data available
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable

10. Stability and Reactivity

Stability/Instability

Thermally stable at recommended temperatures and pressures.

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

Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: None known.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

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.

11. Toxicological Information

Acute Toxicity

Ingestion

As product. Single dose oral LD50 has not been determined.

For the active ingredient(s): LD50, Rat > 5,000 mg/kg

Dermal

As product. The dermal LD50 has not been determined.

For the active ingredient(s): LD50, Rabbit > 2,000 mg/kg

Inhalation

As product. The LC50 has not been determined.

For the active ingredient(s): LC50, 4 h, Rat > 5.18 mg/l

Eye damage/eye irritation

May cause pain disproportionate to the level of irritation to eye tissues. May cause slight eye irritation.

Corneal injury is unlikely. Dust may irritate eyes.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Sensitization

Skin

For the active ingredient(s): Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant information found.

Repeated Dose Toxicity

In animals, Spinosad has been shown to cause vacuolization of cells in various tissues. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. Diatomaceous earth or amorphous silica is considered a nuisance dust and does not cause the lung injury associated with crystalline silica. However, repeated excessive exposures to dust of amorphous silica (which is the main component in this product) may cause potentially reversible lung effects. For the minor component(s): Repeated exposures to dusts of this material are not anticipated to result in systemic toxicity or permanent lung injury; however, excessive exposures may cause less severe respiratory effects.

Chronic Toxicity and Carcinogenicity

Active ingredient did not cause 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 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

ENVIRONMENTAL FATE

Data for Component: **Spinosad A & D**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient, soil organic carbon/water (Koc): 701 Measured

Bioconcentration Factor (BCF): 19 - 33; fish; Measured

Persistence and Degradability

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Stability in Water (1/2-life):

200 - 259 d; pH 9

0.84 - 0.96 d; pH 7

OECD Biodegradation Tests:

Biodegradation		Exposure Time		Method	
1 %		28 d		OECD 301B Test	
Biological oxygen demand (BOD):					
BOD 5		BOD 10		BOD 20	
66 %		68 %		76 %	
				BOD 28	
				77 %	

Data for Component: Kaolin**Movement & Partitioning**

|| Partitioning from water to n-octanol is not applicable.

Persistence and Degradability

|| Biodegradation is not applicable.

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

|| Partitioning from water to n-octanol is not applicable.

Persistence and Degradability

|| Biodegradation is not applicable.

ECOTOXICITY

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).

Fish Acute & Prolonged Toxicity

LC50, common carp (Cyprinus carpio), 96 h: > 100 mg/l

Aquatic Plant Toxicity

For the active ingredient(s): EC50, diatom Navicula sp., 120 h: 0.107 mg/l

Toxicity to Above Ground Organisms

LD50, bobwhite (Colinus virginianus): > 2,000 mg/kg; > 2000 mg/kg bodyweight.

oral LD50, Honey bee (Apis mellifera): 0.49 micrograms/bee

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**TDG Small container**

NOT REGULATED

TDG Large container

NOT REGULATED

IMDG

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

Technical Name: Spinosad

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:** Spinosad**Hazard Class:** 9 **ID Number:** UN 3077 **Packing Group:** PG III**Cargo Packing Instruction:** 911**Passenger Packing Instruction:** 911**15. Regulatory Information****CEPA - Domestic Substances List (DSL)**

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products Act Registration number: 27825

National Fire Code of Canada

NOT REGULATED

16. Other Information**Hazard Rating System****NFPA****Health**

1

Fire

0

Reactivity

0

Recommended Uses and Restrictions

Product use: End use insecticide product

Revision

Identification Number: 74232 / 1023 / Issue Date 2010.05.03 / Version: .0

DAS Code: GF-733

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
VOL/VOL	Volume/Volume

Dow AgroSciences Canada Inc. 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.

