

**Material Safety Data Sheet****TITAN™ ST INSECTICIDE**

MSDS Number: 102000012783

MSDS Version 1.0

Revision Date: 04/21/2011

Print Date: 04/21/2011

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name	TITAN™ ST INSECTICIDE
MSDS Number	102000012783
PCP Registration No.	27449
Product Use	Insecticide

Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-888-283-6847

SECTION 2. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview Warning! Harmful or fatal if swallowed. Harmful if absorbed through skin. Avoid contact with skin and clothing.

Physical State liquid suspension

Appearance white to off-white

Exposure routes Inhalation, Skin Absorption, Eye contact, Ingestion

Immediate Effects

Eye Avoid contact with eyes.

Skin Harmful if absorbed through skin. Avoid contact with skin and clothing.

Ingestion Fatal if swallowed. Do not take internally.

Inhalation Do not breathe vapours or spray mist.

Chronic or Delayed Long-Term This product or its components may have target organ effects.

Potential Environmental Effect Toxic to aquatic organisms. Toxic to birds. Toxic to mammals. Toxic to bees.

**Material Safety Data Sheet****TITAN™ ST INSECTICIDE**

MSDS Number: 102000012783

MSDS Version 1.0

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Clothianidin	210880-92-5	48.00
Glycerine	56-81-5	8.00

SECTION 4. FIRST AID MEASURES

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Eye	Hold eye 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 eye. Call a physician or poison control center immediately.
Skin	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Notes to physician Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

Flash point	> 100 °C / > 212 °F
Autoignition temperature	no data available
Lower Flammability Limit	no data available
Upper Flammability Limit	no data available
Explosiveness	no data available

**Material Safety Data Sheet****TITAN™ ST INSECTICIDE**

MSDS Number: 102000012783

MSDS Version 1.0

Suitable extinguishing media	Water spray, Carbon dioxide (CO ₂), Foam, Dry chemical
Fire Fighting Instructions	<p>Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.</p> <p>Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.</p>

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.
Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice	Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

SECTION 7. HANDLING AND STORAGE

Handling procedures	Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.
Storing Procedures	<p>Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.</p> <p>Keep away from direct sunlight.</p>
Work/Hygienic Procedures	<p>Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.</p> <p>Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.</p>



Material Safety Data Sheet

TITAN™ ST INSECTICIDE

MSDS Number: 102000012783

MSDS Version 1.0

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection	Follow all label instructions. Train employees in safe use of the product. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.
Eye/Face Protection	Tightly fitting safety goggles
Hand protection	Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
Body Protection	Wear long-sleeved shirt and long pants and shoes plus socks.
Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits

Clothianidin	210880-92-5	OES BCS*	TWA	2.8 mg/m ³
Glycerine	56-81-5	OEL (QUE)	TWA	10 mg/m ³
		CAD AB OEL	TWA	10 mg/m ³
		CAD BC OEL	TWA	10 mg/m ³
		CAD BC OEL	TWA	3 mg/m ³
		CAD ON OEL	TWAEV	10 mg/m ³
		OEL (QUE)	TWA	10 mg/m ³

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white to off-white
Physical State	liquid suspension
pH	5 - 7 (100 %)
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	1.25 g/cm ³ at 20 °C
Evaporation rate	no data available
Boiling Point	no data available

**Material Safety Data Sheet****TITAN™ ST INSECTICIDE**

MSDS Number: 102000012783

MSDS Version 1.0

Water solubility	miscible
Minimum Ignition Energy	no data available
Decomposition temperature	no data available
Partition coefficient: n-octanol/water	no data available
Viscosity	400 - 650 mPa.s

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	no data available
Incompatibility	Oxidizing agents
Hazardous Decomposition Products	Thermal decomposition Carbon dioxide (CO ₂) Carbon monoxide
Chemical Stability	Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredient, clothianidin.

Acute oral toxicity	male rat: LD50: \geq 2,000 mg/kg female rat: LD50: 2,000 mg/kg
Acute dermal toxicity	male/female combined rat: LD50: $>$ 4,000 mg/kg
Acute inhalation toxicity	male/female combined rat: LC50: $>$ 2.6 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. male/female combined rat: LC50: $>$ 10.4 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin irritation	rabbit: No skin irritation
Eye irritation	rabbit: No eye irritation



Material Safety Data Sheet

TITAN™ ST INSECTICIDE

MSDS Number: 102000012783

MSDS Version 1.0

Sensitisation	guinea pig: Non-sensitizing.
Chronic toxicity	Clothianidin caused effects in the liver, kidney and/or ovaries following chronic exposure to high doses in mice, rats, and dogs.

Assessment Carcinogenicity

Clothianidin was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Reproductive toxicity	REPRODUCTION: Clothianidin is not considered a reproductive toxicant at non-maternally toxic dose levels.
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DEVELOPMENTAL TOXICITY: Clothianidin was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in rabbits but were considered secondary to maternal toxicity.

Assessment neurotoxicity	Clothianidin was not a neurotoxicant in acute, subchronic and developmental neurotoxicity screening studies in rats.
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Mutagenicity	Clothianidin was not genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
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SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish	Rainbow trout (<i>Oncorhynchus mykiss</i>) LC50: > 104.2 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient clothianidin.
Toxicity to aquatic plants	Pseudokirchneriella subcapitata Growth rate IC50: > 120 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient clothianidin.
Acute Toxicity to Aquatic Invertebrates	Water flea (<i>Daphnia magna</i>) EC50: > 119 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient clothianidin.



Material Safety Data Sheet

TITAN™ ST INSECTICIDE

MSDS Number: 102000012783

MSDS Version 1.0

Chironomus riparius (non-biting midge)

EC50: 0.00106 mg/l

Exposure time: 28 d

The value mentioned relates to the active ingredient clothianidin.

Environmental precautions

Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not allow to get into surface water, drains and ground water. Apply this product as specified on the label.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.

Container Disposal

Do not re-use empty containers. Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

SECTION 14. TRANSPORT INFORMATION

TDG

Not dangerous goods / not hazardous material

49CFR

Not dangerous goods / not hazardous material

IMDG

UN-Number

3082

Class

9

Packaging group

III

Marine pollutant

YES

Description of the goods

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CLOTHIANIDIN SOLUTION)

IATA

UN-Number

3082

Class

9

Packaging group

III

Environm. Hazardous Mark

YES

Description of the goods

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CLOTHIANIDIN SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification:

INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

**Material Safety Data Sheet****TITAN™ ST INSECTICIDE**

MSDS Number: 102000012783

MSDS Version 1.0

SECTION 15. REGULATORY INFORMATION**PCP Registration No.** 27449**US Federal Regulations****TSCA list**

Glycerine 56-81-5

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting**CA Prop65**

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Glycerine 56-81-5 IL, MN, RI

Canadian Regulations**Canadian Domestic Substance List**

Glycerine 56-81-5

Environmental**CERCLA**

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations**European Inventory of Existing Commercial Substances (EINECS)**

Glycerine 56-81-5



Material Safety Data Sheet

TITAN™ ST INSECTICIDE

MSDS Number: 102000012783

MSDS Version 1.0

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 2 Reactivity - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Material Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 04/21/2011

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