

<p style="text-align: center;"><b>Monsanto Canada</b> Safety Data Sheet Commercial Product</p>
--

---

## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1. Product identifier

#### Optimize® ST Inoculant

1.1.1. **Chemical name**  
Not applicable.

1.1.2. **Synonyms**  
Optimize® ST Liquid Soybean

1.2. **Product use**  
Inoculant

1.3. **Company**  
Monsanto Canada, 900 - One Research Road, Winnipeg, MB, R3T 6E3  
**Telephone:** 204-985-1000 or 800-667-4944, **Fax:** 204-488-9599  
**E-mail:** safety.datasheet@monsanto.com

1.4. **Emergency numbers**  
FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT Call  
CANUTEC - Day or Night: 613-996-6666 (collect calls accepted) or MONSANTO: 314-694-4000  
(collect calls accepted).  
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

---

## 2. HAZARDS IDENTIFICATION

2.1. **Classification**  
Classification according to the Hazardous Products Regulations, 2015 Workplace Hazardous Materials  
Information System (WHMIS 2015)  
Not classified as hazardous.

2.2. **Label elements**  
**Hazard pictogram/pictograms**  
Not Applicable  
**Signal word**  
Not applicable.  
**Hazard statement/statements**  
Hxxx Not applicable.  
**Precautionary statement/statements**  
Pxxx Not applicable.

2.3. **Other hazards**  
< 1% of the mixture consists of ingredient/ingredients of unknown acute toxicity.

2.3.1. **Potential other effects**  
Read and follow label instructions.

Not expected to produce significant adverse effects when recommended use instructions are followed.

**2.4. Appearance and odour (colour/form/odour)**  
Tan /Liquid / Mild

Refer to section 11 for toxicological and section 12 for environmental information.

---

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**3.1. Substance:** Not applicable.

**3.2. Mixture:** Yes.

#### Composition/information on ingredients

Components	CAS No.	Concentration
Bradyrhizobium japonicum		<1 %
Lipo-chitooligosaccharide (LCO)		<0.0001 %
Water and minor formulating ingredients		>=99.9 %

The specific chemical identity and/or concentration range is being withheld because it is trade secret information of Monsanto Company.

#### Active ingredient

None; {Not applicable}

---

### 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

#### 4.1. Description of first aid measures

##### 4.1.1. Eye contact

If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

##### 4.1.2. 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. Sensitized persons should avoid further contact and reuse of contaminated clothing.

##### 4.1.3. Inhalation

Remove to fresh air.

##### 4.1.4. Ingestion

Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison center or doctor. Do not give anything by mouth to an unconscious person.

#### 4.2. Most important symptoms and effects, both acute and delayed

##### 4.2.1. Potential health effects

**Likely routes of exposure:** Skin contact, eye contact, inhalation

**Eye contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**4.2.2. Medical conditions aggravated by exposure:**

Contains microorganisms which may have the potential to provoke sensitising reactions. Opportunistic infections may occur in patients with compromised immune functions.

**4.3. Indication of any immediate medical attention and special treatment needed**

Not applicable.

---

## 5. FIRE-FIGHTING MEASURES

**5.1. Extinguishing media**

**5.1.1. Recommended:** Water, Foam, Dry chemical, Carbon dioxide (CO<sub>2</sub>)

**5.2. Special hazards**

**5.2.1. Unusual fire and explosion hazards**

Minimise use of water to prevent environmental contamination. Environmental precautions: see section 6.

**5.2.2. Hazardous products of combustion**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides (SO<sub>x</sub>), Hydrogen chloride (HCl)

**5.3. Advice for firefighters**

Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

**5.4. Flash point**

Does not flash.

---

## 6. ACCIDENTAL RELEASE MEASURES

**6.1. Personal precautions**

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

**6.2. Environmental precautions**

Minimise spread. Contain spillage with sand bags or other means. Keep out of drains, sewers, ditches and water ways. Do NOT contaminate water when disposing of rinse waters.

**6.3. Methods for cleaning up**

SMALL QUANTITIES: Flush spill area with water. LARGE QUANTITIES: Absorb in earth, sand or absorbent material. Dig up heavily contaminated soil. Collect in containers for disposal. Flush residues with small quantities of water. Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

---

## 7. HANDLING AND STORAGE

**7.1. Precautions for safe handling**

Good industrial practice in housekeeping and personal hygiene should be followed. Do NOT taste or swallow. Avoid contact with eyes, skin and clothing. When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Wash contaminated clothing before re-use. Avoid breathing vapours. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways

when disposing of equipment rinse water. Refer to section 13 of the safety data sheet for disposal of rinse water.

Emptied containers retain vapour and product residue. FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

**7.2. Conditions for safe storage, including any incompatibilities**

**Incompatible materials for storage:** Acids, bases, oxidizers, reducers, disinfectants, fungicides, and/or biocides may inactivate this product.

Read label for specific storage conditions. Keep in a cool place. Store in a dry place. Keep away from direct sunlight. Keep away from sources of ignition (sparks, flame, etc.) Keep away from heat. Protect from freezing.

**7.3. Specific end use(s)**

Not applicable.

---

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters**

Airborne exposure limits

<b>Components</b>	<b>Exposure Guidelines</b>
Bradyrhizobium japonicum	No specific occupational exposure limit has been established.
Lipo-chitooligosaccharide (LCO)	No specific occupational exposure limit has been established.
Water and minor formulating ingredients	No specific occupational exposure limit has been established.

**8.2. Exposure controls**

**Engineering controls**

No special requirement when used as recommended. If airborne exposure is excessive: Provide local exhaust ventilation.

**Eye protection:**

No special requirement when used as recommended. If there is potential for contact: Wear chemical goggles.

**Skin protection:**

No special requirement when used as recommended. If repeated or prolonged contact: Wear chemical resistant gloves. Chemical resistant gloves include those made of waterproof materials such as nitrile, butyl, neoprene, polyvinyl chloride (PVC), natural rubber and/or barrier laminate.

If there is significant potential for contact: Wear face shield. Wear chemical resistant clothing/footwear.

**Respiratory protection:**

No special requirement when used as recommended. If airborne exposure is excessive: Wear respirator. Full facepiece/hood/helmet respirator replaces need for chemical goggles.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

**9.1 Information on basic physical and chemical properties**

Colour/colour range:	Tan
Form:	Liquid
Odour:	Mild
Odour threshold:	No data.
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Flash point:	Does not flash.
Explosive properties:	No explosive properties
Auto ignition temperature:	No data.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	No data.
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	No data.
Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	No data.
Solubility:	Water: Completely miscible.
pH:	6 - 8
Partition coefficient:	No data.

**9.2 Other information**

Evaporation rate:	No data.
-------------------	----------

**10. STABILITY AND REACTIVITY**

**10.1. Reactivity**

None

**10.2. Chemical stability**

Stable under normal conditions of handling and storage.

**10.3. Possibility of hazardous reactions**

Hazardous polymerization: Does not occur.

**10.4. Conditions to avoid**

None

**10.5. Incompatible materials**

Incompatible materials for storage: Acids, bases, oxidizers, reducers, disinfectants, fungicides, and/or biocides may inactivate this product.

Compatible materials for storage: see section 7.2.

**10.6. Hazardous decomposition products**

Hazardous products of combustion: see section 5.

## 11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

### 11.1. Information on toxicological effects

**Acute oral toxicity:** Based on available data classification criteria are not met.

**Acute dermal toxicity:** Based on available data classification criteria are not met.

**Acute inhalation toxicity:** Based on available data classification criteria are not met.

**Skin corrosion/irritation:** Based on available data classification criteria are not met.

**Eye corrosion/irritation:** Based on available data classification criteria are not met.

**Skin sensitization:** Based on available data classification criteria are not met.

**Respiratory sensitization:** Based on available data classification criteria are not met.

**Mutagenicity:** Based on available data classification criteria are not met.

**Carcinogenicity:** Based on available data classification criteria are not met.

**Reproductive/Developmental Toxicity:** Based on available data classification criteria are not met.

**Specific Target Organ Toxicity - Single Exposure:** Based on available data classification criteria are not met.

**Specific Target Organ Toxicity - Repeated Exposure:** Based on available data classification criteria are not met.

**Aspiration hazard:** Based on available data classification criteria are not met.

#### Most important symptoms and effects, both acute and delayed

##### Potential health effects

**Likely routes of exposure:** Skin contact, eye contact, inhalation

**Eye contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Medical conditions aggravated by exposure:** Contains microorganisms which may have the potential to provoke sensitising reactions. Opportunistic infections may occur in patients with compromised immune functions.

Monsanto has not conducted toxicity studies on this product. Contains microorganisms which may have the potential to provoke sensitising reactions. Opportunistic infections may occur in patients with compromised immune functions.

---

## 12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Monsanto has not conducted environmental studies on this product.

### 12.1 Toxicity

No data.

### 12.2 Persistence and degradability

No data.

---

**12.3 Bioaccumulative potential**

Refer to section 9 for partition coefficient data.

**12.4 Mobility in soil**

No data.

**12.5 Results of PBT and vPvB assessment**

No data.

**12.6 Other adverse effects**

No data.

**12.7 Additional information**

If available, data obtained on similar products and/or on components are summarized below.

---

**13. DISPOSAL CONSIDERATIONS**

**13.1. Waste treatment methods**

**13.1.1. Product**

Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Follow all local/regional/national/international regulations.

**13.1.2. Container**

See the individual container label for disposal information. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Empty packaging completely. Triple or pressure rinse empty containers. Do NOT contaminate water when disposing of rinse waters. Ensure packaging cannot be reused. Do NOT re-use containers. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

---

**14. TRANSPORT INFORMATION**

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

**Transport of Dangerous Goods Regulations (TDG)**

14.1 **UN No.:** Not applicable.

14.2 **Proper Shipping Name (Technical Name if required):** Not regulated for domestic transportation.

14.3 **Transport hazard class:** Not applicable.

14.4 **Packing Group:** Not applicable.

14.5 **Environmental hazards:** Not applicable.

14.6 **Special precautions for the user:** Not applicable.

**IMO**

14.1 **UN No.:** Not applicable.

14.2 **Proper Shipping Name (Technical Name if required):** Not regulated for transport under IMO Regulations.

14.3 **Transport hazard class:** Not applicable.

14.4 **Packing Group:** Not applicable.

14.5 **Environmental hazards:** Not applicable.

14.6 **Special precautions for the user:** Not applicable.

14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable.

## IATA/ICAO

- 14.1 **UN No.:** Not applicable.
- 14.2 **Proper Shipping Name (Technical Name if required):** Not regulated for transport under IATA/ICAO Regulations.
- 14.3 **Transport hazard class:** Not applicable.
- 14.4 **Packing Group:** Not applicable.
- 14.5 **Environmental hazards:** Not applicable.
- 14.6 **Special precautions for the user:** Not applicable.

---

## 15. REGULATORY INFORMATION

### 15.1. Pest Management Regulatory Agency, Pest Control Products Act [PMRA PCPA]

Not regulated by PMRA.

---

## 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

Revised for new format.

In this document the British spelling was applied.

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), STOT SE (Specific Target Organ Toxicity, Single Exposure), STOT RE (Specific Target Organ Toxicity, Repeated Exposure), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE Pest Management Regulatory (PMRA)- APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by product labeling and provincial legislation, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the PMRA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.



