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**
TELONE* II Soil Fumigant

**COMPANY IDENTIFICATION**
Dow AgroSciences LLC
A Subsidiary of The Dow Chemical Company
9330 Zionsville Road
Indianapolis, IN 46268-1189
USA

Customer Information Number: 800-992-5994

**EMERGENCY TELEPHONE NUMBER**
**24-Hour Emergency Contact:** 800-992-5994
**Local Emergency Contact:** 800-992-5994

## 2. Hazards Identification

### Emergency Overview
**Color:** Colorless to yellow
**Physical State:** Liquid.
**Odor:** Sharp, Sweet
**Hazards of product:**

WARNING! Harmful if swallowed. Causes skin irritation. Harmful if absorbed through skin. Causes eye irritation. Harmful if inhaled. May cause respiratory tract irritation.

### 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:** May cause severe eye irritation. May cause slight corneal injury. Vapor may cause lacrimation (tears). Vapor may cause eye irritation experienced as mild discomfort and redness.

**Skin Contact:** Brief contact may cause severe skin irritation with pain and local redness. Prolonged contact may cause skin irritation with local redness. Repeated contact may cause skin irritation with local redness. May cause drying and flaking of the skin.
**Skin Absorption:** Prolonged or widespread skin contact may result in absorption of harmful amounts.
**Skin Sensitization:** Animal data indicate that 1,3-dichloropropene is a potential skin sensitizer.
**Inhalation:** Easily attainable vapor concentrations may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Observations in animals include: Lethargy.
**Ingestion:** Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death.
**Aspiration hazard:** Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.
**Effects of Repeated Exposure:** Repeated contact may cause skin irritation with local redness. In animals, effects have been reported on the following organs: Bladder. Kidney. Nasal tissue. Liver. Lung. Gastrointestinal tract. Respiratory tract.
**Cancer Information:** Has been shown to cause cancer in laboratory animals by the oral route. Inhalation exposure resulted in an increase in the normal occurrence of benign lung tumors in male mice.

## 3. Composition Information

| Component | CAS # | Amount |
|---|---|---|
| 1,3-Dichloropropene | 542-75-6 | 97.5 % |
| Impurities associated with 1,3-Dichloropropene cis/trans mixture | | 2.5 % |

## 4. First-aid measures

**Eye Contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.
**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention without delay. Wash clothing before reuse. Properly dispose of contaminated leather items, such as shoes, belts, and watchbands.
**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
**Ingestion:** Seek medical attention immediately. Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.
**Notes to Physician:** Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Animal data indicates that this material is a potential skin sensitizer. However, skin sensitization has not been encountered amoung employees involved in the manufacture of this material. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
**Medical Conditions Aggravated by Exposure:** Skin contact may aggravate preexisting dermatitis.

## 5. Fire Fighting Measures

**Extinguishing Media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function. Water fog, applied gently may be used as a blanket for fire extinguishment.
**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. 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. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. 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.
**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.
**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: Hydrogen chloride. Carbon monoxide. Carbon dioxide.

## 6. Accidental Release Measures

**Steps to be Taken if Material is Released or Spilled:** Pump with explosion-proof equipment. If available, use foam to smother or suppress. 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.
**Personal Precautions:** Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. For large spills, warn public of downwind explosion hazard. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment.
**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:** No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically bond and ground all containers and equipment before

transfer or use of material. Never use air pressure for transferring product. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

### Storage

Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed. Do not store in: Zinc. Aluminum. Aluminum alloys. Magnesium. Magnesium alloys. Store in a dry place. Store in original container. Keep container tightly closed. Do not store near food, foodstuffs, drugs or potable water supplies.

## 8. Exposure Controls / Personal Protection

### Exposure Limits

| Component | List | Type | Value |
|---|---|---|---|
| **1,3-Dichloropropene** | ACGIH | TWA | 1 ppm SKIN |

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.
It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.
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 chemical goggles. If exposure causes eye discomfort, use a full-face respirator.
**Skin Protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

> **Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). 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, use an approved respirator. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.
**Ingestion:** Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

### Engineering Controls

**Ventilation:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

## 9. Physical and Chemical Properties

| | |
|---|---|
| **Physical State** | Liquid. |
| **Color** | Colorless to yellow |
| **Odor** | Sharp, Sweet |
| **Flash Point - Closed Cup** | 27.5 °C (81.5 °F) *Tag Closed Cup ASTM D56* |
| **Flammable Limits In Air** | **Lower**: No test data available<br>**Upper**: No test data available |
| **Autoignition Temperature** | 756 mmHg 400 °C (752 °F) *92/69/EEC A15* |
| **Vapor Pressure** | 23 mmHg @ 20 °C |
| **Boiling Point (760 mmHg)** | 107 °C (225 °F) . |
| **Vapor Density (air = 1)** | 3.8 |
| **Specific Gravity (H2O = 1)** | 1.21 20 °C/4 °C *Pyknometer* |
| **Liquid Density** | 1.211 g/cm3 *Digital density meter* 20°C (68°F) |
| **Freezing Point** | No test data available |
| **Melting Point** | Not applicable |
| **Solubility in water (by weight)** | Insoluble |
| **pH** | 6.5 (@ 1 g/l) *pH Electrode* |
| **Decomposition Temperature** | No test data available |
| **Dynamic Viscosity** | 0.66 mPa.s @ 40 °C 0.769 mPa.s @ 20 °C |
| **Kinematic Viscosity** | 0.636 mm2/s @ 20 °C 0.544 mm2/s @ 40 °C |

## 10. Stability and Reactivity

### Stability/Instability

Unstable at elevated temperatures.
**Conditions to Avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge.

**Incompatible Materials:** Avoid contact with: Acids. Bases. Oxidizers. Avoid contact with metals such as: Zinc. Cadmium. Magnesium. Aluminum. Aluminum alloys.

### 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. Hydrogen chloride. Toxic gases are released during decomposition. Decomposition products can include trace amounts of: Phosgene.

## 11. Toxicological Information

### Acute Toxicity

**Ingestion**
LD50, Rat, male 300 - 713 mg/kg
LD50, Rat, female 224 - 510 mg/kg
**Skin Absorption**
LD50, Rabbit, male and female 333 - 504 mg/kg
**Inhalation**
LC50, 4 h, Vapor, Rat, female 904 ppm
LC50, 4 h, Vapor, Rat, male 855 - 1,035 ppm
Lethal Dose, 1 h, Vapor, Rat, male 14,000 ppm

### Sensitization
**Skin**
Animal data indicate that 1,3-dichloropropene is a potential skin sensitizer.

### Repeated Dose Toxicity
Repeated contact may cause skin irritation with local redness. In animals, effects have been reported on the following organs: Bladder. Kidney. Nasal tissue. Liver. Lung. Gastrointestinal tract. Respiratory tract.

### Chronic Toxicity and Carcinogenicity
Has been shown to cause cancer in laboratory animals by the oral route. Inhalation exposure resulted in an increase in the normal occurrence of benign lung tumors in male mice.
**Carcinogenicity Classifications:**

| Component | List | Classification |
|---|---|---|
| **1,3-Dichloropropene** | ACGIH | Confirmed animal carcinogen with unknown relevance to humans.; Group A3 |
| | NTP | Anticipated carcinogen. |
| | IARC | Possible carcinogen.; 2B |

### Developmental Toxicity
Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

### Reproductive Toxicity
In animal studies, did not interfere with reproduction.

### Genetic Toxicology
In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

## 12. Ecological Information

**ENVIRONMENTAL FATE**
Data for Component: **1,3-Dichloropropene**

### Movement & Partitioning
Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient, n-octanol/water (log Pow):**
**Partition coefficient, soil organic carbon/water (Koc):** 23 - 80 Measured

### Persistence and Degradability
Biodegradation may occur under aerobic conditions (in the presence of oxygen). 1,3-Dichloropropene has a stratospheric ozone depletion potential (ODP) of 0.002, relative to CFC 12 (ODP=1).
**Stability in Water (1/2-life):**
2 - 70 d
**OECD Biodegradation Tests:**

| Biodegradation | Exposure Time | Method |
|---|---|---|
| 8 % | 28 d | OECD 301D Test |

**ECOTOXICITY**
Material is highly toxic to fish on an acute basis (LC50 between 0.1 and 1.0 mg/L). Material is highly toxic to aquatic invertebrates on an acute basis (LC50/EC50 between 0.1 and 1 mg/L). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

**Fish Acute & Prolonged Toxicity**
LC50, bluegill (Lepomis macrochirus): 3.84 - 6.82 mg/l
LC50, rainbow trout (Oncorhynchus mykiss): 2.78 - 4.63 mg/l
LC50, sheepshead minnow (Cyprinodon variegatus): 0.91 mg/l
**Aquatic Invertebrate Acute Toxicity**
LC50, saltwater mysid Mysidopsis bahia: 0.70 mg/l
EC50, eastern oyster (Crassostrea virginica), shell growth inhibition: 0.67 mg/l
**Aquatic Plant Toxicity**
EC50, diatom Navicula sp., biomass growth inhibition: 0.29 mg/l
EC50, blue-green alga Anabaena flos-aquae, biomass growth inhibition: 16.1 mg/l
**Toxicity to Non-mammalian Terrestrial Species**
dietary LC50, mallard (Anas platyrhynchos): > 5,620 ppm
oral LD50, bobwhite (Colinus virginianus): 152 mg/kg

## 13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Reclaimer. Incinerator or other thermal destruction device.
**Treatment and disposal methods of used packaging:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Reclaimer. Incinerator or other thermal destruction device.

## 14. Transport Information

### DOT Non-Bulk
**Proper Shipping Name:** PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S.
**Technical Name:** 1,3-DICHLOROPROPENE
**Hazard Class:** 6.1 (3) **ID Number:** UN2903 **Packing Group:** PG II

### DOT Bulk
**Proper Shipping Name:** PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S.
**Technical Name:** 1,3-DICHLOROPROPENE
**Hazard Class:** 6.1 (3) **ID Number:** UN2903 **Packing Group:** PG II

### IMDG
**Proper Shipping Name:** PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S.
**Technical Name:** 1,3-DICHLOROPROPENE
**Hazard Class:** 6.1 (3) **ID Number:** UN2903 **Packing Group:** PG II
**EMS Number:** F-E,S-D
**Marine pollutant.: Yes**

### ICAO/IATA
**Proper Shipping Name:** PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S.
**Technical Name:** 1,3-DICHLOROPROPENE
**Hazard Class:** 6.1 (3) **ID Number:** UN2903 **Packing Group:** PG II
**Cargo Packing Instruction:** 611
**Passenger Packing Instruction:** 609

**Additional Information**

Reportable quantity: 102 lb – 1,3-DICHLOROPROPENE

MARINE POLLUTANT (1.3-DICHLOROPROPENES)

*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** | Yes |
| **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**

| Component | CAS # | Amount |
|---|---|---|
| 1,3-Dichloropropene | 542-75-6 | 97.5% |

**Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:**

| Component | CAS # | Amount |
|---|---|---|
| 1,3-Dichloropropene | 542-75-6 | 97.5% |

**Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:**

| Component | CAS # | Amount |
|---|---|---|
| 1,3-Dichloropropene | 542-75-6 | 97.5% |

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103**

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

| Component | CAS # | Amount |
|---|---|---|
| 1,3-Dichloropropene | 542-75-6 | 97.5% |

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

**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 |
|---|---|---|---|
| | 3 | 3 | 0 |

### Revision

Identification Number: 50088 / 1016 / Issue Date 02/18/2009 / Version: 3.0
DAS Code: XRM-5048
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.*