

## **Emergency Response Information**

For all products, call CHEMTREC at 1-800-424-9300.



# **Stewardship Guide** for

**Telone<sup>®</sup> II**  
**Telone<sup>®</sup> II CA**  
**Telone<sup>®</sup> C-17**  
**Telone<sup>®</sup> C-17 CA**  
**Telone<sup>®</sup> C-35**  
**Telone<sup>®</sup> C-35 CA**  
**Telone<sup>®</sup> EC**  
**Telone<sup>®</sup> Technical**  
**InLine<sup>®</sup>**

®™Trademark of Dow

Telone<sup>®</sup> and InLine<sup>®</sup> are federally Restricted Use Pesticides. Always read and follow label directions.

# Stewardship Guide for Telone® and InLine® Fumigants

<b>Introduction</b> .....	<b>3</b>
Transportation Guide.....	4
Storage and Handling Guide .....	4
<b>Product Information</b> .....	<b>5</b>
SDS Information .....	5
Additional Physical Properties .....	5
Material/Product Compatibility.....	8
<b>Personal Safety</b> .....	<b>10</b>
Education, Hygiene and Protective Procedures.....	10
Personal Protective Equipment (PPE).....	12
Exposure Symptoms, First Aid, and Note to Physician .....	15
<b>Environmental &amp; Emergency Information</b> .....	<b>17</b>
Environmental Fate and Wildlife Toxicity.....	17
Fire, Spills, and Clean-Up.....	18
CERCLA Reportable Quantities and SARA Listing.....	20
FIFRA § 6(a)(2) Adverse Effects Reporting .....	20
Groundwater Protection .....	20
<b>References</b> .....	<b>21</b>

To obtain additional copies of this Guide or other information about Telone® and InLine® fumigants, go online at [www.teleosagsolutions.com](http://www.teleosagsolutions.com) or contact your Teleos Ag Solutions Telone® Specialist.

®™Trademark of Dow  
Telone® and InLine® are federally Restricted Use  
Pesticides. Always read and follow label directions.

## INTRODUCTION

This Guide is intended for use in the United States of America. Consult Teleos for guidance in other countries. This Guide includes information about the following fumigants:

- Telone® II
- Telone® II CA
- Telone® EC
- Telone® C-17
- Telone® C-17 CA
- Telone® C-35
- Telone® C-35 CA
- Telone® Technical
- InLine®

This Guide is part of the Product Stewardship Program initiative of Teleos. The Guide describes practices and equipment believed to be suitable for handling Teleos products as noted.

This Guide is not intended as, and should not be used as, a substitute for engineering or legal advice. Applicable legislation and regulations are constantly changing. Future regulatory and judicial developments may necessitate changes in the guidelines and procedures recommended in this Guide. Each user or handler of these products is responsible for compliance with all applicable federal, state, and local laws, regulations, and codes. Each user or handler of products is responsible to always read and follow product label directions.

For more information, contact your local government agencies responsible for regulating the operations in question.

*NOTICE: The information, procedures, methods, and recommendations herein are presented in good faith and are believed to be accurate and reliable as of the publication date, but may well be incomplete and/or not applicable to all conditions or situations. No representation, guarantee, or warranty is made as to the accuracy, reliability, or completeness of said information, procedures, methods, and recommendations. Nor is any representation, guarantee, or warranty made that application or use of any of the same will avoid hazards, accidents, losses, damages, or injury of any kind to persons or property, or give desired results, or that the same will not infringe patents of Teleos or others. Readers must satisfy themselves as to the suitability of said information, procedures, methods, and recommendations prior to use.*

**To obtain additional copies of this Guide, call your Teleos Telone® Specialist or visit our website at [www.teleosagsolutions.com](http://www.teleosagsolutions.com)**

®Trademark of Dow  
Telone® and InLine® are federally Restricted Use Pesticides.  
Always read and follow label directions.

## Transportation Guide

Transportation requirements information is included in a separate document, the *Transportation Requirements* for Telone® and InLine® fumigants. The Transportation Guide includes:

- Selecting Transport Equipment, including
  - Selection Cargo Tanks (Trucks) and Railcars
  - Selecting Cylinders & Mini-bulks
- Placard and Label Requirements, including
  - Cargo Tank Vehicles (Trucks) Placarding
  - Cylinder and IBC Labeling & Repackaging Requirements

## Storage and Handling Guide

Storage and handling information is included in a separate document, the *Storage and Handling Guide* for Telone® and InLine® fumigants. The Storage and Handling Guide includes:

- Bulk Site Safety, Equipment and Best Practices, including
  - General Bulk Site Issues
  - Secondary Containment and Tank Design
  - Piping, Pumps, Meters, and Other Equipment Selection
  - Bulk Tank Labeling, Filling and Cleaning
- Cargo Tanks and Rail Car Procedures, including
  - General Requirements
  - Off-loading and Filling Cargo Tank Vehicles
  - Off-loading Rail Cars
- Cylinders & Mini-bulk Handling, including
  - General Requirements & Recommendations
  - Cylinder and IBC Filling, Cleaning, Storage, and Transport

**To obtain additional copies of this Guide, call your Teleos Telone® Specialist or visit our website at [www.teleosagsolutions.com](http://www.teleosagsolutions.com)**

®Trademark of Dow  
Telone® and InLine® are federally Restricted Use  
Pesticides. Always read and follow label directions.

# PRODUCT INFORMATION

## SDS Information

Consult the Safety Data sheet (SDS) for specific product information before handling any pesticide. For additional copies of the SDS:

- Go online to the Telone® and InLine® website at [www.teleosagsolutions.com](http://www.teleosagsolutions.com)
- Call your Dow AgroSciences sales representative, or
- Go online at [www.cdms.net](http://www.cdms.net) The SDS contains

information on:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Product and Company Identification</li> <li>• Composition/Information on Ingredients</li> <li>• NFPA Hazards Identification (Health, Flammability, Reactivity)</li> <li>• First Aid Procedures</li> <li>• Fire Fighting Measures</li> <li>• Accidental Release Measures</li> <li>• Handling and Storage</li> <li>• Exposure Controls/Personal Protection</li> </ul> | <ul style="list-style-type: none"> <li>• Physical and Chemical Properties</li> <li>• Stability and Reactivity</li> <li>• Toxicological Information</li> <li>• Ecological Information</li> <li>• Disposal Considerations</li> <li>• Transport Information</li> <li>• Regulatory Information</li> <li>• Other Information</li> </ul> |
|--|--|

EPA Label Signal Word	
Warning	Danger
Telone® EC Telone® II Telone® Technical	InLine® Telone® C-17 Telone® C-35

## Additional Physical Properties

A few key physical properties are listed below. If you need additional information about physical properties that do not appear below or on the SDS, contact Dow AgroSciences. Key considerations include:

- These products are classified as a Flammable Liquid by the Department of Transportation (DOT), Department of Labor (DOL), National Fire Protection Association (NFPA), and the Occupational Safety and Health Administration (OSHA). The flash point of a liquid is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air near the surface of the liquid or within the test vessel used.
- The vapors of these products are heavier than air. Vapors may accumulate in sumps and low areas.
- These products are denser than water and therefore will form a layer below water. InLine® and Telone® EC will disperse in milky emulsion in most ratios with water.
- Products are highly soluble in hydrocarbons, but most are relatively insoluble in water.

®Trademark of Dow  
Telone® and InLine® are federally Restricted Use Pesticides.

Always read and follow label directions.

## Density

Temperature affects the density (weight per volume) of a product. This affects meters that are not temperature compensated. The following information is only a guide. The chart may not reflect exact standard density used for billing, and individual lots may vary within normal limits.

	Temperature -- °F (°C)							
	20 (-7)	30 (-1)	40 (4)	50 (10)	60 (16)	70 (21)	80 (27)	90 (32)
Product	Density -- (lb./gal.)							
InLine®						11.2		
Telone® II		10.41	10.34	10.28	10.22	10.15	10.09	10.02
Telone® C-17		10.89	10.82	10.75	10.68	10.61	10.55	10.48
Telone® C-35					11.24	~11.2		11.0
Telone® EC		10.33	10.27	10.20	10.14	10.08	10.01	9.95
Telone® Technical		10.41	10.34	10.28	10.22	10.15	10.09	10.02

## Vapor Pressure

	Temperature -- °F (°C)							
	20 (-7)	30 (-1)	40 (4)	50 (10)	60 (16)	70 (21)	80 (27)	90 (32)
Product	Vapor Pressure (mm/Hg)							
InLine®						~30		
Telone® II			9.04	12.66	17.46	23.74	31.84	42.19
Telone® C-17	4.30	6.23	8.88	12.43	17.15	23.33	31.31	41.50
Telone® C-35						~30		
Telone® EC						~28		
Telone® Technical			9.04	12.66	17.46	23.74	31.84	42.19

## Boiling Point, Heat of Vaporization, Solubility, Molecular Weight

	Latent Heat of Vaporization (BTU/lb.)	Approximate Solubility in Water @ 25°C	Coefficient of Thermal Expansion /°C	Molecular Weight gm/mole
InLine®		.2 g/100 ml	.0016	274
Telone® C-17	126	.2 g/100 ml	.00148	120
Telone® C-35		.2 g/100 ml	.0016	274
Telone® EC		1.2 g/1000ml	.00137	111
Telone® II	134	1.2 g/100 ml	.00141	111
Telone® Technical				111

®Trademark of Dow

Telone® and InLine® are federally Restricted Use Pesticides.

Always read and follow label directions.

### Other Physical Properties

Property	Value (All products)	Comment
DOT, NFPA, and OSHA Rating	Class 1C Flammable	
Spark Ignition Energy	0.15 millijoules	Static discharge is sufficient to ignite vapors.
Flammability Limits	LFL: 5.5% @ 80°C, 176°F UFL: 14.5% @ 80°C, 176°F	Limits indicate the typical flammable range for product mixtures in air at ambient pressure.
Odor	Pungent, sweet, penetrating to irritating	Odor of products containing chloropicrin is considered “irritating”, especially to eyes.
Freezing point	Approx. -84.5°C (-120°F)	Produce will not freeze under ambient conditions.
Physical State	Colorless to straw colored liquid	Products are liquid at ambient temperature.

## Material/Product Compatibility

Material compatibility depends on the end use; shrinking, swelling or slight corrosion may be acceptable in some applications, but not others. Maintenance, such as draining and flushing pumps, will extend component life. See other sections in this Guide for maintenance instruction. The performance of the rubbers and plastics is dependent upon the resin grades and quality control procedures used by the manufacturer. Contact the parts supplier for further compatibility information.

The data below reflects field experience and laboratory studies. The laboratory studies partially submerged material coupons in fumigant for 60 days at 122 °F. Use this chart as a screen only.

### Material Compatibility Chart

Metals	Rating	Comment
Mild Steel, Cast Iron	OK	Mild steel was moderately corroded by InLine® fumigant, but only slightly corroded by other formulations. If not maintained, may develop scale or surface rust capable of discoloring product or plugging orifices.  Mild steel storage tanks should be nitrogen padded to limit corrosion and protect product quality.
304 and 316 Stainless Steel	OK	Acceptable for most applications. Trace of corrosion in liquid phase. Pinhole corrosion may occur rapidly in presence of moisture, air, and Telone® products. Some studies indicate an advantage of using low carbon alloys, especially 316L.  Stainless steel storage tanks should be nitrogen padded to limit corrosion and protect product quality.
Tantalum	OK	Not tested, but tantalum is considered totally inert.
Copper	OK	Acceptable for most. Moderately corroded by InLine®. Non-corroded by other formulations.
Hastelloy®, Monel®, Nickel	OK	
Yellow Brass	Caution	Acceptable for most short-term applications. Slight corrosion. Although commonly used in Telone® couplers, severe corrosion has occurred in long-term exposure of brass nipples when moisture was not controlled.
Tungsten-Carbide	Caution	Not tested. Tungsten Carbide includes a nickel-cobalt matrix. Compatibility with Telone® products is likely OK, but may depend on that level of matrix and whether other alloy materials are present.
Aluminum, Tin, Zinc, Magnesium, Cadmium or their alloys (Galvanized products)	Do Not Use	Will corrode. Hazardous decomposition may occur with release of hydrogen chloride when Telone® products come into contact with aluminum or its alloys <sup>1</sup> . Decomposition may occur in a reaction and may release heat.

### Other Notes:

Glass filled polymers should be avoided in pump impellers or other parts exposed to wear.

®Telone and InLine® are trademarks of Dow

®Hastelloy is a trademark of Haynes International, Inc.

®Monel is a trademark of Special Metals Corporation.

<sup>1</sup> Some laboratory data indicates that corrosion of aluminum is less with formulations containing chloropicrin. However, it is best to avoid aluminum altogether, as severe corrosion can occur with Telone® II and Telone® EC.



Rubbers / Plastics	Rating	Comment
Buna N, Neoprene, Silicon Red Rubber, Rigid or Plasticized PVC (Tygon®), Polyurethane, ABS, Butyl Rubber, Hypalon®, Lexan®, SBR Rubber, Polysulfone, Vinyl	Do Not Use	Swells severely or disintegrates.  Silicone Red Rubber shows only moderate swelling with Telone® II, but swells severely with Telone® C-17.
Teflon® Pastes, Fiberglass, Epoxy	Do Not Use	1,3-Dichloropropene may dissolve the paste constituents and is incompatible with epoxies and fiberglass.
Viton®	Caution	Acceptable for most applications. Grades of Viton vary. Viton A has performed well, but will swell. Standard Viton swelled between 118% and 131% in coupon tests. Highly fluorinated grades such as Viton F/G may be better.
EPDM	Caution	Acceptable for some applications. Grades of EPDM vary from little to severe swelling. Swelling will likely be less for Telone® II and Telone® EC than other formulations. Use only for trapped gaskets, preferably in the vapor phase only.
Vellumoid Gasketing	Caution	Shrinks slightly.
Silicone Gasket Material	Caution	Works fairly well if thoroughly cured before product contact. Super Blue Silicon, Type 613, from Versa Chem has been used for thread & gaskets. Permatex Ultra Blue and Permatex/Loctite Blue RTV Silicone Gasket Maker have been used. Color will leach.
Nylon, Teflon, Cross-linked Polyethylene, PEEK™	OK	Acceptable. Little to no swelling. PEEK™ (PolyEtherEtherKetone) -is especially inert.
Polypropylene, Hi-Density Polyethylene, Lo-Density Polyethylene UHMW Polyethylene	OK	Acceptable. Swells slightly. Low-density polyethylene will swell slightly more than hi-density polyethylene.
Santoprene®	OK	Limited testing showed slight shrinkage with Telone® EC, and slight swelling with InLine®. Other formulations are likely to behave the same. Test before use.
Norprene®	OK	Limited testing showed excellent performance. Do not confuse Norprene (compatible) with Neoprene (incompatible). Test before use.
Kalrez®, Chemraz®	OK	Limited testing, but should perform adequately. Very little swelling. Test before use.
Kynar® (PVDF)	OK	Limited data shows <2% dimensional change in two-week test. Suitable for most applications, but avoid glass-filled Kynar, especially in parts subject to erosion. Glass-filled Kynar failure in such parts has been reported.
Delrin® (Acetal)	OK	Acceptable for most trapped applications. Not tested with Telone® II or Telone® C-17, but slight to moderate swelling with the other formulations.
Loctite® 242, 243, 569 or 577, Teflon tape for threads.	OK	Loctite 243, 242 or equivalent (medium strength thread locking) or Loctite 569 high strength, permanent) sealant is the best recommendation for metallic threaded connections in Telone® fumigant service. Equivalents include, but are not limited to such as Zep Blue Medium Threadlocker or John Deere equivalents.  Use Loctite 577 or equivalent for metallic threaded connections, 2" or greater.  Teflon tape is compatible and can be used, but easily leaves some shreds of material, without expert care, that plug filters. It is known to cold set, loosening with vibration.

®Telone and InLine are trademarks of Dow, and are federally Restricted Use Pesticides. Always read and follow label directions.

®Hastelloy is a registered trademark of Haynes International, Inc. Monel is a registered trademark of International Nickel Corporation. Tygon is a trademark of Norton Company. Hypalon is a registered trademark of DuPont Dow Elastomers LLC. Lexan is a registered trademark of General Electric Company. Teflon and Viton, Kalrez, and Delrin are registered trademarks of Dupont Corporation. Santoprene is a registered trademark of Monsanto Corporation. Chemraz is a registered trademark of Green Tweed & Corporation. Saranex is a registered trademark of Dow Chemical Company. Norprene is a registered trademark of Norton Co. Kynar® is a registered trademark of Elf Atochem North America, Inc. Loctite is a registered trademark of Henkel Corporation.

™PEEK is a trademark of Victrex plc.

# PERSONAL SAFETY

## Education, Hygiene and Protective Procedures

Safe handling requires adequate equipment design, knowledge of product hazards, and knowledge of handling procedures. Consult the product label and SDS for worker protection standards and handling precautions. Additional training may be required, consult with your State, Local or Tribal authority.

### Personnel Education

Safety procedures and SDSs must be reviewed with workers according to the OSHA Hazard Communication Standard 29 CFR 1910. **The training program must be in writing and records kept of individual participation.** Emphasis should be placed on preventing the exposure, not reacting to it. Personnel handling fumigants:

- must understand and avoid hazards,
- must be given specific instructions about personal protective equipment required for particular types of jobs,
- must be trained in procedures to follow should an exposure occur,
- should read, understand, and observe warnings on product labels, and
- implement procedures to avoid exposure.

Contact your Teleos Telone® specialist for assistance in setting up a training seminar.

### Personal Hygiene

**Maintain good personal hygiene.** After handling or applying product, immediately wash hands, arms, and face with soap and water. Do this particularly before using tobacco products, chewing gum, or eating. It is good practice to shower and change clothes daily after working with any pesticide, even if no known exposure has occurred. Shower and clothes changing facilities near the work site are recommended in addition to emergency eye-bath and shower stations strategically located in the work area.

**Avoid eye contact.** Wear eye protection prescribed in the product label. Wearing contact lenses while handling any chemicals can be harmful because the contact lens may trap or absorb chemical liquids, vapors, gases, or dusts.

**Avoid skin contact.** Wear personal protective equipment prescribed in the product label. Aerate and separately wash all protective clothing and equipment thoroughly after use. Never wear clothing or protective equipment having the odor of these products. **Note:** Contaminated clothing may be a fire hazard until cleaned or completely dry.

**Avoid ingesting product.** Never put these products into the mouth. Do not use the mouth to siphon liquids or blow out clogged equipment.

## **Protective Procedures**

1. Since these products are flammable, no spark-producing, flame-cutting, or welding operations may be performed on equipment, or in areas around equipment until proper isolation, clearing, and testing with an approved combustible gas meter has established that safe conditions exist. Do not use, pour, or store these products near heat or open flame, and do not cut or weld containers which contained these products.
2. Clean leaks or spills immediately and properly dispose of clean-up materials to minimize exposure hazards from product contact and air contamination. Decontamination should be conducted by properly protected and knowledgeable people.
3. Keep everyone whose presence is not required away from areas where these products are stored, handled, or loaded. Keep people away from areas being treated or that have been recently treated.
4. Minimize contamination of work areas, such as mixing or loading sites, rail sidings, and truck floors.
5. Loading personnel, application equipment drivers, transport drivers, persons performing equipment repair, supervisors and any other individuals working with fumigants must understand the safety recommendations and emergency procedures. They must correct deviations from appropriate safety procedures. Safety equipment is to be specified for the job and used until the equipment is cleaned and the work area adequately cleared.
6. Do not wear shoes with small nails or studs in hazardous locations. They can produce sparks.
7. Avoid entering vessels. If entry must be made, it should be done only under strict procedures established and supervised by knowledgeable personnel experienced and certified in this type of operation.
8. Periodic inspections and preventive maintenance programs should be established to keep equipment and containers in good condition to prevent leaks of liquid and vapors.
9. Do not transport or store contaminated equipment in closed areas such as vehicles or buildings. Do not decontaminate exposed equipment inside buildings except in areas ventilated especially for such use.
10. Product transfers or repackaging should be conducted with equipment that meets requirements of the National Electric Code. Operations should be performed in clean, well-ventilated areas, preferably separated from other operations.

## Personal Protective Equipment (PPE)

**FOLLOW PPE INSTRUCTIONS ON THE TELONE® PRODUCT SPECIMEN LABELS OR SDS AS APPROPRIATE.** Safety equipment must be readily available and properly maintained. Personnel must be trained to use PPE and informed of the protection it may offer. In addition, OSHA minimum requirements must be met.

### Materials

The label provides guidance on chemical resistant materials, including:

- Specific instructions on what equipment must be worn based on the activity being performed.
- What materials work well, and which do not provide protection.
- Tips to avoid over-heating (heat stress) under hot working conditions.

Several materials resistant to these products are listed below. For more options, follow the instructions for Category H on an EPA Chemical resistance category selection chart. PPE constructed of Saranex®, and chlorinated polyethylene provide short-term contact or splash protection. Longer-term protection is provided by PPE constructed of Viton, Teflon, and EVAL barrier laminates.

Leather, canvas, or cotton materials do not offer adequate protection and must not be worn when contact with this product is possible. Coveralls must be loose fitting and constructed of woven fabrics (e.g. tight knot cotton or cotton/polyester), non-woven fabrics (e.g. Tyvek or Sontara®), or fabrics containing microporous Teflon.

Many uses require full body cover-all. Avoid or minimize heat illness, using measures such as gradual adjustment to heat and respirator stress, fans for cooling, cooling vests, frequent breaks to cool down, frequent intake of drinking water, and maintaining weight from day to day.

### Activities Requiring Personal Protective Equipment

The product labels for these products specify specific personal protective equipment and clothing based on the activity being performed. REFER TO THE PRODUCT LABEL FOR DETAILS. The product labels generally break users into the following groups:

- Handlers performing direct contact tasks.
- Handlers in enclosed cabs.
- Applicators outside an enclosed cab.
- Handlers in treated areas within 24 hours of application.
- Handlers exposed to high concentrations.

Direct contact activities generally include tasks performed outdoors or in a well-ventilated area that may involve direct contact with product or direct venting of product vapor.

Direct contact tasks include (but are not limited to):

- Equipment calibration or adjustment
- Equipment clean-up and repair
- Product sampling
- Any activity within 6 feet of an unshielded pressurized hose containing these products
- Rinsate disposal
- Fumigant transfer
- Clean-up of small spills
- Preparing containers for aeration
- Any other task not specifically listed in the PPE sections of the product label.

Tasks which are not Direct Contact Activities include (but may not be limited to):

- Tasks with no liquid contact potential, including inside / outside of cabs
- Handlers in treated areas, including inside / outside of cabs
- Handlers exposed to high concentrations

®Telone and InLine® are trademarks of Dow, and are federally Restricted Use Pesticides. Always read and follow label directions.

Most bulk site activities will be considered “tasks with liquid contact potential”, but consult the label to be sure.

**Activities in treated areas within 5 Days of Application are restricted.:** The product label restricts activity in the treated area to only specific tasks. Do not enter the restricted area unless performing a required task and wearing PPE.

High airborne concentrations of soil fumigant products may occur during cleanup following spills, bulk tank cleaning, or in poorly ventilated areas. **Note:** In-tank cleaning must be performed only by trained persons. Refer to OSHA 29 CFR Part 1910.146 and this Guide’s section on Tanks.

See further respirator requirements in the “User Safety Requirements” section on the product label.

## General PPE Information

The product label specifies PPE that must be worn. This section provides general comments about selection, care and sourcing of PPE.

**Eye Protection:** A face shield or safety glasses with brow and temple shields meeting OSHA standards are the minimum eye protection required in areas where there is a possibility of contact with liquid product.

Properly fitted, full-facepiece respirators provide eye protection from vapors and liquid splash exposures.

Wash face shield or safety glasses using soap and warm water at least daily, then rinse and dry with a clean, soft cloth or non-abrasive paper towel. If the shield or glasses contact these products, clean and dry them in a well-ventilated area. Do not reuse shield or glasses until they are free of any detectable odor of these products.

**Body Protection:** Leather or leather-like materials offer no protection and will actually increase the chance of injury after an exposure. They should be made un-wearable and disposed immediately after an exposure. Do not try to salvage or reuse them.

Gloves such as barrier laminated (EVAL) or Viton are preferred over thin, disposable items of protective clothing, such as latex rubber or polyethylene gloves; but these lighter materials will provide adequate protection for very short periods such as the time needed for taking samples and short-term equipment repairs. Gloves that tear easily are potentially more dangerous than no protection as they can entrap chemical in contact with the skin. Remove anything that can entrap the chemical next to skin, such as watch bands or rings.

After use, thoroughly wash protective clothing using soap and warm water. Dry in a clean, well-ventilated place. If the clothing has been contaminated, aerate it thoroughly after washing until all product odors are gone. Never wear clothing having product odor.

**Respiratory Protection:** National Institute for Occupational Safety and Health (NIOSH)-approved cartridge respirators for up to 1,000 ppm organic vapors should be adequate for short-term situations in open air, such as loading and unloading tank cars, tank trucks, and marine vessels; sampling, transferring, and filling drums and other similar containers; calibration; when exposed to small spills in well-ventilated areas; and during routine equipment maintenance. View NIOSH publications on respiratory protection at [www.cdc.gov/niosh](http://www.cdc.gov/niosh) for more information.

Respirators have limitations on the range of compounds against which they are effective, the length of time they can be relied upon for protection, and the conditions under which they can be used and stored. Use respirators in accordance with the manufacturers’ directions and Occupational Safety and Health Administration (OSHA) regulations:

1. Store the respirator and cartridges in a clean, dry place, preferably in a tightly closed plastic bag.
2. Replace cartridges or canisters daily or when odor or irritation from this product becomes apparent, whichever is sooner. Dispose of used cartridges and faulty parts and replace as needed.
3. Fit the respirator with head-bands snug enough to ensure a tight but comfortable seal. Top headbands must be above ears. Ensure that corrective glasses or facial hair do not affect the fit of the facepiece.
4. Test for leaks by placing a hand over the inlet valve housing and inhaling gently. If the mask is pulled toward the face, the fit is good. If not, readjust headbands and test again.

5. Clean respirators regularly in accordance with OSHA regulations. Wash the facepiece with soap and warm water after use. After washing, rinse to remove all traces of soap. Place in a well-ventilated area to dry.
6. Respirators must be fit-tested and fit checked using a program that conforms to OSHA's requirements described in 29 CFR Part 1910.134. (CFR is available at <https://www.ecfr.gov/cgi-bin/text-idx?node=pt29.5.1910&rgn=div5>.) Key elements of a respirator program include:
  - Examination by qualified medical practitioner to ensure physical ability to safely wear the respirator.
  - Fit testing.
  - Training on selection, use, and maintenance.

**WARNING:** Never use a cartridge respirator without carefully assessing exposure conditions. Do not use an air-purifying respirator in an area you could not safely escape if the respirator failed. The atmosphere must contain adequate oxygen (at least 19.5%). If in doubt, use an air-supplied respirator. Because of the possibility of inadequate oxygen, do not use cartridge respirators for firefighting. Use a positive-pressure, self-contained breathing apparatus. Do not use any respirator if you have a medical or physical condition that prevents you from doing the job safely. Consult with your supervisor. Contact lenses may be used with respirators where the wearer has successfully worn such lenses before.

Positive-Pressure, Self-Contained Breathing Apparatus or Air-Supplied Respirators must be used during a fire involving these products or in any other situation where oxygen may be deficient.

## Personal Protective Equipment and Suppliers

The following protective equipment appears to give good protection against 1,3-dichloropropene. (Other manufacturers may have comparable equipment.) Safety equipment may be purchased from any supplier, but the list below is provided for your convenience.

### Body Protection

- Chemtursion model 3525 or 3530 (Trademark of ILC Dover)
- Zytron 500 (Trademark of Kappler)
- Tychem SL (Trademark of DuPont)

### Footwear

- Neoprene snugleg boots (Trademark of Tingley Rubber Co.)
- Servus Neoprene III (Trademark of Norcross Safety Products)

### Gloves

- Silvershield (Trademark of North Safety Products)
- Model 334946 NL-34 Neoprene (Trademark of MAPA Pioneer Corp.)
- Model 6784 Neoprene (Trademark of Best Glove, INC)
- Viton Model F-101 (Trademark of North Safety Products)

### Respirators and Canisters

- MSA: full-facepiece with MSA organic vapor cartridge
- Scott: full-facepiece with Scott organic vapor cartridge
- Willson: full-facepiece with Willson organic vapor cartridge
- 3M: full-facepiece with 3M organic vapor cartridge

## Exposure Symptoms, First Aid, and Note to Physician

### Signs and Symptoms of Exposure

**CONSULT THE INDIVIDUAL PRODUCT LABEL AND SDS FOR DETAILED DESCRIPTIONS OF HAZARDS, WHICH VARY BY PRODUCT.** Below is provided as an overview only.

Preventing exposure and prompt removal from exposure are most effective in preventing injury.

Routes of exposure can be by inhalation, ingestion, skin absorption, or eyes. Severity of potential health effect will depend on the product involved, the route of exposure, and the duration and level of exposure. Potential health effects can be mild or severe, including life-threatening.

Immediately take appropriate action if exposure is suspected. See the “Section 4. First Aid” and “Section 11. Toxicological Information” of the SDS.

These products contain 1,3-dichloropropene, which is moderately toxic to mammals. They are soluble in many organic solvents and fats, but only slightly soluble in water. Chloropicrin is also a major component in all but Telone® EC and Telone® II fumigant.

### First Aid Treatment

The following emergency procedures should be followed until decontamination is complete, until a physician arrives, or until the person can be moved to a medical facility. **CONSULT THE INDIVIDUAL PRODUCT LABEL AND SDS FOR DETAILED DESCRIPTIONS OF HAZARDS, WHICH VARY BY PRODUCT.** Below is provided as an overview only.

<b>Eyes</b>	Wash immediately and continuously with flowing water for at least as long as recommended on the SDS. In most cases this will be at least 15 minutes and may be up to 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.
<b>Skin</b>	Wash immediately and continuously with flowing water for at least as long as recommended on the SDS while removing contaminated clothing. In most cases this will be at least 15 minutes and may be up to 30 minutes. Prompt medical consultation is essential. Wash clothing before reuse. Destroy contaminated leather items such as belts, watchbands, or shoes.
<b>Ingestion</b>	Call a 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 control center or doctor. Never give anything by mouth to an unconscious person.
<b>Inhalation</b>	If person is not breathing, call 911 or an 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. If breathing is difficult, oxygen should be administered by qualified personnel.

#### Obtain medical assistance if:

- The material has been swallowed.
- High vapor concentrations have been inhaled.
- The material has splashed into the eyes.
- Large areas of skin have been contaminated.
- The individual has become ill or unconscious.

*Try to determine the names of all materials (including active ingredients) with which the person had been working. Take available product literature, the label or label booklet from the container, a labeled container, or a safety data sheet to the hospital or physician.*

## **Note to Physician**

FOR MEDICAL EMERGENCIES INVOLVING DOW AGROSCIENCES PRODUCTS, PHYSICIANS CAN CONSULT WITH MEDICAL PERSONNEL KNOWLEDGEABLE ON TELEOS PRODUCTS BY CALLING **1-800-992-5994**, OPTION 1.

**Consult the individual product label and SDS for treatment guidance and hazards, which vary by product.**

### **PRODUCT STEWARDSHIP:**

Aspirated material can be rapidly absorbed through the lungs and cause systemic effects. The decision to, or not to, induce vomiting should be made by a physician. Dangers of lung aspiration must be weighed against toxicity when considering emptying the stomach. If lavage is performed, endotracheal and/or esophageal control is suggested.

Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Maintain adequate ventilation and oxygenation of the patient.

Exposure may cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants, and antitussives may be of help. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids.

Methemoglobinemia may aggravate any pre-existing condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease, or anemias.

Any burns should be treated as thermal burns, after decontamination.

Animal data indicates this material is a potential skin sensitizer. However, skin sensitization has not been encountered among employees involved in the manufacture of this material.

Repeated excessive exposure may aggravate pre-existing lung, liver, or kidney disease.

No specific antidote exists. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.



# **ENVIRONMENTAL & EMERGENCY INFORMATION**

## **Environmental Fate and Wildlife Toxicity**

No residues of 1,3-dichloropropene or chloropicrin from commercial agricultural applications have been found in crops grown in soil treated with Telone® fumigants. Always use Telone® products in strict compliance with label instructions.

1,3-Dichloropropene is known to move through soil and under certain conditions has the potential to reach ground water as a result of agricultural use. Application in areas where soils are permeable and ground water is near the surface, in Karst geology, could result in ground water contamination.

Telone® and InLine® products are toxic to aquatic organisms. To avoid injury to fish and other wildlife, do not spill or empty Telone® fumigants into streams, ponds, or other bodies of water. Do not load Telone® fumigants near a body of water.

The SDS has additional information about environmental fate in Section 12, “Ecological Information.”

Telone® and InLine® are trademarks of Dow. Telone® and InLine are federally Restricted Use Pesticides. Always read and follow label directions.

## Fire, Spills, and Clean-Up

The following procedures are intended primarily for immediate, temporary control of emergencies. Call the Dow AgroSciences Emergency Response line at 1-800-992-5994 to obtain advice and arrange for professional help, as needed, to assist with an emergency.

Written Emergency Response Plans should be in place for minor and major emergencies, including injuries, personnel exposures, spills, vapor releases, and fires. Plans should be regularly reviewed with personnel.

Written Emergency Response Plans must be reviewed with local emergency service groups. These plans must include locations and amounts of product and other hazardous substances per the SARA Title II Emergency Planning and Community Right to Know Act.

The product SDS provides recommended extinguishing media, firefighting instructions and information such as flash point and flammability limits. The MSDS also contains information about controlling and cleaning up spills. An SDS for each product must be available on site, and should be shared with local emergency responders.

A stock of emergency supplies, including personal protective equipment, absorbent materials, and disposal drums should be kept on hand. Disposal drums can be purchased from most drum suppliers or safety supply houses. The disposal drum should be DOT approved for wastes as required by law. Warehouses should stock several of these drums and clearly mark them as “Disposal for Pesticides.”

### Fire

1. **Notify Emergency Responders.** If appropriate, immediately notify local police, fire department, and Teleos Emergency Response at 1-800-992-5994, Option 2, from a safe distance to the fire. Identify all products that might be involved. Have SDSs ready when firefighters arrive.

NOTE: Telone® fumigants are chlorinated hydrocarbons. Combustion products will vary depending on the heat of the fire and available oxygen. A normal fire will produce significant amounts of carbon dioxide with some carbon monoxide, hydrogen chloride, and chlorine. A smoldering fire could include the above plus phosgene. A very hot fire will yield carbon dioxide, water vapor, and chlorine.

- Except for carbon dioxide and carbon monoxide, these major oxidation products are heavier than air; however, updraft during fire conditions should be considered.
  - The flammability limits are approximately 5.3% LFL and 14.5% UFL at 80 °C (176°F).
  - Although these products are liquid at normal temperatures, they are moderately volatile. The vapors are heavier than air. Flash points are between 81 °F to 83 °F.
2. **Evacuate the Area:** Move all personnel from the immediate area to a safe distance, upwind from the smoke and vapors. Reroute traffic if necessary.
  3. **Use Full Turn-Out Gear:** Unless otherwise instructed in the SDS, firefighters should wear full turn-out clothing including heavy rubber boots, chemical-resistant gloves, and positive-pressure, self-contained breathing apparatus (SCBA) for protection against both toxic vapors and oxygen-deficient atmospheres.  
**Caution:** Respirator cartridges or canisters commonly used for protection against pesticides offer limited protection against vapors with no protection against oxygen deficiency, and should not be used in firefighting.
  4. **Use Fire-Fighting Techniques as Specified in the SDS.** This will include standard techniques and equipment to combat the fire such as water fog, foam, CO<sub>2</sub>, and dry chemical.
  5. **Limit Fire Spread:** Keep containers of unaffected product cool, if possible, with a water spray. Use only as much water as necessary because excess water compounds contamination and cleanup issues.
  6. **Control Run-Off:** Dike or trench around the area to keep contaminated water from reaching streams, water supplies, and sanitary or storm sewers.

## Spills

1. **Notify Emergency Responders.** If appropriate, immediately notify local police, fire department, and Teleos Emergency Response at 1-800-992-5994, Option 2, from a safe distance to the spill.
2. **Wear Personal Protective Equipment (PPE).** Depending on the product and size of the spill, chemical suits and positive-pressure, self-contained breathing apparatus (SCBA) may be required. Consult the Safety Data Sheet (SDS) for PPE requirements in areas with high concentrations of vapor and product.
3. **Isolate the Area.** Keep upwind and isolate the contaminated area and keep unnecessary personnel away using barricades or other means. Stop road traffic if necessary. Indoor spills may require evacuating and ventilating the area to minimize vapor concentrations.
4. **Control Fire Hazards.** Extinguish all flames, shut off all spark-producing equipment; prevent anyone from smoking, and only allow persons with spark-proof footwear in the area. Use care not to create sparks with hand tools.
5. **Treat Any Exposures.** If anyone has been exposed to the products, render first aid according to the SDS or “Personal Safety” section of this Guide. If possible, remove affected people to fresh air immediately.
6. **Control the Spill at the Source.** Locate and stop the leak at the source. If it can be done safely, invert or reposition the leaking container so flow is reduced or stopped. If practical, put the leaking container into an overpack.
7. **Contain the Spill.** Prevent product from entering public sewers, ditches, ponds, or waterways. Use absorbent pillows, dams, ditches or dikes to stop the flow and minimize the spread of contamination.

If the spill is large, and occurs inside secondary containment, collect the product and recover it if possible. Leaking vehicles may be moved to containment if the move does not spread the contamination. **DO NOT START THE ENGINE** if flammable vapors may be present. Do not create spark during towing. For smaller spills that cannot be recovered, apply a suitable absorbent material (diatomaceous earth, sand, clay, sawdust, etc.) onto the spill.

8. **Clean Up and Decontaminate.** Areas or equipment where spills or leaks have occurred must be cleaned and decontaminated as soon as practical.

Undamaged containers may be removed after washing the exterior of any contamination. Remaining product from leaking containers may be transferred to clean containers if caution is used not to ignite any flammable vapors.

Contaminated equipment may be washed with water and detergent, and then rinsed. Collect rinsate for later disposal. Absorbent materials such as wood may need to be removed and incinerated or disposed according to federal, state, and local regulations.

Collect the spill clean-up material and any contaminated soil and place into disposal containers. Secure the lids and label the container with the contents. Flush or clean the contaminated areas, containing and collecting the rinsate. Do not allow the water to run off to the ground, sewers or waterways.

Follow federal, state, and local laws and regulations in determining the appropriate method of handling, storing, and disposing of the rinsates and wastes.

9. **Report the Spill to Proper Authorities.** If the spill reaches or threatens to reach a stream, body of water, water supply, or area that might lead to a water supply, notify local health department authorities, the EPA, and/or Coast Guard immediately.

When the immediate threat is mitigated, determine whether the spill or release triggered a notification and/or reporting requirement under federal, state, or local laws and/or regulations. Reporting or notification is required if a release equals or exceeds the Reportable Quantity (RQ) for the chemical released. See the CERCLA/ SARA Reportable Quantities in the SDS. Note that individual state and local RQs may differ from the CERCLA/SARA RQs.

In addition, you may choose or be required to notify the local fire department, local health department, the state environmental management agency, and the state agricultural office. It is also advisable to notify CHEMTREC at 1-800-424-9300. CHEMTREC will provide initial product emergency information and route you to the Teleos Emergency Response Team for additional information. Adverse effects to people or environment resulting from the spill must also be reported to satisfy the FIFRA § 6(a)(2) adverse effects reporting requirements (see below).

Complete initial phone calls as soon as possible after a spill occurs. Follow up with a written report if required.

10. **Properly Dispose of the Spill Clean-Up Material.** Contact your local, state and federal environmental authorities to determine the regulatory requirements for the proper disposal of the spill clean-up material.

## **CERCLA Reportable Quantities and SARA Listing**

Releases in excess of the CERCLA reportable quantity must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations. Note that individual state and local RQ's may differ from the CERCLA RQ's.

“SARA Listed Components” are substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 as of the date of publication of this Guide.

The CERCLA RQ and the SARA Listed Components are shown in the SDS.

Note: CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act  
SARA = Superfund Amendments and Reauthorization Act

## **FIFRA § 6(a)(2) Adverse Effects Reporting**

Section 6(a)(2) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) states that if a registrant has information regarding unreasonable adverse effects to people or the environment of a pesticide, the registrant shall submit the information to the EPA.

EPA regulations require that Dow AgroSciences employees and agents be responsible for recognizing and reporting adverse effects. EPA considers agents to include not only employees, but also consultants, contract researchers, sub-registrants, and in some cases, retailers and distributors.

Adverse effects reporting deadlines are very short, so contact Dow AgroSciences for more information immediately in the event of an incident. Reporting information or allegations is not an admission of liability.

## **Groundwater Protection**

Follow all application and stewardship requirements on the product label to assure protection of groundwater.

## REFERENCES

### **Worker Protection Standard**

The Worker Protection Standard is a set of regulations in “40 CFR Part 170 Worker Protection Standard”. Search online at the Government Printing Office homepage <https://www.ecfr.gov/cgi-bin/text-idx?mc=true&node=pt40.24.170&rgn=div5>. Supporting information can be found by searching the EPA website at <https://www.epa.gov>

### ***Recognition and Management of Pesticide***

***Poisonings*** is published by EPA's Office of Pesticide Programs. Search online at <https://www.epa.gov>

### **Respiratory Protection Division of Technical Services**

National Institute for Occupational Safety and Health provides respiratory protection information. Search online at <https://www.cdc.gov/Niosh/> .