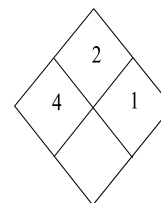


MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



PRODUCT NAME: COUNTER™ 15G SYSTEMIC INSECTICIDE;
COUNTER™ 15G LOCK 'N LOAD® INSECTICIDE; COUNTER™
15G SMARTBOX® INSECTICIDE

GENERAL USE: Insecticide

PRODUCT DESCRIPTION: Gray to beige granules with moderate mercaptan-like odor

EPA Registration Number: 5481-545

HEALTH CANADA REG. NO.: 15268

MSDS No.: 361_5

MSDS Revision Date: 17 March, 2008

MANUFACTURER:
AMVAC CHEMICAL CORPORATION
4100 E. Washington Blvd.
Los Angeles, CA 90023-4406
Ph: 323-264-3910
FAX: 323-268-1028

EMERGENCY TELEPHONE NUMBERS:
MANUFACTURER: 323-264-3910
TRANSPORTATION (24 HOURS)
CHEMTREC: 800-424-9300
OTHER (24 HOURS)
AMVAC: 323-264-3910

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	Typical %	CAS No.
Terbufos	15.0%	13071-79-9
Quartz	3.86%	14808-60-7
Inert Ingredients (proprietary)	81.14%	

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

COMPONENT	HAZARD	OSHA PEL*	ACGIH TLV*
Terbufos	POISON		0.01 mg/m ³ Inhalable fraction and vapor
Quartz (SiO ₂)	Lung fibrosis	0.1 respirable; 0.3 mg/m ³ Total dust	0.025 mg/m ³ Respirable fraction

* Exposure Limits 8 hrs. TWA

COUNTER™ is a trademark of AMVAC Chemical Corporation.
Lock 'n Load® is a registered trademark of BASF AG
SMARTBOX® is a registered trademark of AMVAC Chemical Corporation.

3. **HAZARDS IDENTIFICATION**

EMERGENCY OVERVIEW:

DANGER! POISON! Fatal if swallowed, inhaled or absorbed through skin or eyes. Rapidly absorbed through skin. Repeated inhalation or skin contact may, without symptoms, progressively increase susceptibility to TERBUFOS poisoning.

KEEP OUT OF REACH OF CHILDREN!

TOXIC to fish, birds and other wildlife. Do not contaminate water bodies with this product.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: May be fatal if absorbed through the eye or skin, is ingested or is inhaled. May produce acute cholinesterase depression.

SIGNS OF ACUTE OVEREXPOSURE: Acute cholinesterase depression may be evidenced by headache, nausea, vomiting, diarrhea, abdominal cramps, excessive sweating, salivation and tearing, constricted pupils, blurred vision, tightness in chest, weakness, muscle twitching and confusion; in extreme cases, unconsciousness, convulsions, severe respiratory depression and death may occur. Product may cause slight but temporary irritation to the eyes and may cause irritation of the skin.

SIGNS OF CHRONIC OVEREXPOSURE: Repeated exposures to small doses of Terbufos and other organophosphates may lower the cholinesterase to levels where the above symptoms of acute overexposure are observed. In addition, repeated exposure to high concentrations of crystalline silica may result in silicosis, a lung disease characterized by coughing, difficult breathing, wheezing, scarring of the lungs, and repeated, non-specific chest illnesses.

OTHER POTENTIAL HEALTH EFFECTS: No evidence of mutagenicity, carcinogenicity, reproductive toxicity, developmental toxicity or teratogenicity have been observed in animal studies. Quartz, a component of this formulation, has been classified as being a carcinogen by IARC and NTP.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

CARE SHOULD BE EXERCISED IN HANDLING TERBUFOS AND ITS FORMULATIONS

4. FIRST AID MEASURES

TERBUFOS (COUNTER™) IS A SEVERE CHOLINESTERASE INHIBITOR. A PHYSICIAN SHOULD BE CONTACTED IN ALL CASES OF EXPOSURE TO TERBUFOS AND ITS FORMULATIONS. WEAR PROTECTIVE EQUIPMENT WHEN TREATING SOMEONE EXPOSED TO TERBUFOS TO PREVENT EXPOSURE OF THE RESCUER.

EYES: Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. Contact a physician immediately. If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

INHALATION: Remove victim to fresh air. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration. If breathing is difficult, give oxygen. Contact a physician immediately. **Be sure the contact areas are clean to prevent contamination of the rescuer.**

INGESTION: Immediately dilute the swallowed product by giving large quantities of water. Induce vomiting by giving Syrup of Ipecac according to directions on the bottle or by sticking a finger down the throat. Never give anything by mouth to an unconscious or convulsing person. Contact a physician immediately. Be sure the mouth is clean or wear a rubber glove to prevent contamination of the rescuer.

SKIN: Immediately flush all affected areas with large amounts of clear water for at least 15 minutes. Remove contaminated clothing. Do not attempt to neutralize with chemical agents. Wash clothing before reuse. Contact a physician immediately.

NOTE TO PHYSICIANS: This is an Organophosphate (OP) Insecticide. Do not wait for laboratory confirmation to treat patients with strong clinical evidence of poisoning. In the USA and other countries, contact your local or national poison control center for more information.

Do Not handle the patient without the following protective equipment in place: chemical resistant gloves and apron (preferably nitrile). Remove contaminated clothing and do not reuse without thorough cleaning with detergent and hot water. Dispose of heavily contaminated clothing, including shoes, as a hazardous waste.

Establish airway and oxygenation. IV Atropine sulfate is the antidote of choice against parasympathetic nervous stimulation. If there are signs of parasympathetic stimulation, Atropine Sulfate should be injected at 10 minute intervals in doses of 1 to 2 milligrams until complete atropinization has occurred. Pralidoxime chloride (2-PAM chloride) may also be used as an effective antidote in addition to and while maintaining full atropinization. In adults, an initial dose of 1 gram of 2-PAM should be injected, preferably as an infusion, in 250 cc of saline over a 15 to 20 minute period. If this is not practical, 2-PAM may be administered slowly by intravenous injection as a 5% solution in water over not less than 2 minutes. After about an hour, a second dose of 1 gram of 2-PAM will be indicated if muscle weakness has not been relieved. For infants and children, the dose of 2-PAM is 0.25 grams. Avoid morphine, aminophylline, phenothiazines, reserpine, furosemide and ethacrynic acid. Clear chest by postural drainage. Oxygen administration may be necessary. Observe patient continuously for 48 hours. Repeated exposure to cholinesterase inhibitors may without warning cause prolonged susceptibility to very small doses of any cholinesterase inhibitor.

4. FIRST AID MEASURES, cont'd

Allow no further exposure until time for cholinesterase regeneration has been attained as determined by a blood test.

Bathe and shampoo contaminated skin and hair. If ingested, empty stomach; activated charcoal is useful to further limit absorption. If victim is alert, Syrup of Ipecac (2 tablespoons in adults, 1 tablespoon in small children) followed by water (2 glasses for adults, 1 glass for children) is indicated. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage should be considered following intubation with a cuffed endotracheal tube.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flash Point: No data available

Autoignition Temperature: No data available

Flammable Limits:

Lower flammable limit: None

Upper flammable limit: None

Flammability: This product contains a combustible liquid that will support fire if it is preheated (NFPA rating = 1)

EXPLOSIVITY

Mechanical Impact: No data available

Static Discharge: No data available

HAZARDOUS COMBUSTION PRODUCTS: This product may emit hazardous fumes of hydrogen chloride, carbon oxides and unidentified organic compounds when it is heated excessively or burned. **WEAR SELF-CONTAINED BREATHING APPARATUS.**

EXTINGUISHING MEDIA: Water fog, dry chemical, alcohol foam, or carbon dioxide.

FIRE FIGHTING INSTRUCTIONS: Do not breathe fumes. Wear complete firefighting gear, including protective gloves, eye protection and self-contained breathing apparatus. Wash clothing before reuse.

6. ACCIDENTAL RELEASE MEASURES

GENERAL: Evacuate personnel and thoroughly ventilate the area. Use adequate ventilation and appropriate personal protective equipment (PPE, see Section 8). Keep bystanders upwind and away from the spill.

SMALL SPILL: Wear appropriate personal protective equipment (see Section 8) during clean-up. Dike spillage. Shovel or sweep spilled material into a suitable container for reuse or disposal in a licensed facility. Spill area and tools can be washed with soap and water or with dilute caustic or aqueous ammonia. Treat the washings as a hazardous waste. See section 13 (Disposal Considerations) for further information.

6. ACCIDENTAL RELEASE MEASURES, cont'd

LARGE SPILL: Same as for a small spill.

7. HANDLING AND STORAGE

HANDLING: Keep this product cool and dry. Keep container closed. Store away from feed, food, and drink. Keep away from children and pets. Wash thoroughly after handling this product.

STORAGE: Store product in its original container in a cool, dry, locked place out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Ventilation should be sufficient to keep the exposure below the TLV. Use of mechanical or local exhaust systems is recommended when dust formation is possible.

RESPIRATORY PROTECTION: For exposures outdoors that may exceed the TLV, a Dust/Mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) is required. For exposures in enclosed areas that may exceed the TLV, a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G) is required.

SKIN PROTECTION: Applicators and other handlers must wear long-sleeved shirt and long pants; waterproof gloves; and shoes plus socks. Follow manufacturer's instructions for cleaning/ maintaining personal protection equipment (PPE). If no such instructions are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

EYE PROTECTION: Safety glasses with sideshields should be used whenever hazardous chemicals are being handled. Tight fitting chemical goggles should be worn whenever there is a chance of dusting from the product.

OTHER PROTECTION: There should be an eyewash station and a safety shower in the work area.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

PHYSICAL STATE:	Solid
APPEARANCE:	Gray to brown granules
ODOR:	Mild mercaptan-like odor
ODOR THRESHOLD:	Not available
BOILING POINT:	Not applicable
CRYSTALLIZATION POINT:	Not available
BULK DENSITY:	approximately 50-56 lb/cu.ft.
VAPOR PRESSURE (mm/Hg):	34.6 mPa (a.i.)
VAPOR DENSITY:	Heavier than air
PERCENT VOLATILE BY VOL:	Not applicable
SOLUBILITY IN WATER:	4.5 mg/L (a.i.)
SOLUBILITY (Other):	Terbufos (a.i.) is readily soluble in most organic solvents.
PARTITION COEFFICIENT (O/W):	The partition coefficient for Terbufos (a.i.) is 33000
pH:	4 - 7 (slurry)
EVAPORATION RATE:	Not applicable

10. **STABILITY AND REACTIVITY**

CHEMICAL STABILITY (Conditions to avoid): This product is stable under normal storage and use conditions.

INCOMPATIBILITY: High temperatures (>), strong oxidizers, strong alkalis and strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Possible thermal decomposition products included hydrogen sulfide, carbon dioxide, carbon monoxide, mercaptans, thiophosphates, dialkylsulfides, phosphorus oxides, and sulfur oxides. Decomposition begins at 120°C. WEAR SELF-CONTAINED BREATHING APPARATUS when these conditions are present.

HAZARDOUS POLYMERIZATION: This product will not polymerize.

11. **TOXICOLOGICAL INFORMATION**

INGESTION:	Oral LD ₅₀ (rat):	10 mg/kg Tox Cat I
DERMAL:	Skin LD ₅₀ (rabbit):	96 mg/kg (female/male) Tox Cat I
INHALATION:	Inhalation LC ₅₀ (rat):	0.00017 mg/L (4 hour) Tox Cat I
IRRITATION:	Eye irritation(rabbit):	Irritant
	Skin irritation: (rabbit)	Slightly irritating
SENSITIZATION:	Skin sensitization: (guinea pig)	Not a sensitizer

11. TOXICOLOGICAL INFORMATION, cont'd

TERATOGENICITY: No indications of developmental teratogenic effects were seen in laboratory studies using Terbufos.

MUTAGENICITY: No evidence of mutagenicity has been observed in laboratory testing using Terbufos..

CARCINOGENICITY: In long-term studies in rats and mice administered Terbufos Technical there was no carcinogenic effect. Quartz, a component of this product, has been classified as a carcinogen by both IARC and NTP.

REPRODUCTIVE TOXICITY: No evidence of reproductive toxicity has been observed in animal studies using Terbufos..

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: No data are available.

12. ECOLOGICAL INFORMATION

GENERAL: Terbufos is acutely toxic to terrestrial organisms. The impact of Terbufos on other types of organisms is given below.

Rainbow Trout/LC50 (96 hr):	0.01 mg/L
Daphnia manga/EC50 (48 hr):	0.31 ppb
Green algae (96 hr):	2.1 mg/L
Mallard duck/LD50	62 ppm

13. DISPOSAL CONSIDERATIONS

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed on site (by use according to the label) or at an approved waste disposal facility. Further information can be obtained from the EPA or the equivalent national, state and local agencies.

CONTAINER DISPOSAL: Empty Lock 'n Load® containers and SMARTBOX® containers should be returned to AMVAC Chemical Corporation per instructions provided. See the label on the container for more complete information. DO NOT attempt to open the SMARTBOX® container.

14. TRANSPORTATION INFORMATION

DOT CLASS:	6.1
UN NUMBER:	UN2783
IMDG CLASS:	6.1
IATA CLASS (air):	6.1
MARINE POLLUTANT:	Yes
PACKING GROUP:	II (See Note @ end of Transportation Information)

14. TRANSPORTATION INFORMATION, cont'd

HAZARD LABEL(s): POISON
ADR CLASS (road): 6.1
PROPER SHIPPING NAME(s): Organophosphorus pesticides, solid, toxic (Terbufos)
REPORTABLE QUANTITY: No

PACKAGING

GENERAL DESCRIPTION: Lock 'n Load® Containers (40 lbs); SMARTBOX® Containers (50 lb); .Supersacks (1700 lbs)

Note: The packing group of II is based on the fact that this product will not meet the dust criteria found in DOT, 173.132(b)(3) and therefore the LC₅₀ is not applicable for shipping purposes.

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: This product is registered under EPA/FIFRA Regulations as a RESTRICTED USE PESTICIDE. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

CANADIAN REGULATIONS: This product is registered under the Pest Control Product Act of Canada. It is a violation of Canadian Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions.
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

SARA TITLE III DATA

Section 311 & 312 Hazard Categories:

Immediate Health Hazard:	Yes
Delayed Health Hazard:	Yes
Fire Hazard:	No
Reactive Hazard:	No
Sudden Pressure Release Hazard:	No

Section 302 Extremely Hazardous Substances: Terbufos (13071-79-9)- TPQ = 100 lbs

Section 313 Toxic Chemicals: None

CERCLA Reportable Quantities (RQ): None

STATE REGULATIONS:

CALIFORNIA (Proposition 65): This product contains a chemical known to the State of California to cause cancer: Crystalline silica (respirable).

MA, NJ, PA: Quartz (SiO₂) - CAS # 14808-60-7

16. OTHER INFORMATION

MSDS STATUS:

Date This Revision: 17 March, 2008

Date Previous Revision: 15 May, 2007

Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Canadian registration of this product has been completed and the appropriate information has been added to the MSDS in sections 1 and 15. In addition, information was updated in sections 6 and 11 to reflect current knowledge or to make the information easier to understand.

DISCLAIMER: This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

ABBREVIATIONS:

a.i.	-	Active ingredient
ACGIH	-	American Conference of Governmental Industrial Hygienists
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	-	Department of Transportation
EPA	-	Environmental Protection Agency
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
IARC	-	International Agency for Research on Cancer
IATA	-	International Air Transport Association
IMDG	-	International Maritime Dangerous Goods
NTP	-	National Toxicology Program
OSHA	-	Occupational Safety and Health Agency
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

This is the last page of this MSDS. There should be 9 pages.