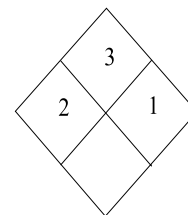


## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



**PRODUCT NAME(S):** Temozad, Basamid® G  
**CHEMICAL NAME (a.i.):** Dazomet; Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione  
**MOLECULAR FORMULA:** C<sub>5</sub>H<sub>10</sub>N<sub>2</sub>S<sub>2</sub>  
**GENERAL USE:** Soil Fumigant  
**PRODUCT DESCRIPTION:** White-yellow solid  
**EPA REGISTRATION NUMBER(S):** 5481-9027  
**MSDS NUMBER:** 431\_1  
**CURRENT REVISION DATE:** 12 April, 2011

**MANUFACTURER:**  
**AMVAC CHEMICAL CORPORATION**  
4100 E. Washington Blvd.  
Los Angeles, CA 90023-4406  
**PHONE:** 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	WT %	CAS No.
Dazomet; Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione	99.0%	533-74-4
Other Ingredients	1.0%	

Ingredients not precisely identified are proprietary or nonhazardous.  
Values are not product specifications.

#### OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

COMPONENT	HAZARD	OSHA PEL*	ACGIH TLV*
NONE LISTED			

\* Exposure Limits 8 hrs. TWA (ppm)

Basamid is a registered Trademark of BASF.

3. **HAZARDS IDENTIFICATION**

---

**EMERGENCY OVERVIEW:**

**WARNING! Dilution with water may generate poisonous gases (Methyl isothiocyanate (MITC)). Product is irritating to skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Harmful if swallowed. Harmful if inhaled. Harmful if absorbed through the skin. Irritating to eyes, nose and throat. Do not get on skin or clothing. Avoid breathing vapors from decomposition of product upon application. Do not get in eyes.**

**Toxic to fish. Do not contaminate water bodies.**

---

**POTENTIAL HEALTH EFFECTS**

**ROUTE(S) OF ENTRY:** Skin contact, inhalation, ingestion, and eye contact with the solid product.

As a result of use of the product, applicators and other persons present in the area of the application can be exposed to MITC. This chemical can be evolved as a gas from the soil of an application. MITC has a horseradish like odor and can be very irritating to the eyes. If odor is detected near an application of Temozad, notify the applicator of the problem and take appropriate measures to minimize/avoid exposure.

**SIGNS OF ACUTE OVEREXPOSURE:** Overexposure to Temozad as sold may result in skin irritation, excessive salivation, sweating, fatigue, weakness, nausea, headache, dizziness, eye, nose, throat and respiratory tract irritation. In addition, dilution to use levels results in the release of methyl isothiocyanate (MITC). Overexposure to MITC may result in strong skin and eye irritation, running nose, dizziness, cramps, nausea, vomiting, and mild to severe disturbances of the nervous system.

**SIGNS OF CHRONIC OVEREXPOSURE:** Same as above, plus conjunctivitis, photophobia, digestive disturbances, weight loss, general bodily weakness, and blurred vision. In addition, laboratory studies have shown that exposure to the active ingredient, followed by ingestion of alcohol, may cause an adverse reaction, including low blood pressure, rapid heart beat, and flushing of the skin. Consumption of alcohol during and after exposure to this product should be avoided.

**OTHER POTENTIAL HEALTH EFFECTS:** Laboratory studies showed a potential for liver effects and kidney necrosis. This product is not listed as being carcinogenic by EPA.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Impaired pulmonary function and preexisting eye problems may be aggravated. Preexisting skin diseases may also be aggravated by exposure to the decomposition products.

**Care should be exercised and all label instructions should be followed, in the handling of products containing Temozad.**

---

#### **4. FIRST AID MEASURES**

**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.

**INGESTION:** Immediately dilute the swallowed product by giving large quantities of water, but do not induce vomiting. If vomiting occurs, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or evacuation of stomach. Never give anything by mouth to an unconscious person. Contact a physician immediately.

**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. If skin irritation develops, contact a physician immediately.

**NOTE TO PHYSICIANS:** Treat symptomatically. Contact your local, state, or national poison control center for further information.

---

#### **5. FIRE FIGHTING MEASURES**

##### **FLAMMABLE PROPERTIES**

Flash Point: 199°F (TCC)

Autoignition Temperature: 518°F

Flammable Limits:

Lower flammable limit: Not available

Upper flammable limit: Not available

**EXPLOSIVITY:** No information

**HAZARDOUS COMBUSTION PRODUCTS:** This product can release toxic fumes of methylisothiocyanate (MITC), as well as nitrogen oxides, when heated to decomposition or diluted with water.

**EXTINGUISHING MEDIA:** Use powder, water spray or foam. Can form flammable dust/air mixtures at 30 g/m<sup>3</sup> air. CO<sub>2</sub> is unsuitable for extinguishing media due to dust explosion hazard. **NOTE:** Dilution with water may cause generation of flammable and toxic fumes of MITC. See **Chemical Stability** information in SECTION 10.

**FIRE FIGHTING INSTRUCTIONS:** Evacuate nonessential personnel from the area. Wear self-contained breathing apparatus and impervious clothing. Clean all clothing before reuse.

---

## **6. ACCIDENTAL RELEASE MEASURES**

**GENERAL:** Use adequate ventilation and appropriate personal protective equipment (PPE, Section 8). **KEEP DRY.** Contact with moisture can generate the flammable and toxic gas MITC. Keep bystanders upwind and away from the spill.

**SMALL SPILL:** Sweep into an open drum. Clean the area with common powdered household detergent and a stiff brush and just enough water to make a slurry. Absorb and sweep into the same open drum. Rinse with water, absorb, and add to the waste drum. Close the drum and dispose of properly.

**LARGE SPILL:** Dike the spill to prevent contamination of local water sources. Vacuum or sweep into drums for use or disposal, depending on the circumstances. Clean the area as described for a small spill.

---

## **7. HANDLING AND STORAGE**

**HANDLING:** Prevent skin contact. Do not breathe fumes. Wear appropriate personal protective equipment. Wash thoroughly and change clothes after handling. See product label for more detailed handling procedures.

**STORAGE:** **KEEP DRY.** Do not contaminate water, food or feed by storage or disposal. Store product in a cool, dry, locked place out of reach of children. Do not store above 35°C (95°F). Product decomposes at higher temperatures. See label for specific instructions.

---

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**ENGINEERING CONTROLS:** A well-ventilated area is recommended for handling Temozad. Use of mechanical or local exhaust systems is recommended.

**RESPIRATORY PROTECTION:** A properly FIT-TESTED NIOSH/MSHA approved respirator fitted with organic vapor cartridges may be required when working with this product. Specific use regulations are listed on the label.

**SKIN PROTECTION:** Chemical resistant gloves, body covering clothing that has long sleeves and long pants, and chemical resistant shoes or boots, are required to prevent skin contamination. A chemical resistant apron may be required under certain circumstances. Wear clean clothes daily. Wash well with soap and water after handling this product. See the label for more specific instructions.

**EYE PROTECTION:** Safety glasses must be worn whenever working with chemicals. Face-sealing goggles (or full-face respirators) are required whenever ventilation is poor or dusting is heavy.

**OTHER PROTECTION:** An eyewash station and a safety shower should be located in the work area.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>PHYSICAL STATE:</b>	Solid
<b>APPEARANCE:</b>	White-yellow solid
<b>ODOR:</b>	Essentially odorless
<b>BOILING POINT:</b>	Decomposes
<b>FREEZING/MELTING POINT:</b>	104°C (decomposes)
<b>VAPOR PRESSURE (mm/Hg):</b>	$4.35 \times 10^{-6}$ @ 20°C
<b>VAPOR DENSITY:</b>	Not determined
<b>BULK DENSITY:</b>	0.6-0.8 kg/L
<b>SOLUBILITY IN WATER:</b>	Insoluble (decomposes)
<b>pH:</b>	Not available
<b>PARTITION COEFFICIENT (<math>K_{O/W}</math>):</b>	1.4 (pH = 7)

---

## 10. STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Basamid decomposes slowly, when diluted with water, to methyl isothiocyanate (MITC, a lachrymator and moderate poison). Do not allow the product to contact water until after it has been incorporated into the ground. Basamid will decompose at temperatures exceeding 35°C (95°F). As originally packaged, Basamid is stable under normal storage conditions for up to 2 years.

Basamid can also decompose to carbon disulfide and monomethylamine (both highly flammable) if contacted with a strong acid.

**INCOMPATIBILITY:** This product is incompatible with additional water and strong aqueous acids. In addition, it is corrosive to copper, brass, and zinc, and may soften and/or discolor iron.

**HAZARDOUS DECOMPOSITION PRODUCTS:** When treated with water or heated to decomposition, this product will give off toxic fumes of methyl isothiocyanate (MITC), hydrogen sulfide, and nitrogen oxides. If treated with strong acids, fumes of carbon disulfide and monomethylamine will be given off.

**HAZARDOUS POLYMERIZATION:** This product will not polymerize.

---

## 11. TOXICOLOGICAL INFORMATION

**GENERAL:** Information has been included for the product and for two potential decomposition products in order to help potential users to have a clearer idea of the hazards associated with this product.

**TERATOGENICITY:** No evidence of developmental effects in the rat but in the rabbit there is evidence of foetal resorptions at maternally toxic dose levels.

**MUTAGENICITY:** Overall not considered to be genotoxic from a range of *in vivo* studies.

**CARCINOGENICITY:** Dazaomet (Basamid) has not been listed as carcinogenic by EPA.

**REPRODUCTIVE TOXICITY:** No evidence of reproductive toxicity in the rat.

**TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** No data are available.

**11. TOXICOLOGICAL INFORMATION, cont'd**

<b>Toxicological Category</b>	<b>Specific Application</b>	<b>Temozad (Product)</b>	<b>MITC (Decomposition)</b>
<b>INGESTION</b>	Oral LD <sub>50</sub> (rat):	519 mg/kg	55-220 mg/kg
<b>INHALATION</b>	Inhalation LC <sub>50</sub> (rat)	8.4 mg/L(4 hr)	1.9 mg/L air (1 hr)
<b>DERMAL</b>	Skin LD <sub>50</sub> (rabbit)	>2000 mg/kg	33 - 202 mg/kg
<b>IRRITATION</b>	Eye (rabbit) Skin (rabbit)	Not irritating Not irritating	Corrosive Corrosive
<b>OTHER</b>	Skin sensitization (guinea pig)	Not a sensitizer	Sensitizer

---

**12. ECOLOGICAL INFORMATION**

**GENERAL:** This product is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

---

**13. DISPOSAL CONSIDERATIONS**

**PESTICIDE DISPOSAL:** Do not contaminate water, food or feed by 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. Be sure to check with the appropriate Federal, State and local authorities to determine the current regulations for your area.

**CONTAINER DISPOSAL:** Do not reuse the empty container. Empty the package completely into application equipment. Empty package should be disposed in an approved landfill or by incineration. Be sure to check with the appropriate Federal, State and local authorities to determine the current regulations for your area.

---

**14. TRANSPORTATION INFORMATION**

This product is not regulated when shipped by highway, rail, or air in non-bulk packaging (net weight of 400 KG (882 lbs) or less). When shipped in bulk (net weight of more than 400 kg) or by vessel (non-bulk or bulk) this product is regulated according to the data shown.

**14. TRANSPORTATION INFORMATION, cont'd**

**DOT CLASS:** 9  
**UN NUMBER:** UN3077  
**IMDG CLASS (Sea):** 9  
**MARINE POLLUTANT:** Yes  
**IATA (Air):** 9  
**PACKING GROUP:** III  
**HAZARD LABEL(s):** Environmentally Hazardous  
**PROPER SHIPPING NAME(s):** Environmentally Hazardous Substance, Solid, NOS  
(contains dazomet)  
**REPORTABLE QUANTITY:** No

**PACKAGING**

**GENERAL DESCRIPTION:** 50 lb bags

---

**15. REGULATORY INFORMATION**

**U.S. FEDERAL REGULATIONS:** This product is registered under EPA/FIFRA Regulations. 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 (CPR). 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:** None

**Section 313 Toxic Chemicals:** Dazomet (CAS 533-74-4) - 99%

**CERCLA/EHS Reportable Quantity (RQ):** None

**STATE REGULATIONS:**

**CALIFORNIA (Proposition 65):** Warning: None

---



**16. OTHER INFORMATION**

**MSDS STATUS:**

**Date This Revision: 12 April, 2011**

**Date Previous Revision: New MSDS**

**Person Responsible for Preparation: Gary A. Braden**

**REASONS FOR REVISION:** New Product.

**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:**

ACGIH	-	American Conference of Governmental Industrial Hygienists
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	-	Department of Transportation
EHS	-	Extremely Hazardous Substance
EPA	-	Environmental Protection Agency
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
HIS	-	Health Information Services
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.