

# Material Safety Data Sheet

Tenkoz Inc.  
100 North Point Center East, Suite 330  
Alpharetta, GA 30022

24 Hour Emergency Response Information:  
CHEMTREC: (800) 424-9300  
BASF HOTLINE: (800) 832-HELP

## ACUMEN Herbicide

Revision date: 2005/06/29 Page: 1/10  
Version: 1.2 (30256191/MDS\_CPA\_US/EN)

### Section 1. Substance/preparation

Substance number: 000000057524  
Molecular formula: C(13) H(19) N(3) O(4)  
Molecular weight: 281.35 g/mol  
Chemical family: aniline derivative  
Synonyms: pendimethalin (active ingredient)

### Section 2. Composition/information on ingredients

CAS Number	Content (W/W)	Chemical name
40487-42-1	37.4 %	pendimethalin
64742-94-5	44.64 %	solvent naphtha
91-20-3	7.26 %	naphthalene
	10.74 %	Proprietary ingredients

### Section 3. Hazard identification

#### Emergency overview

CAUTION: KEEP OUT OF REACH OF CHILDREN.  
KEEP OUT OF REACH OF DOMESTIC ANIMALS.  
HARMFUL IF SWALLOWED.  
HARMFUL IF ABSORBED THROUGH SKIN.  
CAUSES EYE IRRITATION.  
Avoid contact with the skin, eyes and clothing.  
Wash thoroughly after handling.

#### Potential health effects

See Product Label for additional precautionary statements.

#### Primary routes of exposure

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation.  
Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

#### Acute toxicity:

Slightly toxic after single ingestion. Slightly toxic after short-term skin contact. Relatively nontoxic after shortterm inhalation.

*Information on: Petroleum Distillates with Naphthalene*

*Inhalation may cause headache, confusion, and excitement. Inhalation may cause central nervous system depression (effects include headache, weakness, drowsiness, lightheadedness, vertigo, loss of consciousness), respiratory tract irritation, asphyxiation, cardiac stress and coma.*

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*Ingestion may cause gastrointestinal irritation, nausea, vomiting, diarrhea, weakness, and dizziness.*

*Ingestion results in cramps, nausea, vomiting and diarrhea, listlessness, bladder irritation and brownish urine.*

*Aspiration may result in chemical pneumonitis, which may be fatal.*

*Information on: Aromatic 200 Solvent*

*At high oral doses in rats, this component caused damage to the stomach, liver, thyroid and urinary bladder. These effects are not relevant to humans at occupational levels of exposure.*

### **Irritation:**

May cause slight irritation to the skin. May cause moderate but temporary irritation to the eyes.

*Information on: Petroleum Distillates with Naphthalene*

*Skin contact may result in irritation, defatting and dermatitis. Vapors cause irritation to the respiratory tract and the eyes.*

### **Sensitization:**

Skin sensitizing effects were not observed in animal studies.

### **Repeated dose toxicity:**

*Information on: pendimethalin*

*The substance is not considered to pose a carcinogenic risk at low human exposure levels.*

*Information on: Petroleum Distillates with Naphthalene*

*Overexposure may cause liver and kidney toxicity.*

*Exposure by ingestion or inhalation may cause hemolysis, anemia, fever, hemoglobinuria, and jaundice.*

### **Medical conditions aggravated by overexposure:**

May aggravate existing skin conditions.

### **Potential environmental effects**

#### **Aquatic toxicity:**

Very toxic (acute effect) to aquatic organisms.

#### **Terrestrial toxicity:**

Acutely harmful to terrestrial organisms.

## Section 4. First-aid measures

### **General advice:**

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

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### **If inhaled:**

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

### **If on skin:**

Rinse skin immediately with plenty of water for 15 - 20 minutes.

### **If in eyes:**

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

### **If swallowed:**

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

### **Note to physician**

Symptoms: orange-red colored urine caused by dye (not associated with methemoglobinemia).

Hazards: Vomiting may cause aspiration pneumonia due to the ingredients. Because of the increased risk of chemical pneumonia or pulmonary edema caused by aspiration of the hydrocarbon solvent, vomiting should be induced only under professional supervision.

## Section 5. Fire-fighting measures

Flash point: approx. 208 °F (ASTM D93)

Autoignition: approx. 707 °F

### **Suitable extinguishing media:**

Foam, dry extinguishing media, carbon dioxide, water spray.

### **Hazards during fire-fighting:**

Carbon monoxide, Carbon dioxide, nitrogen oxides.

If product is heated above decomposition temperature, toxic vapors will be released. The substances/groups of substances mentioned can be released if the product is involved in a fire.

### **Protective equipment for fire-fighting:**

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

### **Further information:**

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

### **NFPA Hazard codes:**

Health: 1 Fire: 1 Reactivity: 1 Special:

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### Section 6. Accidental release measures

#### Personal precautions:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

#### Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

#### Cleanup:

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

### Section 7. Handling and storage

#### Handling

##### General advice:

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used up as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapors. Wear suitable personal protective clothing and equipment.

##### Protection against fire and explosion:

No explosion proofing necessary.

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### Storage

#### General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

#### Storage incompatibility:

General: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

#### Storage stability:

If substance/product crystallizes, thaw at room temperature.

#### Temperature tolerance

Protect from temperatures below: 40 °F

The product can crystallize below the limit temperature.

## Section 8. Exposure controls and personal protection

**Users of a pesticidal product should refer to the product label for personal protective equipment requirements.**

#### Components with workplace control parameters

OSHA PEL 10 ppm 50 mg/m<sup>3</sup>; naphthalene

ACGIH TWA value 10 ppm; STEL value 15 ppm; Skin

Designation;

#### Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

#### Personal protective equipment

### RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

#### Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapors. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

#### Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

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### Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

### Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

### General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

## Section 9. Physical and chemical properties

Form: liquid  
Odor: aromatic, moderate odor  
Color: dark amber  
pH value: 6 - 7 ( 20 - 40 g/l)  
Boiling point: approx. 244 °C ( 760 mmHg)  
Density: 1.06 g/cm<sup>3</sup>  
8.858 lb/USg

## Section 10. Stability and reactivity

### Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge. Avoid prolonged storage.

### Substances to avoid:

Oxidizing agent, strong alkalies.

### Hazardous reactions:

The product is chemically stable.

### Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated. Prolonged thermal loading can result in products of degradation being given off.

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### Thermal decomposition:

Approx. 244 °C

Possible thermal decomposition products: carbon monoxide, Carbon dioxide, Nitrogen oxide. Stable at ambient temperature. If product is heated above decomposition temperature toxic vapors may be released. If product is heated above decomposition temperature hazardous fumes may be released. No decomposition if stored and handled as prescribed/indicated.

### Corrosion to metals:

No corrosive effect on metal.

## Section 11. Toxicological information

### Acute toxicity

#### Oral:

LD50/rat/male/female: 3,956 mg/kg

#### Inhalation:

LC50/rat: > 5.35 mg/l / 4 h

#### Dermal:

LD50/rat/male/female: > 2,000 mg/kg

#### Skin irritation:

rabbit: Slightly irritating.

rabbit: Mildly irritating.

#### Eye irritation:

rabbit: Slightly irritating.

rabbit: Mildly irritating.

#### Sensitization:

guinea pig: Non-sensitizing.

### Chronic toxicity

#### Genetic toxicity:

*Information on: pendimethalin*

*No mutagenic effect was found in various tests with microorganisms and mammals.*

#### Carcinogenicity:

*Information on: pendimethalin*

*In long-term studies in mice in which the substance was given by feed, a carcinogenic effect was not observed. In long-term studies in rats the substance induced thyroid tumors.*

*A marked decrease in body weight gain and an increase in benign thyroid proliferative lesions were observed in the lifetime rat study at the highest dose tested. The substance is not considered to pose a carcinogenic risk at low human exposure levels.*

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### Reproductive toxicity:

*Information on: pendimethalin*

*The results of animal studies gave no indication of a fertility impairing effect.*

### Developmental toxicity/teratogenicity:

*Information on: pendimethalin*

*No indications of a developmental toxic / teratogenic effect were seen in animal studies.*

### Experiences in humans:

Pendimethalin is a strongly orange-red compound - virtually an aniline dye. Cases have been described of orange-yellow coloration of urine following heavy exposure of workers to the dust of pendimethalin. Despite its structure as both a nitro-compound and aromatic amine, exposure to pendimethalin is NOT associated with methemoglobinemia.

### Other information:

Misuse can be harmful to health.

## Section 12. Ecological information

*Information on: pendimethalin*

*Evaluation: Not readily biodegradable (by OECD criteria).*

*Information on: pendimethalin*

*Acute and prolonged toxicity to fish:*

*Rainbow trout/LC50 (96 h): 0.89 mg/l*

*Rainbow trout/LC50: = 0.14 ppm*

*Information on: pendimethalin*

*Acute toxicity to aquatic invertebrates:*

*Daphnia magna/EC50 (48 h): 0.977 mg/l*

*Daphnia magna/EC50: 0.28 ppm*

*Information on: pendimethalin*

*Toxicity to aquatic plants:*

*green algae/EC50 (72 h): 0.0081 mg/l*

*algae/EC50: 0.055 ppm*

*Information on: pendimethalin*

*Other terrestrial non-mammals:*

*mallard duck/LD50: 1,421 mg/kg*

*Acutely harmful to terrestrial organisms.*

*Honey bee/LD50: 49.8 ug/bee*

*Acutely harmful to terrestrial organisms.*



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### Section 13. Disposal considerations

#### Waste disposal of substance:

Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

#### Container disposal:

Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

**RCRA:** D028 The waste codes are manufacturer's recommendations based on the designated use of the product. Other use and special waste disposal treatment on customer's location may require different waste-code assignments.

### Section 14. Transport information

Reference Bill of Lading

### Section 15. Regulatory information

#### Federal Regulations

#### Registration status:

TSCA, US released / exempt

**OSHA hazard category:** IARC 1, 2A or 2B carcinogen, NTP listed carcinogen, Chronic target organ effects reported, Acute target organ effects reported, ACGIH TLV established, Toxic - inhalation

#### CERCLA RQ CAS Number Chemical name

100 LBS 91-20-3; 107-06-2 naphthalene; 1,2-dichloroethane

**SARA hazard categories (EPCRA 311/312):** Acute, Chronic

#### SARA 313:

#### CAS Number Chemical name

91-20-3 naphthalene

40487-42-1 pendimethalin

#### State regulations

#### State RTK

#### CAS Number Chemical name State RTK

91-20-3 naphthalene MA, NJ, PA

#### 16. Other information

Refer to product label for EPA registration number.

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Recommended use: crop protection product

### Local contact information

Product Stewardship  
770-343-8509

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