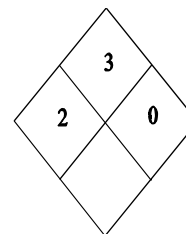


MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



PRODUCT NAME: PCNB 2-E LIQUID EMULSIFIABLE CONCENTRATE; PCNB SOIL & TURF LIQUID DRENCH

GENERAL USE: Fungicide

PRODUCT DESCRIPTION: Amber to dark liquid with an aromatic odor

EPA Registration Number: 5481-212; 5481-214

MSDS No.: 158_14

Current Revision Date: 15 July 2003

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	WT %	CAS No.
Pentachloronitrobenzene (PCNB)	24.2%	82-68-8
Xylene	68%	1330-20-7
Includes Ethylbenzene and	13.5%	100-41-4
Toluene	< 0.68%	108-88-3
Other Ingredients	7.8%	
Includes Hexachlorobenzene (HCB)	< 0.05%	118-74-1

Ingredients not precisely identified are proprietary or nonhazardous

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

COMPONENT	HAZARD	OSHA PEL*	ACGIH TLV*
Pentachloronitrobenzene (PCNB)	Dermatitis Methemoglobin		0.5 mg/m ³
Hexachlorobenzene (HCB)	Carcinogen		0.002 mg/m ³
Xylene	Dermatitis Eye Irritant Possible Carcinogen	100 ppm	100 ppm (150 ppm STEL; BEI 1.5 g Methyl hippuric acids/g creatine)

* Exposure Limits 8 hrs. TWA

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

FLAMMABLE LIQUID. Do not use, pour, spill, or store near heat or open flame.

WARNING: Causes eye irritation. Causes skin irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing vapors or spray mist. Use with adequate ventilation. Do not contaminate feed or foodstuffs.

KEEP OUT OF REACH OF CHILDREN.

Toxic to fish and aquatic organisms.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: Ingestion, inhalation, eye contact, and skin contact.

SIGNS OF ACUTE OVEREXPOSURE: A person suffering from acute exposure to PCNB may exhibit vomiting, hyperirritability, convulsions, conversion of hemoglobin to methemoglobin. In addition, the product is a mild skin irritant and may lead to contact dermatitis. Toxicology testing in animals has shown that Technical PCNB is a sensitizer. Exposure to the vapors can cause irritation to eyes, lungs, and mucous membranes. Contact with liquid can cause eye irritation, skin irritation and skin defatting. Ingestion or inhalation may produce central nervous system (CNS) depression due to the presence of xylene. Ingestion may result in vomiting. Aspiration (breathing) of the vomitus into the lungs must be avoided as even small quantities may result in aspiration pneumonitis (pneumonia). Prolonged exposure to xylene may result in congestive effects to a wide variety of internal organs.

SIGNS OF CHRONIC OVEREXPOSURE: Same as acute.

OTHER POTENTIAL HEALTH EFFECTS: EPA has listed PCNB as a possible carcinogen (Group C) and the IARC has listed PCNB as a carcinogen (Group 3, sufficient animal evidence) from some laboratory studies in the rat. The European Union (EU) has determined that no cancer classification is warranted for PCNB. Other laboratory testing of PCNB has shown no indications of mutagenicity, or reproductive toxicity. Some developmental effects have been seen in the rat tested with PCNB, but only at maternally toxic dose levels. IARC has recently classified ethylbenzene, a component of the solvent, xylene, as possibly carcinogenic to humans (Group 2B).

3. HAZARDS IDENTIFICATION, cont'd

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Dermatitis, asthma-like conditions, kidney and liver diseases.

CARE SHOULD BE EXERCISED IN HANDLING PCNB AND ITS FORMULATIONS.

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 artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Contact a physician immediately.

INGESTION: DO NOT induce vomiting. If subject is conscious, administer an 8 oz. glass of water containing 2 tbsp. activated charcoal. Never give anything by mouth to an unconscious person. Contact a physician immediately.

SKIN: Remove contaminated clothing. Wash thoroughly with soap and clean water. If a rash or any of the symptoms of acute exposure appear, contact a physician immediately.

NOTE TO PHYSICIANS: This product contains Xylene, an aromatic hydrocarbon solvent. Aspiration of the vomitus may cause aspiration pneumonitis. In addition, the product is a severe eye irritant and a defatting agent. Treat symptomatically. Contact your local poison control center for more medical information.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flash Point: 82°F/28°C (TCC)

Autoignition Temperature: 680°F

Flammable Limits:

Lower flammable limit: 0.9%

Upper flammable limit: 6.0%

EXPLOSIVITY:

Mechanical Impact: Not expected to be explosive under mechanical impact conditions.

Static Discharge: May accumulate static electricity.

5. **FIRE FIGHTING MEASURES, cont'd**

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

EXTINGUISHING MEDIA: Water spray, dry chemical, 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: Eliminate all sources of ignition. Thoroughly ventilate area. Wear self-contained breathing apparatus and complete protective clothing. Keep unauthorized personnel out of the area.

SMALL SPILL: Dike area to prevent contamination of water bodies. Absorb liquid on solid support (Diatomaceous earth, Kitty Litter, etc.). Place in covered containers. Clean area with soap and water. The cleaning solutions are also hazardous wastes.

LARGE SPILL: Dike the spill area to prevent contamination of water bodies. Siphon as much liquid as possible into drums for reuse or disposal. Absorb remaining liquid on a solid absorbent. Place absorbed material into a sealable container and seal. Clean the spill area with soap and water. The cleaning solutions are also hazardous wastes.

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. Store away from sources of heat and ignition.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

ENGINEERING CONTROLS: Ventilation should be sufficient to keep the exposure below the TLV.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION, cont'd

RESPIRATORY PROTECTION: A properly FIT-TESTED NIOSH/MSHA-approved respirator fitted with organic vapor cartridges with a prefilter approved for pesticides is required for exposures in enclosed areas. For exposures outdoors, a NIOSH/MSHA-approved dust/mist filtering respirator 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 side shields should be used whenever hazardous chemicals are being handled. Goggles or full face shield should be used if there is a potential for splashing.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Amber to dark liquid
Odor:	Solvent odor
Odor Threshold:	None established
Boiling Point:	Not available
Freezing/Melting Point:	0°C/32°F
Specific Gravity:	1.02 g/mL @ 20°C
Density:	8.5 lb/gal
Vapor Pressure (mm/Hg):	10.3 mm Hg @ 100°F
Vapor Density:	Heavier than air
Percent Volatile by Vol:	68%
Solubility in Water:	Emulsifiable
Solubility (Other):	This product is soluble in aromatic solvents
Partition Coefficient (O/W):	Not applicable
pH (5% in water):	Not determined
Evaporation Rate:	0.1 as compared to n-Butyl acetate

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY (Conditions to avoid): This product is stable under normal storage and use conditions. Do not freeze. Solids can form at low temperatures (less than 32°F/0°C).

INCOMPATIBILITY: Avoid heat, flame, and strong oxidizing materials.

10. **STABILITY AND REACTIVITY, cont'd**

HAZARDOUS DECOMPOSITION PRODUCTS: This product may emit hazardous fumes of hydrogen chloride, carbon oxides, nitrogen oxides and unidentified organic compounds when it is heated excessively or burned. 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):	3990 mg/kg
DERMAL:	Skin LD ₅₀ (rabbit):	2020 mg/kg
INHALATION:	Inhalation LC ₅₀ (rat):	3.37 mg/L (aerosol, 4 hour test)
IRRITATION:	Eye irritation:	Moderately irritating (Toxicity Category II)
	Skin irritation: (rabbit)	Moderately irritating (Toxicity Category III)
SENSITIZATION:	Skin sensitization (guinea pig)	Not a sensitizer.

The following information is based on PCNB technical grade active ingredient or on the solvent, Xylene.

TERATOGENICITY: PCNB has shown some developmental effects in the rat, but only at maternally toxic dose levels.

MUTAGENICITY: PCNB is not considered to be genotoxic..

CARCINOGENICITY: Laboratory studies have shown some carcinogenic effects in laboratory animals. There is sufficient evidence that EPA has listed PCNB as a possible carcinogen (Group C) and the IARC has listed PCNB as a carcinogen (Group 3, sufficient animal evidence). The European Union (EU) has determined that no cancer classification is warranted. IARC has recently classified ethylbenzene, a component of the solvent, xylenes, as possibly carcinogenic to humans (Group 2B), based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans. Technical PCNB does contain small amounts (<0.05%) of HCB, a known carcinogen.

REPRODUCTIVE TOXICITY: PCNB has not been found to be a reproductive toxin.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: No information is available.

12. ECOLOGICAL INFORMATION

This pesticide is toxic to fish and aquatic organisms. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. 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. Do not apply directly adjacent to potable water supplies.

13. DISPOSAL CONSIDERATIONS

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

CONTAINER DISPOSAL: Triple rinse(or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

14. TRANSPORTATION INFORMATION

DOT Class:	3
UN Number:	1993
IMDG Class (sea):	3
Marine Pollutant:	No
Packing Group:	III
Hazard Label(s):	Flammable Liquid
ADR Class (road):	3
Proper Shipping Name(s):	Flammable Liquid(s), n.o.s., (Xylene)
Reportable Quantity:	Yes

PACKAGING

General Description: Bulk; 2½ gallon containers; 55 gallon drums; 275 gallon totes

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.

SARA TITLE III DATA:

Section 311 & 312 Hazard Categories:

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

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals:

Pentachloronitrobenzene (PCNB, CAS No. 82-68-8) -24.2%;
Xylene (CAS 1330-20-7) - 55.8%
Ethylbenzene (CAS 100-41-4) - 13.5%
Toluene (CAS 108-88-3) - < 0.68%
Hexachlorobenzene (118-74-1) - < 0.05%

CERCLA Reportable Quantities (RQ):

Pentachloronitrobenzene (PCNB) - 100 lbs; Xylene - 100 lbs; Ethylbenzene - 1000 lbs;
Toluene - 1000 lbs; Hexachlorobenzene (HCB) - 10 lbs; Product (calculated) - 147 lbs

STATE REGULATIONS:

CALIFORNIA (Proposition 65): This product contains a chemical known to the State of California to cause cancer or birth defects or other reproductive harm - Hexachlorobenzene (HCB).

16. OTHER INFORMATION

MSDS Status:

Date This Revision: 15 July 2003

Date Previous Revision: 2/26/01

Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Information has been updated in sections 2, 3, 14, and 15 to reflect current knowledge.

16. OTHER INFORMATION, cont'd

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
BEI	-	Biological Exposure Index
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	-	Environmental Protection Agency
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
IARC	-	International Agency for Research on Cancer
NTP	-	National Toxicology Program
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

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