

1. Identification

Product identifier	Turfcide® 400	
Other means of identification		
SDS number	384	
Product registration number	5481-8992	
Synonyms	PCNB 4F; PCNB Flowable	
Recommended use	Fungicide.	
Recommended restrictions	No other uses are advised. Keep out of the Reach of Children!	
EPA Registration number	EPA: 5481-8992	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	AMVAC Chemical Corporation	
Address	4695 MacArthur Court Suite 1200 Newport Beach, CA 92660	
Telephone	AMVAC Chemical Corp	949-260-1200
	AMVAC Chemical Corp	949-260-6270(FAX)
Website	www.amvac.com	
E-mail	CustServ@amvac.com	
Emergency phone number	Medical	888-681-4261
	CHEMTREC® (USA+Canada)	800-424-9300
	Product Use	888-462-6822
	CHEMTREC® (Outside USA)	+1-703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Serious eye damage/eye irritation	Category 2B
	Sensitization, skin	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1
OSHA defined hazards	Not classified.	
Label elements		



Signal word	Warning
Hazard statement	Causes eye irritation. May cause an allergic skin reaction. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

Wear protective gloves.
Avoid breathing mist or vapor.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.
Avoid release to the environment.

Response

If on skin: Wash with plenty of water.
If skin irritation or rash occurs: Get medical advice/attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Wash contaminated clothing before reuse.
Collect spillage.

Storage

Store away from incompatible materials.

Disposal

Dispose of contents/container in accordance with all applicable local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

This is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced in section 15. The pesticide label also includes other important information, including directions for use.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Pentachloronitrobenzene		82-68-8	40
Dispersant*		proprietary*	3

Impurities

Chemical name	Common name and synonyms	CAS number	%
Hexachlorobenzene	HCB	118-74-1	<0.02

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Take off contaminated clothing and wash before reuse. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. Call a physician or poison control center immediately. If there will be a delay in getting medical attention, rinse the eyes an additional 15 minutes.

Ingestion

Immediately give large quantities of water to drink. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Call a physician or poison control center immediately.

Most important symptoms/effects, acute and delayed

Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause an allergic skin reaction. Dermatitis. Rash. A person suffering from acute exposure to PCNB may exhibit vomiting, hyperirritability, convulsions, conversion of hemoglobin to methemoglobin. Technical Grade PCNB is a slight skin and eye irritant and may lead to contact dermatitis. Toxicology testing has shown PCNB is a skin sensitizer.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical This product may emit hazardous fumes of hydrogen chloride, carbon oxides, nitrogen oxides, and unidentified organic compounds when it is heated excessively or burned.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted. This is a water base non-flammable liquid that will support fire only if the solvent is evaporated off first.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

Environmental precautions Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. Handling and storage

Precautions for safe handling Keep away from food, drink and animal feedstuffs. Keep out of the reach of children. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store in a well-ventilated place. Do not allow material to freeze. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Pentachloronitrobenzene (CAS 82-68-8)	TWA	0.5 mg/m ³
Impurities	Type	Value
Hexachlorobenzene (CAS 118-74-1)	TWA	0.002 mg/m ³

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

Hexachlorobenzene (CAS 118-74-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Hexachlorobenzene (CAS 118-74-1) Skin designation applies.

US ACGIH Threshold Limit Values: Skin designation

Hexachlorobenzene (CAS 118-74-1) Can be absorbed through the skin.

Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing (see label).
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards	None known.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance	Tan to brown opaque suspension
Physical state	Liquid.
Form	Liquid suspension.
Color	Tan to brown
Odor	Mild chemical odor
Odor threshold	Not available.
pH	4
Melting point/freezing point	Do Not Freeze.
Initial boiling point and boiling range	216 °F (102 °C)
Flash point	Not available.
Evaporation rate	Solvent will evaporate at same rate as water.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	2.38E+01 mm Hg @ 25°C.
Vapor density	Equal to air.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Dispersible.
Solubility (solvents)	This product is soluble in ketones and esters.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	10.50 lb/gal
Fire point	> 200.00 °F (> 93.33 °C)
Percent volatile	61 % (approximatly).
Specific gravity	1.26 @ 20°C/4°C(68°F/39°F).

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases.
Hazardous decomposition 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 when these conditions are present.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction. Slight skin irritant.
Eye contact	Causes eye irritation.
Ingestion	May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics
Exposed individuals may experience eye tearing, redness, and discomfort. A person suffering from acute exposure to PCNB may exhibit vomiting, hyperirritability, convulsions, conversion of hemoglobin to methemoglobin. Technical Grade PCNB is a slight skin and eye irritant and may lead to contact dermatitis. Toxicology testing has shown PCNB is a skin sensitizer.

Information on toxicological effects

Acute toxicity
Based on available data, the classification criteria are not met.

Product	Species	Test Results
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Turfcide® 400

Acute

Dermal

LD50	Rat	> 2020 mg/kg
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Inhalation

Mist

LC50	Rat	> 2.25 mg/l
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Oral

LD50	Rat	> 5050 mg/kg
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Skin corrosion/irritation
Causes slight skin irritation.

Irritation Corrosion - Skin

Turfcide® 400

Result: Slight irritant
Species: Rabbit

Serious eye damage/eye irritation
Causes eye irritation.

Eye

Turfcide® 400

Result: Mild irritant
Species: Rabbit

Respiratory or skin sensitization

Respiratory sensitization

Not considered a respiratory sensitizer.

Skin sensitization

May cause an allergic skin reaction.

Sensitization

Turfcide® 400

Result: Sensitizer.
Species: Guinea pig

Germ cell mutagenicity

No evidence of mutagenicity has been observed in animal testing.

Carcinogenicity

Laboratory studies have shown some carcinogenic effects in the liver and thyroid gland in laboratory animals. There is sufficient evidence that EPA has listed PCNB as a possible human 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 Monographs. Overall Evaluation of Carcinogenicity

Hexachlorobenzene (CAS 118-74-1)	2B Possibly carcinogenic to humans.
Pentachloronitrobenzene (CAS 82-68-8)	3 Not classifiable as to carcinogenicity to humans.
Polychlorinated dibenzofurans (CAS SEQ506096)	3 Not classifiable as to carcinogenicity to humans.
Polychlorinated dibenzo-p-dioxins (CAS SEQ506094)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Hexachlorobenzene (CAS 118-74-1) Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	No evidence of reproductive toxicity has been observed in animal studies using pentachloronitrobenzene. Minor embryo-foetal developmental effects were only seen at maternally toxic doses, in the pregnant rat.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Components	Species	Test Results
Pentachloronitrobenzene (CAS 82-68-8)		
Aquatic		
Crustacea	LC50 Water flea (Daphnia)	0.77 mg/l, 48 hours
Fish	LC50 Bluegill (Lepomis macrochirus)	0.1 mg/l, 96 hours
	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.55 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available for this product.

Partition coefficient n-octanol / water (log Kow)

Pentachloronitrobenzene 5

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this product.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site according to all applicable regulations. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with all applicable local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of container and residues in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal methods/information).

Contaminated packaging Triple rinse (or equivalent). Empty containers should be taken to an approved waste handling site for recycling or disposal in accordance with all applicable regulations. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT	
UN number	UN3082
UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (Pentachloronitrobenzene RQ = 100 lbs)
Transport hazard class(es)	
Class	9

Subsidiary risk	-
Label(s)	9
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions	155
Packaging non bulk	203
Packaging bulk	241

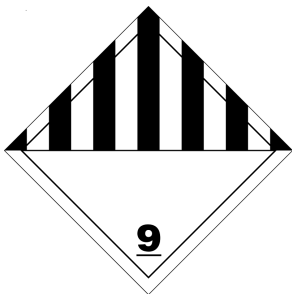
IATA

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Pentachloronitrobenzene)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	Yes
ERG Code	9L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.
	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Pentachloronitrobenzene), MARINE POLLUTANT
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT; IATA; IMDG



Marine pollutant



General information

IMDG Regulated Marine Pollutant.

This product is not regulated when shipped by highway or rail in non-bulk packaging of less than 25 gallons. When shipped by vessel or in bulk packaging this product is regulated according to the data shown.

15. Regulatory information**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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.

This is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

HAZARD TO HUMANS AND DOMESTIC ANIMALS.

CAUTION! Causes moderate eye irritation. Harmful if inhaled or absorbed through skin. Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapors and spray mists.

ENVIRONMENTAL HAZARDS

Do not contaminate water supplies. 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, or 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.

Toxic Substances Control Act (TSCA)**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hexachlorobenzene (CAS 118-74-1)	Listed.
Pentachloronitrobenzene (CAS 82-68-8)	Listed.
Polychlorinated dibenzo-p-dioxins (CAS SEQ506094)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical

Classified hazard categories	Yes
	Serious eye damage or eye irritation
	Respiratory or skin sensitization

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Pentachloronitrobenzene	82-68-8	40

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Hexachlorobenzene (CAS 118-74-1)
 Pentachloronitrobenzene (CAS 82-68-8)
 Polychlorinated dibenzo-p-dioxins (CAS SEQ506094)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

California Proposition 65



WARNING: This product can expose you to Hexachlorobenzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Hexachlorobenzene (CAS 118-74-1)	Listed: October 1, 1987
Polychlorinated dibenzofurans (CAS SEQ506096)	Listed: October 1, 1992
Polychlorinated dibenzo-p-dioxins (CAS SEQ506094)	Listed: October 1, 1992

California Proposition 65 - CRT: Listed date/Developmental toxin

Hexachlorobenzene (CAS 118-74-1)	Listed: January 1, 1989
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US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Polychlorinated dibenzo-p-dioxins (CAS SEQ506094)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date Aug-30-2018

Revision date Jun-25-2020

References

ACGIH®: American Conference of Governmental Industrial Hygienists
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
OSHA: Occupational Safety and Health Agency
SARA: Superfund Amendments and Reauthorization Act
TSCA: Toxic Substances Control Act
DOT: Department of Transportation
IMDG: International Maritime Dangerous Goods
IATA: International Air Transport Association

Version # 2.0

HMIS® ratings
Health: 2
Flammability: 1
Physical hazard: 0

NFPA ratings
Health: 2
Flammability: 1
Instability: 0

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.

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HMIS is a trademark of the American Coatings Association.
NFPA is a trademark of the National Fire Protection Association, Inc.

Revision information

Hazard(s) identification: Hazard statement
Hazard(s) identification: Prevention
Hazard(s) identification: Response
Composition / Information on Ingredients: Disclosure Overrides
Composition/information on ingredients: Component information
Toxicological information: Acute toxicity
Toxicological information: Eye contact
Toxicological information: Inhalation
Transport Information: Material Transportation Information
Regulatory Information: United States
Regulatory information: California Proposition 65
Other information, including date of preparation or last revision: Disclaimer
GHS: Classification