SAFETY DATA SHEET

1. Identification

Product identifier	**Blocker® 4F**
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	
Company Name	AMVAC Chemical Corporation
Address	4695 MacArthur Court Suite 1200 Newport Beach, CA 92660 United States
Telephone	
AMVAC Chemical Corp	949-260-1200
AMVAC Chemical Corp	949-260-6270(FAX)
Product Use	888-462-6822
Website	www.amvac.com
E-mail	CustServ@amvac.com
Emergency phone number	
Medical	888-681-4261
CHEMTREC® (USA+Canada)	800-424-9300
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/vapors.
Avoid release to the environment.
Contaminated work clothing must not be allowed out of the workplace.
Wash thoroughly after handling.

Response If on skin: Wash with plenty of water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
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.
Collect spillage.

Storage Store away from incompatible materials.

Disposal Dispose of contents/container in accordance with 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.

Composition comments Occupational Exposure Limits for impurities are listed in Section 8.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison center or doctor/physician for further treatment advice.

Skin contact Remove contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center for treatment advice.

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. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a physician or poison control center for treatment advice.

Ingestion Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. Do not give any liquid to the person. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Most important symptoms/effects, acute and delayed 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.

5. Fire-fighting measures

Suitable extinguishing media Water spray. 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. Ensure adequate ventilation. 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. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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 reuse.
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. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid breathing mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Avoid release to the environment.
Conditions for safe storage, including any incompatibilities	Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Do not allow material to freeze.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values (TLV)

Components	Type	Value
Pentachloronitrobenzene (CAS 82-68-8)	TWA	0.5 mg/m3
Impurities	**Type**	**Value**
Hexachlorobenzene (CAS 118-74-1)	TWA	0.002 mg/m3

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) Danger of cutaneous absorption

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	Not available.
Initial boiling point and boiling range	215.6 °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	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	23.8 mm Hg @ 25°C.
Vapor density	Not available.
Relative density	1.26 @ 20 °C/4 °C(68 °F/39 °F).
Solubility(ies)	
Solubility (water)	Dispersible.
Solubility (solvents)	This product is soluble in ketones and esters.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	The data presented in this section are typical values and should not be construed as a specification.
Density	10.50 lb/gal
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	61 % (approximatly).

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	No dangerous reaction known under conditions of normal use.
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	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
Blocker® 4F		
Acute		
Dermal		
LD50	Rat	> 2020 mg/kg
Inhalation		
Mist		
LC50	Rat	> 2.25 mg/l , maximum attainable concentration
Oral		
LD50	Rat	> 5050 mg/kg

Skin corrosion/irritation Causes slight skin irritation.

Irritation Corrosion - Skin

Blocker® 4F	Result: Slight irritant Species: Rabbit

Serious eye damage/eye irritation Causes eye irritation.

Eye

Blocker® 4F	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

Blocker® 4F	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

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. 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 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 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 instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN3082
UN proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Pentachloronitrobenzene RQ = 100 lbs)
Transport hazard class(es)
Class 9
Subsidiary hazard -
Label(s) 9
Packing group III
Environmental hazards
Marine pollutant No
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions 8, 146, 173, 335, 441, 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 hazard -
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.

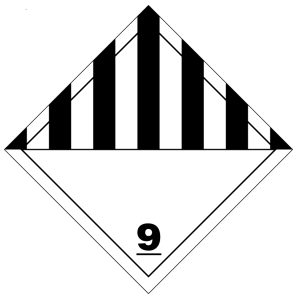
Read safety instructions, SDS and emergency procedures before handling.

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

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 absorbed through skin or inhaled. Avoid contact with skin, eyes or clothing. Avoid inhalation of vapors and spray mists.

ENVIRONMENTAL HAZARDS
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 Yes

Classified hazard categories
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 chemicals including 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

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 Nov-15-2023

Version # 2.2

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.

AMVAC Chemical Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

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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

Composition / Information on Ingredients: Component Summary
First-aid measures: Eye contact
First-aid measures: Ingestion
First-aid measures: Inhalation
First-aid measures: Skin contact
Fire-fighting measures: Suitable extinguishing media
Physical and chemical properties: Other information
Ecological information: Bioaccumulative potential
Transport Information: Material Transportation Information
Regulatory information: US federal regulations
Other information, including date of preparation or last revision: Disclaimer