

1. Identification

Product identifier **Assure® II Herbicide**

Other means of identification

SDS number 631

Product registration number 5481-646

Recommended use Herbicide.

Recommended restrictions See product label for restrictions.
Do not handle without appropriate PPE (see section 8).
Keep out of the Reach of Children!

EPA Registration number EPA: 5481-646

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® 800-424-9300
(USA+Canada)

CHEMTREC® (Outside USA) +1-703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Acute toxicity, inhalation Category 4

 Skin corrosion/irritation Category 2

 Serious eye damage/eye irritation Category 1

 Carcinogenicity Category 2

 Reproductive toxicity Category 1B

 Specific target organ toxicity, repeated exposure Category 2

 Aspiration hazard Category 1

Environmental hazards Hazardous to the aquatic environment, acute hazard Category 1

 Hazardous to the aquatic environment, long-term hazard Category 2

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement	Harmful if inhaled. Causes skin irritation. Causes serious eye damage. Suspected of causing cancer. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist/vapors/spray. Avoid release to the environment. Wash thoroughly after handling.
Response	If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell. Collect spillage.
Storage	Store locked up.
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	%
Quizalofop-p-ethyl	Ethyl (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy]propionate	100646-51-3	10.3
Solvent Naphtha (Petroleum), Heavy Aromatic		64742-94-5	70-80*
Proprietary Blend of Surfactants		Mixture	5-15*
N-Methylpyrrolidone		872-50-4	5-10*

Constituents

Chemical name	Common name and synonyms	CAS number	%
Naphthalene		91-20-3	< 10

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

Composition comments Occupational Exposure Limits for constituents 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. 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 poison center or doctor/physician.
Skin contact	Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. Headache. Nausea, vomiting. Diarrhea. Skin irritation. May cause redness and pain. Causes serious eye damage.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	If exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
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.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. 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	Prevent entry into waterways, sewer, basements or confined areas. Large Spills: 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. After cleaning, flush away traces with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for reuse. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pregnant or breastfeeding women must not handle this product. Use only outdoors or in a well-ventilated area. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Avoid release to the environment. Wash hands thoroughly after handling.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)

Constituents	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m ³
		10 ppm

US. ACGIH Threshold Limit Values (TLV)

Constituents	Type	Value
Naphthalene (CAS 91-20-3)	TWA	10 ppm

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Constituents	Type	Value
Naphthalene (CAS 91-20-3)	IDLH	0.9 % 250 ppm

US. NIOSH: Pocket Guide to Chemical Hazards Recommended Exposure Limits (REL)

Components	Type	Value
Solvent Naphtha (Petroleum), Heavy Aromatic (CAS 64742-94-5)	TWA	100 mg/m3

Constituents	Type	Value
Naphthalene (CAS 91-20-3)	STEL	75 mg/m3 15 ppm
	TWA	50 mg/m3 10 ppm

US. OARS. Workplace Environmental Exposure Level (WEEL) Guide

Components	Type	Value
N-Methylpyrrolidone (CAS 872-50-4)	STEL	120 mg/m3 30 ppm
	TWA	60 mg/m3 15 ppm

Biological limit values**ACGIH Biological Exposure Indices (BEI)**

Components	Value	Determinant	Specimen	Sampling Time
N-Methylpyrrolidone (CAS 872-50-4)	100 mg/l	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines**US ACGIH Threshold Limit Values: Skin designation**

Naphthalene (CAS 91-20-3) Danger of cutaneous absorption

US WEEL Guides: Skin designation

N-Methylpyrrolidone (CAS 872-50-4) Can be absorbed through the skin.

Appropriate engineering controls

Good general ventilation 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 and safety shower.

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. Use of an impervious apron is recommended.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Observe any medical surveillance requirements. Keep away from food and drink. 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.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Emulsifiable Concentrate (EC).
Color	Dark amber.

Odor Aromatic solvent.

Odor threshold Not available.

pH 5 - 7 (1% aqueous solution) (Data from similar formulation)

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Flash point 210.2 °F (99 °C) (Data from similar formulation)

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density 1.02 (Data from similar formulation)

Solubility(ies)

Solubility (water) Emulsifiable.

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.

Explosive properties Not explosive.

Flammability class Combustible IIIB estimated

Oxidizing properties Not oxidizing.

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 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials Oxidizing agents. Strong acids. Strong bases.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation Harmful if inhaled.

Skin contact Causes skin irritation.

Eye contact Causes serious eye damage.

Ingestion Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics Aspiration may cause pulmonary edema and pneumonitis. Headache. Nausea, vomiting. Diarrhea. Skin irritation. May cause redness and pain. Causes serious eye damage.

Information on toxicological effects

Acute toxicity Harmful if inhaled.

Product	Species	Test Results
Assure® II Herbicide		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg (Test data from similar formulation)
Inhalation		
LC50	Rat	2.6 - 4.4 mg/l, 4 h (Test data from similar formulation)
Oral		
LD50	Rat	5900 mg/kg (Test data from similar formulation)

Skin corrosion/irritation Causes skin irritation. Classification based on similar formulation.

Serious eye damage/eye irritation Causes serious eye damage. Classification based on similar formulation.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Naphthalene (CAS 91-20-3) 2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Naphthalene (CAS 91-20-3) Known To Be Human Carcinogen.
Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Components	Species	Test Results
Quizalofop-p-ethyl (CAS 100646-51-3)		
Aquatic		
Crustacea	NOEC	Daphnia magna 0.787 mg/l, 21 d
<i>Acute</i>		
Algae	EC50	Pseudokirchnerella subcapitata 0.021 mg/l, 72 h
Crustacea	EC50	Daphnia magna 51.9 mg/l, 48 h
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) 0.72 mg/l, 96 h

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential No data available.

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 component.

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 substances, liquid, n.o.s. (Quizalofop-p-ethyl), MARINE POLLUTANT
Transport hazard class(es)	
Class	9
Subsidiary hazard	-
Label(s)	9
Packing group	III
Environmental hazards	
Marine pollutant	Yes
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. (Quizalofop-p-ethyl)
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.

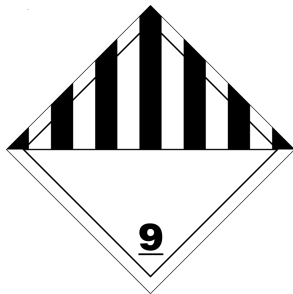
Read safety instructions, SDS and emergency procedures before handling.

IMDG

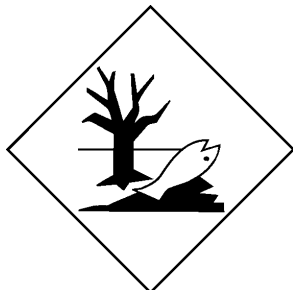
UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Quizalofop-p-ethyl), MARINE POLLUTANT
Transport hazard class(es)	
Class	9
Subsidiary hazard	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety 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

DOT Regulated Severe Marine Pollutant. IMDG Regulated Marine Pollutant.
This product is not regulated when shipped by highway or rail in non-bulk packaging (maximum capacity of 450 L (119 gallons) or less). When shipped in bulk or by air or vessel (non-bulk or bulk) 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 chemical 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.

DANGER:

Causes irreversible eye damage. Harmful if swallowed, absorbed through skin or inhaled. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or spray mist.

ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present (except for application to cranberry bogs) or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

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)

Naphthalene (CAS 91-20-3)	Listed.
Solvent Naphtha (Petroleum), Heavy Aromatic (CAS 64742-94-5)	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 Acute toxicity (any route of exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Carcinogenicity
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)
 Aspiration hazard

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
N-Methylpyrrolidone	872-50-4	5-10
Naphthalene	91-20-3	< 10

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

Naphthalene (CAS 91-20-3)

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

Not regulated.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.**US state regulations****US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Naphthalene (CAS 91-20-3)
 N-Methylpyrrolidone (CAS 872-50-4)
 Solvent Naphtha (Petroleum), Heavy Aromatic (CAS 64742-94-5)

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	May-06-2022
Revision date	Nov-08-2023
Version #	1.2
HMIS® ratings	Health: 3* Flammability: 1 Physical hazard: 0
NFPA ratings	Health: 3 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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NFPA is a trademark of the National Fire Protection Association, Inc.

Revision information

Fire-fighting measures: Suitable extinguishing media

Disposal considerations: Local disposal regulations

Other information, including date of preparation or last revision: Disclaimer