SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

AIM® EW HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 05/26/2016
1.1	01/11/2024	50002306	Date of first issue: 05/26/2016

SECTION 1. IDENTIFICATION

Product identifier
Product name AIM® EW HERBICIDE

Other means of identification
Product code 50002306

Chemical nature Mixture

Recommended use of the chemical and restrictions on use
Recommended use Can be used as herbicide only.

Restrictions on use Use as recommended by the label.

Details of the supplier of the safety data sheet
Manufacturer
FMC Corporation
2929 WALNUT ST
PHILADELPHIA PA 19104
USA
(215) 299-6000
SDS-Info@fmc.com

Emergency telephone
For leak, fire, spill or accident emergencies, call:
1 800 / 424-9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527-3887 (CHEMTREC - Alternate)

Medical emergency:
U.S.A. & Canada: +1 800 / 331-3148
All other countries: +1 651 / 632-6793 (Collect)

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Eye irritation	:	Category 2B
Carcinogenicity	:	Category 2
Aspiration hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H304 May be fatal if swallowed and enters airways.
H320 Causes eye irritation.
H351 Suspected of causing cancer.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
carfentrazone-ethyl (ISO)	128639-02-1	21.3
Solvent naphtha (petroleum), heavy	64742-94-5	>= 20 - < 30

arom.; Kerosine — unspecified		
2-methylnaphthalene	91-57-6	>= 5 - < 10
1-methylnaphthalene	90-12-0	>= 5 - < 10
propane-1,2-diol	57-55-6	>= 1 - < 5
naphthalene	91-20-3	>= 0.1 - < 1

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.

If inhaled : Move to fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : May be fatal if swallowed and enters airways.
Causes eye irritation.
Suspected of causing cancer.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
Avoid inhalation, ingestion and contact with skin and eyes.
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Dry chemical, CO2, water spray or regular foam.

Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	Firefighters should wear protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Never return spills in original containers for re-use. Mark the contaminated area with signs and prevent access to unauthorized personnel. Only qualified personnel equipped with suitable protective equipment may intervene. For disposal considerations see section 13.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated

place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Do not store near acids.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
carfentrazone-ethyl (ISO)	128639-02-1	TWA (Inhalable particulate matter)	1 mg/m3	ACGIH
propane-1,2-diol	57-55-6	TWA	10 mg/m3	US WEEL
naphthalene	91-20-3	TWA	10 ppm	ACGIH
		TWA	10 ppm 50 mg/m3	NIOSH REL
		ST	15 ppm 75 mg/m3	NIOSH REL
		TWA	10 ppm 50 mg/m3	OSHA Z-1
		TWA	10 ppm 50 mg/m3	OSHA P0
		STEL	15 ppm 75 mg/m3	OSHA P0

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection
Material : Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Skin and body protection : Impervious clothing

		Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Protective measures	:	Plan first aid action before beginning work with this product. Always have on hand a first-aid kit, together with proper instructions. Ensure that eye flushing systems and safety showers are located close to the working place. Wear suitable protective equipment.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	off-white
Odor	:	solvent-like
Odor Threshold	:	No data available
pH	:	4.29
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	219 °F / 104 °C
Evaporation rate	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available

Density	:	8.8 lb/gal
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	None reasonably foreseeable. No decomposition if stored and applied as directed.
Conditions to avoid	:	Avoid extreme temperatures.
Incompatible materials	:	Avoid strong acids, bases, and oxidizers.
Hazardous decomposition products	:	No decomposition if used as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	LD50 (Rat): 4,077 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 6.31 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute toxicity estimate: 0.5041 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity : LD50 (Rat): > 4,000 mg/kg

Components:

carfentrazone-ethyl (ISO):

Acute oral toxicity : LD50 (Rat, female): 5,143 mg/kg
Method: FIFRA 81.01
Symptoms: Tremors
GLP: yes

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.09 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: EPA OPP 81 - 3
Symptoms: Tremors, chromodacryorrhea, nasal discharge
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: no mortality

Acute dermal toxicity : LD50 (Rat, male and female): > 4,000 mg/kg
Method: US EPA Test Guideline OPP 81-2
Assessment: The component/mixture is minimally toxic after single contact with skin.
Remarks: no mortality

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 4.688 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

2-methylnaphthalene:

Acute oral toxicity : LD50 (Rat): 1,630 mg/kg

1-methylnaphthalene:

Acute oral toxicity : LD50 (Rat): 1,840 mg/kg

propane-1,2-diol:

Acute oral toxicity : LD50 (Rat, male and female): 22,000 mg/kg

Acute inhalation toxicity : LC0 (Rabbit): 31.7 mg/l
Exposure time: 2 h
Test atmosphere: vapor
Remarks: no mortality

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

naphthalene:

Acute oral toxicity : LD50 (Mouse, female): 710 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC0 (Rat, male and female): > 0.4 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 16,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Not classified based on available information.

Product:

Species : Rabbit
Result : Mild skin irritation

Remarks : May cause skin irritation and/or dermatitis.

Components:

carfentrazone-ethyl (ISO):

Species : Rabbit
Assessment : Not classified as irritant
Method : US EPA Test Guideline OPP 81-5
Result : No skin irritation

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit

Assessment	:	Repeated exposure may cause skin dryness or cracking.
Result	:	No skin irritation
Remarks	:	Minimal effects that do not meet the threshold for classification. Based on data from similar materials

2-methylnaphthalene:

Result	:	Skin irritation

1-methylnaphthalene:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation

propane-1,2-diol:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

naphthalene:

Species	:	Rabbit
Result	:	No skin irritation

Serious eye damage/eye irritation

Causes eye irritation.

Product:

Result	:	Mild eye irritation
Remarks	:	Vapors may cause irritation to the eyes, respiratory system and the skin.

Components:

carfentrazone-ethyl (ISO):

Species	:	Rabbit
Result	:	slight irritation
Assessment	:	Not classified as irritant
Method	:	EPA OPP 81-4
GLP	:	yes

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species	:	Rabbit
Assessment	:	No eye irritation
Remarks	:	Minimal effects that do not meet the threshold for classification. Based on data from similar materials

1-methylnaphthalene:

Species	:	Rabbit
Result	:	No eye irritation

propane-1,2-diol:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

naphthalene:

Species	:	Rabbit
Result	:	No eye irritation

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Result	:	Not a skin sensitizer.

Components:

carfentrazone-ethyl (ISO):

Test Type	:	Local lymph node assay (LLNA)
Species	:	Guinea pig
Method	:	US EPA Test Guideline OPP 81-6
Result	:	Does not cause skin sensitization.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Test Type	:	Maximization Test
Species	:	Guinea pig
Result	:	Not a skin sensitizer.
Remarks	:	Based on data from similar materials

propane-1,2-diol:

Test Type	:	Maximization Test
Species	:	Guinea pig
Result	:	negative

naphthalene:

Test Type	:	Maximization Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitization.

Germ cell mutagenicity

Not classified based on available information.

Components:

carfentrazone-ethyl (ISO):

Genotoxicity in vitro	:	Test Type: reverse mutation assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse (male and female) Result: negative
Germ cell mutagenicity - Assessment	:	No genotoxic potential.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Genotoxicity in vitro	:	Test Type: reverse mutation assay Method: OECD Test Guideline 471 Result: negative Remarks: Based on data from similar materials
Genotoxicity in vivo	:	Test Type: Bone marrow chromosome aberration. Species: Rat Application Route: inhalation (vapor) Result: negative

2-methylnaphthalene:

Genotoxicity in vitro	:	Test Type: sister chromatid exchange assay Test system: Human lymphocytes Result: negative Test Type: Ames test Result: negative
Germ cell mutagenicity - Assessment	:	In vitro tests did not show mutagenic effects

1-methylnaphthalene:

Genotoxicity in vitro	:	Test Type: sister chromatid exchange assay Test system: Human lymphocytes Result: negative Test Type: Ames test

Result: negative

Germ cell mutagenicity - Assessment : In vitro tests did not show mutagenic effects

propane-1,2-diol:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse
Result: negative

naphthalene:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Carcinogenicity

Suspected of causing cancer.

Product:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Components:

carfentrazone-ethyl (ISO):

Species : Rat, male and female
Application Route : Oral
Exposure time : 104 weeks
NOAEL : 3 - 9 mg/kg bw/day
Result : negative

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rat, male and female
Application Route : inhalation (vapor)
Exposure time : 12 month(s)
NOAEC : 1.8 mg/l
Result : negative
Remarks : Based on data from similar materials

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

2-methylnaphthalene:

Species	:	Mouse, male
Application Route	:	Oral
Exposure time	:	81 w
Dose	:	750, 1500 ppm
LOAEL	:	750 ppm
Result	:	equivocal
Symptoms	:	Tumor
Target Organs	:	Lungs
Remarks	:	Based on data from similar materials
Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen

1-methylnaphthalene:

Species	:	Mouse, male
Application Route	:	Oral
Exposure time	:	81 w
Dose	:	750, 1500 ppm
LOAEL	:	750 ppm
Result	:	equivocal
Symptoms	:	Tumor
Target Organs	:	Lungs
Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen

propane-1,2-diol:

Species	:	Rat
Application Route	:	Oral
Exposure time	:	2 Years
Result	:	negative

naphthalene:

Species	:	Rat
Application Route	:	Inhalation
Exposure time	:	2 Years
Result	:	positive
Carcinogenicity - Assessment	:	Limited evidence of carcinogenicity in animal studies

IARC	Group 2B: Possibly carcinogenic to humans	
	naphthalene	91-20-3
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.	
NTP	Reasonably anticipated to be a human carcinogen	
	naphthalene	91-20-3

Reproductive toxicity

Not classified based on available information.

Components:

carfentrazone-ethyl (ISO):

Effects on fertility	:	Test Type: Multi-generation study Species: Rat, male and female Application Route: Ingestion Fertility: NOEL: 4,000 ppm Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat, female Application Route: Oral General Toxicity Maternal: NOEL: 100 mg/kg bw/day Embryo-fetal toxicity.: NOEL: 600 mg/kg bw/day Result: negative Test Type: Embryo-fetal development Species: Rabbit, female Application Route: Oral General Toxicity Maternal: NOEL: 150 mg/kg bw/day Embryo-fetal toxicity.: NOEL: > 300 mg/kg bw/day Result: negative
Reproductive toxicity - Assessment	:	Animal testing showed no reproductive toxicity.

propane-1,2-diol:

Effects on fertility	:	Test Type: reproductive and developmental toxicity study Species: Mouse Application Route: Oral Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Mouse Application Route: Oral Method: OECD Test Guideline 414 Result: Animal testing did not show any effects on fertility. Remarks: Based on data from similar materials

naphthalene:

Effects on fertility	:	Test Type: reproductive and developmental toxicity study Species: Rat Application Route: Inhalation Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Oral

Method: OECD Test Guideline 414
Result: Embryotoxic effects and adverse effects on the off-spring were detected only at high maternally toxic doses

STOT-single exposure

Not classified based on available information.

Components:

carfentrazone-ethyl (ISO):

Remarks : No significant adverse effects were reported

2-methylnaphthalene:

Assessment : May cause respiratory irritation., May cause drowsiness or dizziness.

1-methylnaphthalene:

Assessment : May cause respiratory irritation., May cause drowsiness or dizziness.

STOT-repeated exposure

Not classified based on available information.

Components:

carfentrazone-ethyl (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

carfentrazone-ethyl (ISO):

Species : Mouse, male and female
NOAEL : 1000 ppm
LOAEL : 4000 ppm
Application Route : Oral
Exposure time : 90 days
Target Organs : Blood

Species : Dog, male and female
NOEL : 150 mg/kg
LOAEL : 500 mg/kg
Application Route : Oral
Exposure time : 90 days
Target Organs : Blood

Species : Dog, male and female
NOEL : 50 mg/kg
NOAEL : 150 mg/kg

LOAEL	:	500 mg/kg
Application Route	:	Oral
Exposure time	:	12 months
GLP	:	yes
Target Organs	:	Blood

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species	:	Rat, male and female
NOAEC	:	0.9 - 1.8 mg/l
Application Route	:	inhalation (vapor)
Exposure time	:	12 months

2-methylnaphthalene:

Species	:	Mouse, female
LOAEL	:	50.3 mg/kg
Application Route	:	Oral
Exposure time	:	81 w
Dose	:	0, 50.3, 107.6 mg/kg-d
Symptoms	:	pulmonary effects, immune system effects

Species	:	Mouse
Application Route	:	Dermal
Exposure time	:	30 w
Number of exposures	:	2/w
Dose	:	119 mg/kg-application
Symptoms	:	pulmonary effects
Remarks	:	Based on data from similar materials

1-methylnaphthalene:

Species	:	Mouse, female
LOAEL	:	50.3 mg/kg
Application Route	:	Oral
Exposure time	:	81 w
Dose	:	0, 50.3, 107.6 mg/kg-d
Symptoms	:	pulmonary effects, immune system effects
Remarks	:	Based on data from similar materials

Species	:	Mouse
Application Route	:	Dermal
Exposure time	:	30 w
Number of exposures	:	2/w
Dose	:	119 mg/kg-application
Symptoms	:	pulmonary effects
Remarks	:	Based on data from similar materials

propane-1,2-diol:

Species	:	Rat, male and female
NOAEL	:	1,700 mg/kg
Application Route	:	Oral
Exposure time	:	2 Years

Species	:	Rat, male and female
NOAEL	:	1,000 mg/kg
LOAEL	:	160 mg/kg
Application Route	:	Inhalation
Exposure time	:	90 Days

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:

carfentrazone-ethyl (ISO):

The substance does not have properties associated with aspiration hazard potential.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

May be fatal if swallowed and enters airways.

1-methylnaphthalene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Skin contact	:	Symptoms: Repeated exposure may cause skin dryness or cracking.

2-methylnaphthalene:

Skin contact	:	Target Organs: Skin Symptoms: Irritation

1-methylnaphthalene:

Skin contact	:	Target Organs: Skin Symptoms: Irritation

Neurological effects

Components:

carfentrazone-ethyl (ISO):

No neurotoxicity observed in animal studies.

Further information

Product:

Remarks : Solvents may degrease the skin.

Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Remarks : Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

carfentrazone-ethyl (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.55 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 9.8 mg/l
End point: Immobilization
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: No toxicity at the limit of solubility.

Toxicity to algae/aquatic plants : EC50 (Anabaena flos-aquae (cyanobacterium)): 0.012 mg/l
Exposure time: 72 h

NOEC (algae): 0.001 mg/l
Exposure time: 96 h

EC50 (Lemna gibba (gibbous duckweed)): 0.0057 mg/l
Exposure time: 14 d

EC50 (Selenastrum capricornutum (green algae)): 0.0133 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes

NOEC (Selenastrum capricornutum (green algae)): 0.00933 mg/l

End point: Growth rate
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 22 µg/l
Exposure time: 89 d
Test Type: Early Life-Stage
Method: OECD Test Guideline 210
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia): 35 mg/l
End point: reproduction
Exposure time: 21 d
Method: US EPA Test Guideline OPPTS 850.1300
Remarks: Information given is based on data obtained from similar product.

Toxicity to microorganisms : NOEC (activated sludge): 1,000 mg/l
Test Type: Respiration inhibition
Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): 820 mg/kg

Method: OECD Test Guideline 216
Remarks: No significant adverse effect on Nitrogen mineralization.

Method: OECD Test Guideline 217
Remarks: No significant adverse effect on Carbon mineralization.

Toxicity to terrestrial organisms : LD50 (Anas platyrhynchos (Mallard duck)): > 5,620 ppm
End point: Acute oral toxicity
Remarks: Dietary

LD50 (Colinus virginianus (Bobwhite quail)): 2,250 mg/kg
End point: Acute oral toxicity

NOEL (Colinus virginianus (Bobwhite quail)): 1000 ppm
End point: Reproduction Test

LD50 (Apis mellifera (bees)): > 200 µg/bee
End point: Acute oral toxicity

LD50 (Apis mellifera (bees)): > 200 µg/bee
End point: Acute contact toxicity

Ecotoxicology Assessment

Toxicity Data on Soil : Harmful to the soil environment.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 1.4 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): 1 - 3 mg/l Exposure time: 24 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EL50 (Daphnia magna (Water flea)): 0.89 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	:	LL50 (Tetrahymena pyriformis): 677.9 mg/l Exposure time: 72 h Test Type: Growth inhibition

2-methylnaphthalene:

Toxicity to fish	:	LC50 (Fish): 2 mg/l Exposure time: 96 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia): 1.49 mg/l End point: Immobilization Test Type: static test

1-methylnaphthalene:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 9 mg/l Exposure time: 48 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1.42 mg/l End point: Immobilization Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 12 mg/l Exposure time: 14 d Test Type: static test

propane-1,2-diol:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	(Mysidopsis bahia (opossum shrimp)): 18,800 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 34,100 mg/l

Exposure time: 48 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 13,020 mg/l
Exposure time: 7 d

Toxicity to microorganisms : EC50 (Pseudomonas putida): > 20,000 mg/l
Exposure time: 18 h

naphthalene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.6 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.16 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 0.4 - 0.5 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus kisutch (coho salmon)): 0.37 mg/l
Exposure time: 40 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia pulex (Water flea)): 0.59 mg/l
Exposure time: 125 d

Toxicity to microorganisms : IC50 (Bacteria): 29 mg/l
Exposure time: 24 h

Persistence and degradability

Components:

carfentrazone-ethyl (ISO):

Biodegradability : Result: Not readily biodegradable.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 58.6 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

1-methylnaphthalene:

Biodegradability : Result: Not readily biodegradable.

propane-1,2-diol:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 23.6 %
Exposure time: 64 d
Method: OECD Test Guideline 306

naphthalene:

Biodegradability : Result: Inherently biodegradable.
Biodegradation: 67 %
Exposure time: 12 d

Bioaccumulative potential

Components:

carfentrazone-ethyl (ISO):

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 176
Exposure time: 28 d
Method: OECD Test Guideline 305E
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 3.7 (68 °F / 20 °C)

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Bioaccumulation : Remarks: The product/substance has a potential to bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3.72
Method: QSAR

2-methylnaphthalene:

Partition coefficient: n-octanol/water : log Pow: 3.86

1-methylnaphthalene:

Partition coefficient: n-octanol/water : log Pow: 3.87

propane-1,2-diol:

Partition coefficient: n-octanol/water : log Pow: -1.07

naphthalene:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 168

Partition coefficient: n-octanol/water : log Pow: 3.7

Mobility in soil

Components:

carfentrazone-ethyl (ISO):

Distribution among environmental compartments : Remarks: The substance/mixture and its soil metabolites have a potential for being mobile, but were not detected in a field leaching study.

Koc: 866, log Koc: 2.93

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Distribution among environmental compartments : Remarks: Expected to partition to sediment and wastewater solids. Moderately volatile.

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

(Carfentrazone-ethyl, Naphthalene)

Class	:	9
Packing group	:	III
Labels	:	9
Environmentally hazardous	:	yes

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (Carfentrazone-ethyl, Naphthalene)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Carfentrazone-ethyl, Naphthalene)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR Road

UN/ID/NA number	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (Carfentrazone-ethyl, Naphthalene)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(Carfentrazone-ethyl, Naphthalene)
Remarks	:	Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

Remarks	:	49CFR: no dangerous good in non-bulk packaging

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
naphthalene	91-20-3	100	

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Carcinogenicity
Aspiration hazard
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

naphthalene 91-20-3 >= 0.1 - < 1 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

2-methylnaphthalene	91-57-6	>= 5 - < 10 %
1-methylnaphthalene	90-12-0	>= 5 - < 10 %
propane-1,2-diol	57-55-6	>= 1 - < 5 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

naphthalene 91-20-3 >= 0.1 - < 1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

naphthalene 91-20-3 >= 0.1 - < 1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

1-methylnaphthalene 90-12-0

Pennsylvania Right To Know

water	7732-18-5
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5
carfentrazone-ethyl (ISO)	128639-02-1
2-methylnaphthalene	91-57-6
1-methylnaphthalene	90-12-0
Polyalkylene oxide block copolymer	Not Assigned
propane-1,2-diol	57-55-6
Polyethylene glycol polyester	Not Assigned
naphthalene	91-20-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California Prop. 65

WARNING: This product can expose you to chemicals including naphthalene, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The ingredients of this product are reported in the following inventories:

TCSI	:	Not in compliance with the inventory
TSCA	:	Product contains substance(s) not listed on TSCA inventory.
AICS	:	Not in compliance with the inventory
DSL	:	This product contains the following components that are not on the Canadian DSL nor NDSL. ETHYL (RS)-2-CHLORO-3-{2-CHLORO-5-[4-(DIFLUOROMETHYL)-4,5-DIHYDRO-3-METHYL-5-OXO-1H-1,2,4-TRIAZOL-1-YL]-4-FLUOROPHENYL}PROPIONATE Polyalkylene oxide block copolymer Polyethylene glycol polyester
ENCS	:	Not in compliance with the inventory
ISHL	:	Not in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory

TSCA list

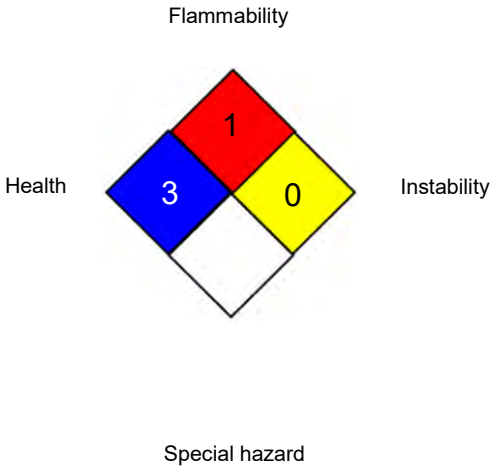
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

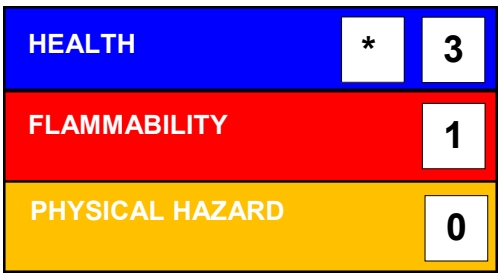
Further information

NFPA 704:



0 No health threat, **1** Slightly Hazardous, **2** Hazardous, **3** Extreme danger, **4** Deadly

HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA Z-1 / TWA	:	8-hour time weighted average
US WEEL / TWA	:	8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensa-

tion, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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Prepared by:

FMC Corporation

End of Material Safety Data Sheet