

# SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard



## ZEUS® PRIME XC herbicide

Version	Revision Date:	SDS Number:	Date of last issue: 11/02/2018
1.6	12/17/2024	50001789	Date of first issue: 11/02/2018

### SECTION 1. IDENTIFICATION

#### Product identifier

**Product name** ZEUS® PRIME XC herbicide

#### Other means of identification

**Product code** 50001789

#### 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.

#### Manufacturer or supplier's details

**Manufacturer** FMC Corporation  
2929 WALNUT ST  
PHILADELPHIA PA 19104  
USA  
(215) 299-6000  
SDS-Info@fmc.com

**Supplier Address** FMC Corporation  
2929 Walnut Street  
Philadelphia PA 19104  
USA

#### 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)**

Flammable liquids : Category 4

Acute toxicity (Inhalation) : Category 3

Carcinogenicity : Category 2

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Reproductive toxicity : Category 2

Specific target organ toxicity : Category 2  
- repeated exposure

### GHS label elements

Hazard pictograms :



Signal Word : DANGER

Hazard Statements : H227 Combustible liquid.  
H331 Toxic if inhaled.  
H351 Suspected of causing cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

### Response:

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

### Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

### Disposal:

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

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### Other hazards

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Components

Chemical name	CAS-No.	Concentration (% w/w)
Sulfentrazone	122836-35-5	31.77
carfentrazone-ethyl (ISO)	128639-02-1	3.53
glycerol	56-81-5	$\geq 5 - < 10$
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	$\geq 1 - < 5$
2-methylnaphthalene	91-57-6	$\geq 1 - < 5$
toluene	108-88-3	$\geq 1 - < 5$
propane-1,2-diol	57-55-6	$\geq 1 - < 5$

## SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.  
Consult a physician.  
Show this material 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.  
Call a physician or poison control center immediately.  
If unconscious, place in recovery position and seek medical advice.  
If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.
- 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 : Flush eyes with water as a precaution.  
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 without medical advice.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.

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If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed : Toxic if inhaled.  
Suspected of causing cancer.  
Suspected of damaging fertility or the unborn child.  
May cause damage to organs through prolonged or repeated exposure.

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, CO<sub>2</sub>, water spray or regular foam.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet  
Do not spread spilled material with high-pressure water streams.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Halogenated compounds  
Sulfur oxides  
Thermal decomposition can lead to release of irritating gases and vapors.  
Chlorine compounds  
Fluorine compounds

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.  
For safety reasons in case of fire, cans should be stored separately in closed containments.  
Use a water spray to cool fully closed containers.

Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

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- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Ensure adequate ventilation.  
Evacuate personnel to safe areas.  
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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).  
Keep in suitable, closed containers for disposal.

### SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.  
Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Avoid formation of aerosol.  
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.  
Provide sufficient air exchange and/or exhaust in work rooms.  
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Prevent unauthorized access.  
No smoking.  
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.

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### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
glycerol	56-81-5	TWA (mist, respirable fraction)	5 mg/m3	OSHA Z-1
		TWA (mist, total dust)	15 mg/m3	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m3	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m3	OSHA P0
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
2-methylnaphthalene	91-57-6		0.05 ppm 3 mg/100 cm2	ACGIH
toluene	108-88-3	TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m3	NIOSH REL
		ST	150 ppm 560 mg/m3	NIOSH REL
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm (10 minutes)	OSHA Z-2
		STEL	150 ppm 560 mg/m3	OSHA P0
		TWA	100 ppm 375 mg/m3	OSHA P0
propane-1,2-diol	57-55-6	TWA	10 mg/m3	US WEEL

#### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of	0.03 mg/l	ACGIH

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				shift (As soon as possible after exposure ceases)		BEI
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### 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 : 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.  
Plan first aid action before beginning work with this product.  
Wear suitable protective equipment.
- Hygiene measures : Avoid contact with skin, eyes and clothing.  
When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and immediately after handling the product.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state : liquid
- Form : viscous liquid
- Color : off-white to white, yellow-orange
- Odor : solvent-like

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pH	:	4.4
Melting point/freezing point	:	253 °F / 123 °C
Initial boiling point and boiling range	:	No data available
Flash point	:	> 196 °F / > 91 °C Method: closed cup
Evaporation rate	:	No data available
Self-ignition	:	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	:	9.99 lb/gal
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	dispersible
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



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### 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	:	No decomposition if stored and applied as directed. Vapors may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks. Avoid formation of aerosol.
Incompatible materials	:	Avoid strong acids, bases, and oxidizers.
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

Toxic if inhaled.

#### Product:

Acute oral toxicity	:	LD50 (Rat): 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 2.27 mg/l Exposure time: 4 h Test atmosphere: vapor
Acute dermal toxicity	:	LD50 (Rat): > 5,050 mg/kg

#### Components:

##### Sulfentrazone:

Acute oral toxicity	:	LD50 (Rat, female): 2,689 mg/kg Symptoms: ataxia, clonic convulsions, Fatality GLP: yes
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 4.13 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: EPA OPP 81 - 3 Symptoms: ataxia, Breathing difficulties GLP: yes Remarks: no mortality
Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 2,000 mg/kg

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Method: EPA OPP 81-2

GLP: yes

Assessment: The component/mixture is minimally toxic after single contact with skin.

### **carfentrazone-ethyl (ISO):**

Acute oral toxicity : LD50 (Rat, female): 5,143 mg/kg  
Method: US EPA Test Guideline OPP 81-1  
Symptoms: Tremors  
GLP: yes

LD50 (Rat, female): > 5,000 mg/kg

Method: OECD Test Guideline 425

GLP: yes

Assessment: The substance or mixture has no acute oral toxicity

Remarks: no mortality

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  
GLP: yes  
Assessment: The component/mixture is minimally toxic after single contact with skin.  
Remarks: no mortality

### **glycerol:**

Acute oral toxicity : LD50 (Rat, female): 11,500 mg/kg

Acute inhalation toxicity : LC0 (Rat, male): 11 mg/l  
Exposure time: 1 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Guinea pig, male and female): 56,750 mg/kg

### **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

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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

### toluene:

Acute oral toxicity : LD50 (Rat): 5,580 mg/kg

Acute inhalation toxicity : LC50 (Rat, male): 25.7 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor

LC50 (Rat, female): 30 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor

Acute dermal toxicity : (Rabbit): 12,267 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

### Skin corrosion/irritation

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

### Product:

Species : Rabbit  
Result : slight irritation

Remarks : May cause skin irritation and/or dermatitis.

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### **Components:**

#### **Sulfentrazone:**

Species	: Rabbit
Assessment	: No skin irritation
Method	: EPA OPP 81-5
Result	: No skin irritation
GLP	: yes

#### **carfentrazone-ethyl (ISO):**

Species	: Rabbit
Assessment	: Not classified as irritant
Method	: US EPA Test Guideline OPP 81-5
Result	: slight irritation
GLP	: yes

#### **glycerol:**

Species	: Rabbit
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
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#### **toluene:**

Species	: Rabbit
Assessment	: Repeated exposure may cause skin dryness or cracking.
Result	: Skin irritation

#### **propane-1,2-diol:**

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

### **Serious eye damage/eye irritation**

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

### **Product:**

Species	: Rabbit
Result	: slight irritation

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

### Components:

#### **Sulfentrazone:**

Species	: Rabbit
Result	: No eye irritation
Assessment	: No eye irritation
Method	: EPA OPP 81-4
GLP	: yes

#### **carfentrazone-ethyl (ISO):**

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

#### **glycerol:**

Species	: Rabbit
Result	: No eye irritation

#### **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

#### **toluene:**

Species	: Rabbit
Result	: No eye irritation

#### **propane-1,2-diol:**

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

### **Respiratory or skin sensitization**

#### **Skin sensitization**

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

#### **Respiratory sensitization**

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

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### **Product:**

Assessment	:	Not a skin sensitizer.
Result	:	Does not cause skin sensitization.

### **Components:**

#### **Sulfentrazone:**

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

#### **carfentrazone-ethyl (ISO):**

Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	US EPA Test Guideline OPP 81-6
Result	:	Does not cause skin sensitization.
GLP	:	yes

Test Type	:	Local lymph node assay (LLNA)
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitization.
GLP	:	yes

#### **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

#### **toluene:**

Test Type	:	Maximization Test
Species	:	Guinea pig
Result	:	Not a skin sensitizer.

#### **propane-1,2-diol:**

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

### **Germ cell mutagenicity**

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

### **Components:**

#### **Sulfentrazone:**

Genotoxicity in vitro	:	Test Type: Ames test
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Metabolic activation: with and without metabolic activation  
Result: negative

Test Type: Mouse lymphoma assay  
Test system: mouse lymphoma cells  
Metabolic activation: Metabolic activation  
Result: negative

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

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

### 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  
GLP: yes

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  
GLP: yes

Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: U.S. EPA 84-2  
Result: negative  
GLP: yes

Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes

Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Mouse (male and female)  
Result: negative

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GLP: yes

Test Type: unscheduled DNA synthesis assay  
Species: Rat (male)  
Result: negative  
GLP: yes

Germ cell mutagenicity - Assessment : No genotoxic potential.

### glycerol:

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

### 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

### toluene:

Genotoxicity in vitro : Test Type: Ames test  
Result: negative

Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro  
Species: Rat  
Result: negative

### propane-1,2-diol:

Genotoxicity in vitro : Test Type: reverse mutation assay



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Result: negative

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

### Carcinogenicity

Suspected of causing cancer.

#### Product:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

#### Components:

##### **Sulfentrazone:**

Species : Rat, male and female  
Application Route : Ingestion  
Exposure time : 2 Years  
Result : negative

Species : Mouse, male and female  
Application Route : Ingestion  
Exposure time : 18 month(s)  
Result : negative

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

##### **carfentrazone-ethyl (ISO):**

Species : Rat, female  
Application Route : Ingestion  
Exposure time : 2 Years  
NOAEL : 3 mg/kg bw/day  
LOAEL : 12 mg/kg bw/day  
Method : U.S. EPA 83-5  
Result : no increase in tumors observed  
Target Organs : Liver  
GLP : yes

Species : Mouse, female  
Application Route : Ingestion  
Exposure time : 80 weeks  
NOAEL : 10 mg/kg bw/day  
LOAEL : 110 mg/kg bw/day  
Method : U.S. EPA 83-5  
Result : no increase in tumors observed  
Target Organs : Liver  
GLP : yes

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

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### glycerol:

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

### 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
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### propane-1,2-diol:

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

<b>IARC</b>	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
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<b>OSHA</b>	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
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<b>NTP</b>	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
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### Reproductive toxicity

Suspected of damaging fertility or the unborn child.

#### Components:

##### **Sulfentrazone:**

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Application Route: Oral  
General Toxicity Parent: NOEL: 13.7 - 16.2 mg/kg bw/day  
General Toxicity F1: NOEL: 13.7 - 16.2 mg/kg bw/day  
Symptoms: Maternal effects.

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: NOEL: 25 mg/kg bw/day  
Developmental Toxicity: NOEL: 10 mg/kg bw/day  
Method: EPA OPP 83-3

Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: LOAEL: 50 mg/kg bw/day  
Developmental Toxicity: LOAEL F1: 25 mg/kg bw/day  
Symptoms: Skeletal malformations.  
Target Organs: spleen  
Method: EPA OPP 83-3

##### **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.

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### glycerol:

Effects on fertility : Test Type: Two-generation study  
Species: Rat  
Application Route: Oral  
Result: negative

Effects on fetal development : Test Type: Two-generation study  
Species: Rat  
Application Route: Oral  
Result: negative

### toluene:

Effects on fetal development : Species: Rat  
Application Route: Inhalation  
Result: Teratogenic effects.  
Remarks: Adverse developmental effects were observed

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

### 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

### STOT-single exposure

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

### Components:

#### Sulfentrazone:

Remarks : No significant adverse effects were reported

#### carfentrazone-ethyl (ISO):

Remarks : No significant adverse effects were reported

#### 2-methylnaphthalene:

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

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### toluene:

Assessment : May cause drowsiness or dizziness.

### STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

### Product:

Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

### Components:

#### Sulfentrazone:

Target Organs : hematopoietic system  
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

#### carfentrazone-ethyl (ISO):

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

### toluene:

Routes of exposure : Inhalation  
Target Organs : inner ear  
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

### Repeated dose toxicity

### Components:

#### Sulfentrazone:

Species : Rat, male  
NOAEL : 19.9 mg/kg  
LOAEL : 65.8 mg/kg  
Application Route : Oral - feed  
Exposure time : 90-days  
GLP : yes  
Target Organs : hematopoietic system

Species : Mouse, male  
NOAEL : 60 mg/kg  
LOAEL : 108.4 mg/kg  
Application Route : Oral - feed  
Exposure time : 90-days  
Target Organs : hematopoietic system

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Species	: Dog, male
NOAEL	: 10 mg/kg
LOAEL	: 28 mg/kg
Application Route	: Oral - feed
Exposure time	: 90-days
Target Organs	: hematopoietic system, Liver

### carfentrazone-ethyl (ISO):

Species	: Mouse, male
NOAEL	: 143 mg/kg
LOAEL	: 571 mg/kg
Application Route	: Oral
Exposure time	: 90 days
Method	: EPA 82-1
GLP	: yes
Target Organs	: Blood, Liver

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

Species	: Rat, male
NOAEL	: 58 mg/kg
Exposure time	: 90 d
Method	: EPA 82-1
GLP	: yes

### glycerol:

Species	: Rat
LOAEL	: 1 mg/kg
Application Route	: Inhalation
Exposure time	: 14 d
Dose	: 0, 1, 1.93, 3.91 mg/L
Symptoms	: respiratory tract irritation, Fatality

Species	: Rat
NOAEL	: 0.165 mg/l
LOAEL	: 0.662 mg/l
Application Route	: Inhalation

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Exposure time : 13 w  
Dose : 0, 0.033, 0.165, 0.662 mg/L  
Symptoms : respiratory tract irritation

### **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

### **toluene:**

Species : Rat  
NOAEL : 625 mg/kg  
Application Route : Oral  
Symptoms : central nervous system effects

Species : Rat  
NOAEL : 0.098 mg/l  
Application Route : Inhalation  
Test atmosphere : vapor

Species : Rat  
LOAEL : 2.261 mg/l  
Application Route : Inhalation  
Test atmosphere : vapor

### **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

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LOAEL	:	160 mg/kg
Application Route	:	Inhalation
Exposure time	:	90 Days

### Aspiration toxicity

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

#### Components:

##### **Sulfentrazone:**

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

##### **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.

##### **toluene:**

May be fatal if swallowed and enters airways.

### Experience with human exposure

#### Components:

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

Skin contact	:	Symptoms: Repeated exposure may cause skin dryness or cracking.
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##### **2-methylnaphthalene:**

Skin contact	:	Target Organs: Skin Symptoms: Irritation
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### Neurological effects

#### Components:

##### **Sulfentrazone:**

Neurotoxicity observed in animals studies

##### **carfentrazone-ethyl (ISO):**

No neurotoxicity observed in animal studies.

### Further information

#### Product:

Remarks	:	No data available
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### 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:

##### **Sulfentrazone:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 120 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Method: EPA OPP 72-1

LC50 (Lepomis macrochirus (Bluegill sunfish)): 93.8 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Method: EPA OPP 72-1

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 60.4 mg/l  
Exposure time: 48 h  
Test Type: flow-through test

NOEC (Daphnia magna (Water flea)): 14.1 mg/l  
Exposure time: 48 h  
Test Type: flow-through test

Toxicity to algae/aquatic plants : EC50 (algae): 32.8 mg/l  
Exposure time: 72 h

EC50 (Pseudokirchneriella subcapitata (green algae)): 0.031 mg/l  
Exposure time: 120 h

EC50 (Lemna gibba (duckweed)): 0.0288 mg/l  
Exposure time: 14 d

EC50 (Navicula pelliculosa (Diatom)): 0.042 mg/l  
Exposure time: 120 h

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Toxicity to fish (Chronic toxicity) : NOEC (Fish): 5.9 mg/l  
Exposure time: 21 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Crustaceans): 0.51 mg/l  
Exposure time: 21 d

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

NOEL (Anas platyrhynchos (Mallard duck)): 3,160 ppm  
End point: Acute oral toxicity

LD50 (Colinus virginianus (Bobwhite quail)): > 5,620 ppm  
End point: Acute oral toxicity

NOEL (Colinus virginianus (Bobwhite quail)): 5,620 ppm  
End point: Acute oral toxicity

NOEL (Colinus virginianus (Bobwhite quail)): > 100 ppm  
End point: Reproduction Test

NOEL (Anas platyrhynchos (Mallard duck)): > 100 ppm  
End point: Reproduction Test

LD50 (Apis mellifera (bees)): > 25 µg/bee  
End point: Acute oral toxicity

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

### Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

### 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

LC50 (Menidia beryllina (Silverside)): 1.14 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

LC50 (Oncorhynchus mykiss (rainbow trout)): 1.6 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Method: EPA OPP 72-1

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- 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 (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
- EbC50 (Selenastrum capricornutum (green algae)): 16 µg/l  
Exposure time: 120 h
- EC50 (Navicula pelliculosa (Diatom)): 12 µg/l  
Exposure time: 72 h  
Test Type: static test
- EC50 (Skeletonema costatum (Diatom)): 15 µg/l  
Exposure time: 72 h  
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
- NOEC (Oncorhynchus mykiss (rainbow trout)): 0.118 mg/l  
Exposure time: 102 d  
Test Type: flow-through test  
Method: US EPA Test Guideline OPP 72-4
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.309 mg/l  
End point: Growth  
Exposure time: 21 d  
Method: OECD Test Guideline 202
- 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

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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.

#### glycerol:

Toxicity to fish : LC50 (Fish): 885 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,955 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Scenedesmus capricornutum (fresh water algae)): 2,900 mg/l  
Exposure time: 192 h

Toxicity to microorganisms : EC10 (Pseudomonas putida): 10,000 mg/l  
Exposure time: 16 h

### 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

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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

### toluene:

Toxicity to fish : LC50 (Fish): 5.5 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50: 3.78 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOEC (*Skeletonema costatum* (marine diatom)): 10 mg/l  
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (*Oncorhynchus kisutch* (coho salmon)): 1.4 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Ceriodaphnia* sp.): 0.74 mg/l  
Exposure time: 7 d

Toxicity to microorganisms : EC50 (Bacteria): 134 mg/l  
Exposure time: 3 h

### 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

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plants  
mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 201

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

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

### Persistence and degradability

#### Components:

##### **Sulfentrazone:**

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life (DT50): 2.22 - 9.56 h

Photodegradation : Remarks: Decomposes rapidly in contact with light.

##### **carfentrazone-ethyl (ISO):**

Biodegradability : Result: Not readily biodegradable.

##### **glycerol:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 94 %  
Exposure time: 24 h

##### **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

##### **toluene:**

Biodegradability : Result: Readily biodegradable.

##### **propane-1,2-diol:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 23.6 %  
Exposure time: 64 d  
Method: OECD Test Guideline 306

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### Bioaccumulative potential

#### Components:

##### **Sulfentrazone:**

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)  
GLP: yes  
Remarks: Low potential for bioaccumulation

Partition coefficient: n-octanol/water : Pow: 9.8  
pH: 7

##### **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)

##### **glycerol:**

Partition coefficient: n-octanol/water : log Pow: -1.75 (77 °F / 25 °C)  
pH: 7.4

##### **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

##### **toluene:**

Bioaccumulation : Bioconcentration factor (BCF): 90

Partition coefficient: n-octanol/water : log Pow: 2.73 (68 °F / 20 °C)

##### **propane-1,2-diol:**

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

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### Mobility in soil

#### Components:

##### **Sulfentrazone:**

Mobility : Medium: Water  
Remarks: Predicted distribution to environmental compartments

Distribution among environmental compartments : Koc: 43 ml/g, log Koc: 1.63  
Remarks: Highly mobile in soils

Stability in soil : Remarks: Very persistent in soil.

##### **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.



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Dispose of as unused product.  
Do not re-use empty containers.  
Do not burn, or use a cutting torch on, the empty drum.

### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

##### 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. (Sulfentrazone, Carfentrazone-ethyl)
Class	: 9
Packing group	: III
Labels	: CLASS 9
ERG Code	: 171
Marine pollutant	: yes(Sulfentrazone, Carfentrazone-ethyl)

#### Special precautions for user

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)
toluene	108-88-3	100	100 (F005)
ethylbenzene	100-41-4	100	100 (F003)
toluene	108-88-3	1000	

#### 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** : Flammable (gases, aerosols, liquids, or solids)  
Acute toxicity (any route of exposure)  
Carcinogenicity  
Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)

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

toluene	108-88-3	>= 1 - < 5 %
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### 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).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

toluene	108-88-3	>= 1 - < 5 %
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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 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

glycerol	56-81-5	>= 5 - < 10 %
2-methylnaphthalene	91-57-6	>= 1 - < 5 %
toluene	108-88-3	>= 1 - < 5 %
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:

toluene	108-88-3	>= 1 - < 5 %
naphthalene	91-20-3	>= 0 - < 0.1 %
ethylbenzene	100-41-4	>= 0 - < 0.1 %

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

toluene	108-88-3	>= 1 - < 5 %
naphthalene	91-20-3	>= 0 - < 0.1 %
ethylbenzene	100-41-4	>= 0 - < 0.1 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

toluene	108-88-3	>= 1 - < 5 %
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This product does not contain any priority pollutants related to the U.S. Clean Water Act

### US State Regulations

#### Massachusetts Right To Know

glycerol	56-81-5
toluene	108-88-3

#### Pennsylvania Right To Know

water	7732-18-5
Sulfentrazone	122836-35-5
glycerol	56-81-5
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5
carfentrazone-ethyl (ISO)	128639-02-1
toluene	108-88-3
propane-1,2-diol	57-55-6
naphthalene	91-20-3

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### Maine Chemicals of High Concern

toluene	108-88-3
octamethylcyclotetrasiloxane [D4]	556-67-2

### Vermont Chemicals of High Concern

toluene	108-88-3
ethylbenzene	100-41-4
octamethylcyclotetrasiloxane [D4]	556-67-2

### Washington Chemicals of High Concern

toluene	108-88-3
ethylbenzene	100-41-4

### California Prop. 65

WARNING: This product can expose you to chemicals including naphthalene, ethylbenzene, which is/are known to the State of California to cause cancer, and toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### California List of Hazardous Substances

toluene	108-88-3
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### California Permissible Exposure Limits for Chemical Contaminants

glycerol	56-81-5
toluene	108-88-3

### 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.
AIIC	: Not in compliance with the inventory
DSL	: This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements. Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.
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

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### TSCA list

No substances are subject to a Significant New Use Rule.

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

### FIFRA information

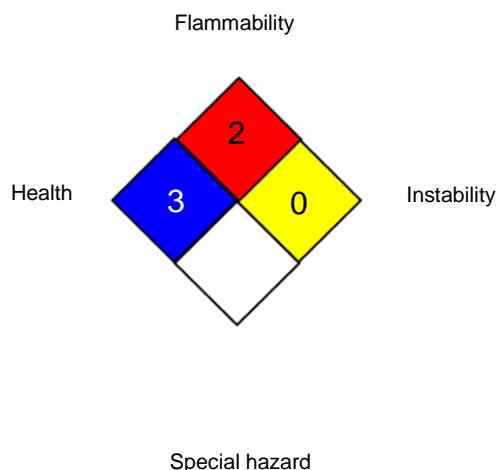
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Causes eye irritation, Harmful if inhaled, Harmful if swallowed, Harmful if absorbed through the skin., Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals., This product is toxic to fish and invertebrates.

## SECTION 16. OTHER INFORMATION

### Further information

#### NFPA 704:



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

#### HMIS® IV:

HEALTH	*	2
FLAMMABILITY		2
PHYSICAL HAZARD		0

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)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)

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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
OSHA Z-2	:	USA. Occupational Exposure Limits (OSHA) - Table Z-2
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
OSHA Z-2 / TWA	:	8-hour time weighted average
OSHA Z-2 / CEIL	:	Acceptable ceiling concentration
OSHA Z-2 / Peak	:	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
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, Compensation, 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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End of Material Safety Data Sheet