



# SAFETY DATA SHEET



## SPARTAN® CHARGE HERBICIDE

Version 1.9      Revision Date: 02/16/2023      SDS Number: 50000403      Date of last issue: 11/02/2018  
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### 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.

**Other hazards**

None known.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Components**

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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	>= 5 - < 10
Solvent naphtha (petroleum), heavy arom.	64742-94-5	>= 1 - < 5
2-methylnaphthalene	91-57-6	>= 1 - < 5
toluene	108-88-3	>= 1 - < 5
propane-1,2-diol	57-55-6	>= 1 - < 5

### SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.  
Consult a physician.  
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 : Call a physician or poison control center immediately.  
If unconscious, place in recovery position and seek medical advice.
- 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 : Induce vomiting immediately and call a physician.  
Keep respiratory tract clear.  
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 : 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.
- Notes to physician : Treat symptomatically.

### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)
- Unsuitable extinguishing media : High volume water jet

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- 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 (NOx)  
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 : Wear self-contained breathing apparatus for firefighting if necessary.
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### SECTION 6. ACCIDENTAL RELEASE MEASURES

- 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.
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### 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.

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- 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.

### 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/m <sup>3</sup>	OSHA Z-1
		TWA (mist, total dust)	15 mg/m <sup>3</sup>	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m <sup>3</sup>	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m <sup>3</sup>	OSHA P0
Solvent naphtha (petroleum), heavy arom.	64742-94-5	TWA	200 mg/m <sup>3</sup> (total hydrocarbon vapor)	ACGIH
carfentrazone-ethyl (ISO)	128639-02-1	TWA (Inhalable particulate matter)	1 mg/m <sup>3</sup>	ACGIH
toluene	108-88-3	TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m <sup>3</sup>	NIOSH REL
		ST	150 ppm	NIOSH REL

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			560 mg/m <sup>3</sup>	
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm (10 minutes)	OSHA Z-2
		TWA	100 ppm 375 mg/m <sup>3</sup>	OSHA P0
		STEL	150 ppm 560 mg/m <sup>3</sup>	OSHA P0
propane-1,2-diol	57-55-6	TWA	10 mg/m <sup>3</sup>	US WEEL

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	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 shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI

### 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

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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.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	viscous liquid
Color	:	off-white to white, yellow-orange
Odor	:	solvent-like
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

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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.  
Incompatible materials : No data available

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### 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

#### Skin corrosion/irritation

Not classified based on available information.



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### **Product:**

Species : Rabbit  
Result : slight irritation  
  
Remarks : May cause skin irritation and/or dermatitis.

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

Not classified based on available information.

### **Product:**

Species : Rabbit  
Result : slight irritation  
  
Remarks : Vapors may cause irritation to the eyes, respiratory system and the skin.

### **Respiratory or skin sensitization**

#### **Skin sensitization**

Not classified based on available information.

#### **Respiratory sensitization**

Not classified based on available information.

### **Product:**

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

### **Germ cell mutagenicity**

Not classified based on available information.

### **Components:**

#### **Sulfentrazone:**

Genotoxicity in vitro : Test Type: Ames test  
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.

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**carfentrazone-ethyl (ISO):**

- Genotoxicity in vitro : Test Type: reverse mutation assay  
Result: negative
- Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Metabolic activation: Metabolic activation  
Result: negative
- Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Result: positive
- Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Mouse (male and female)  
Result: negative
- Germ cell mutagenicity - Assessment : No genotoxic potential.

**glycerol:**

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

**Solvent naphtha (petroleum), heavy arom.:**

- 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

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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  
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

**IARC** 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.

**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** 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.

### 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

Test Type: Embryo-fetal development  
Species: Rat

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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

### **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.

### **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

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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

Not classified based on available information.

#### 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.

##### **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.

### 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  
Target Organs : hematopoietic system

Species : Mouse, male

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

Species : Dog, male  
NOAEL : 28 mg/kg  
LOAEL : 57 mg/kg  
Application Route : Oral - feed  
Exposure time : 90-days  
Target Organs : hematopoietic system

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

Species : Rat, male and female  
NOEL : 1000 ppm  
Application Route : Oral  
Exposure time : 90 days

Species : Rat, male and female  
NOEL : 1000 ppm  
Application Route : Dermal  
Exposure time : 21 days

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

### **Solvent naphtha (petroleum), heavy arom.:**

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

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

### **Aspiration toxicity**

Not classified based on available information.

### **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.:**

May be fatal if swallowed and enters airways.

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### **toluene:**

May be fatal if swallowed and enters airways.

### **Experience with human exposure**

#### **Components:**

#### **Solvent naphtha (petroleum), heavy arom.:**

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

#### **2-methylnaphthalene:**

Skin contact : Target Organs: Skin  
Symptoms: Irritation

### **Neurological effects**

#### **Components:**

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

No neurotoxicity observed in animal studies.

### **Further information**

#### **Product:**

Remarks : No data available

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## SECTION 12. ECOLOGICAL INFORMATION

### **Ecotoxicity**

#### **Components:**

#### **Sulfentrazone:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 120 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 60.4 mg/l  
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : EC50 (algae): 32.8 mg/l  
plants 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



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

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 mg/kg

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

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

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

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 1.6 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (*Daphnia magna* (Water flea)): > 9.8 mg/l  
Exposure time: 48 h

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

Toxicity to fish (Chronic toxicity) : NOEC (*Oncorhynchus mykiss* (rainbow trout)): 0.11 mg/l  
Exposure time: 28 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Crustaceans): 0.22 mg/l  
Exposure time: 21 d

Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): > 820 mg/kg

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

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

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

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

### 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.:

- 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

### toluene:

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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 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

### **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:**

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

### **Solvent naphtha (petroleum), heavy arom.:**

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

## **Bioaccumulative potential**

### **Components:**

#### **Sulfentrazone:**

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

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

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

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 176  
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 3.36 (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.:**

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

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

### **2-methylnaphthalene:**

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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

### **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.:**

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.

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### 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.  
Do not burn, or use a cutting torch on, the empty drum.
- 

### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

##### UNRTDG

- UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(Sulfentrazone)  
Class : 9  
Packing group : III  
Labels : 9

##### IATA-DGR

- UN/ID No. : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
(Sulfentrazone)  
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.  
(Sulfentrazone)  
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.

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### Domestic regulation

#### 49 CFR

UN/ID/NA number : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
( )  
Class : 9  
Packing group : III  
Labels : CLASS 9  
ERG Code : 171  
Marine pollutant : yes()

#### 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)

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

toluene                      108-88-3                      >= 1 - < 5 %

### 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 %

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 SOCOMI Intermediate or Final VOC's (40 CFR 60.489):

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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.	64742-94-5
carfentrazone-ethyl (ISO)	128639-02-1
toluene	108-88-3
propane-1,2-diol	57-55-6
naphthalene	91-20-3

#### Maine Chemicals of High Concern

toluene	108-88-3
octamethylcyclotetrasiloxane	556-67-2

#### Vermont Chemicals of High Concern

toluene	108-88-3
ethylbenzene	100-41-4
octamethylcyclotetrasiloxane	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).



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### California List of Hazardous Substances

toluene 108-88-3

### 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 the following components that are not on the Canadian DSL nor NDSL.  
  
2',4'-DICHLORO-5'-(4-DIFLUOROMETHYL-4,5-DIHYDRO-3-METHYL-5-OXO-1H-1,2,4-TRIAZOL-1-YL)METHANESULFONANILIDE  
  
Smectite-group minerals
- 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.

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## SECTION 16. OTHER INFORMATION

### Further information

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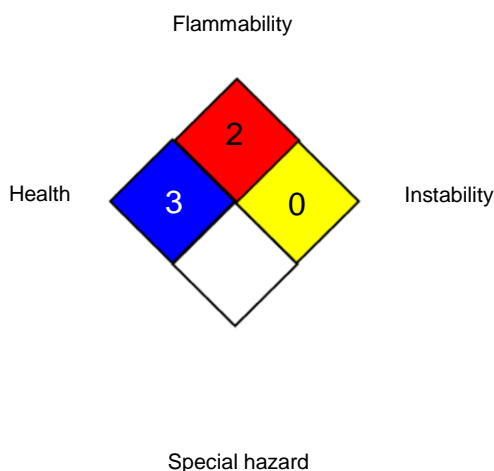
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### NFPA 704:



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)
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

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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