according to the OSHA Hazard Communication Standard



### **AUTHORITY EDGE HERBICIDE**

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#### **SECTION 1. IDENTIFICATION**

**Product identifier** 

Product name AUTHORITY EDGE HERBICIDE

Other means of identification

Product code 50001325

Chemical nature Mixture

Recommended use of the chemical and restrictions on use

Recommended use

Can be used as herbicide only.

**Restrictions on use**Use as recommended by the label.

Details of the supplier of the safety data sheet

<u>Manufacturer</u> FMC Corporation

2929 WALNUT ST

PHILADELPHIA PA 19104

USA

(215) 299-6000 SDS-Info@fmc.com

<u>Supplier Address</u> 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)

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

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Specific target organ toxicity

- repeated exposure

Category 2

**GHS** label elements

Hazard pictograms





Signal Word : WARNING

Hazard Statements : H302 Harmful if swallowed.

H332 Harmful if inhaled.

H373 May cause damage to organs through prolonged or re-

peated exposure.

Precautionary Statements : Prevention:

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area.

Response:

P314 Get medical attention if you feel unwell.

P304 + P340 IF INHALED: Remove person to fresh air and

keep comfortable for breathing.

P310 Immediately call a POISON CENTER or doctor/ physician. P301 + P312 IF SWALLOWED: Call a POISON CENTER or

doctor/ physician if you feel unwell.

P330 Rinse mouth. P391 Collect spillage.

Storage:

P405 Store locked up.

P403 + P233 Store in a well-ventilated place. Keep container

tightly closed.

Disposal:

P501 Dispose of contents/ container to an approved waste dis-

posal plant.

Other hazards

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

#### **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical nature : Mixture

#### Components

Chemical name	CAS-No.	Concentration (	(% w/w)	

according to the OSHA Hazard Communication Standard



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Sulfentrazone	122836-35-5	29.2
Pyroxasulfone	447399-55-5	14.9
propane-1,2-diol	57-55-6	>= 5 - < 10
sodium diisopropylnaphthalenesul-	1322-93-6	>= 1 - < 5
phonate		
toluene	108-88-3	>= 1 - <= 5

#### **SECTION 4. FIRST AID MEASURES**

General advice : Move out of dangerous area.

Show this safety data sheet to the doctor in attendance.

Do not leave the victim unattended.

If inhaled : Move to fresh air.

If unconscious, place in recovery position and seek medical

advice.

If symptoms persist, call a physician.

In case of skin contact : Take off all contaminated clothing immediately.

Wash contaminated clothing before re-use.

Wash off immediately with plenty of water for at least 15

minutes.

Get medical attention immediately if irritation develops and

persists.

In case of eye contact : Immediately flush eye(s) with plenty of water.

Remove contact lenses. Protect unharmed eye.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed : Do not induce vomiting without medical advice.

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.

Most important symptoms and effects, both acute and

delayed

Harmful if swallowed. Harmful if inhaled.

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**

according to the OSHA Hazard Communication Standard



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

Use extinguishing measures that are appropriate to local cir-

cumstances 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 prod: :

No hazardous combustion products are known

Further information Collect contaminated fire extinguishing water separately. This

must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must

be disposed of in accordance with local regulations.

Special protective equipment :

for fire-fighters

Firefighters should wear protective clothing and self-contained

breathing apparatus.

### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protec: :

tive equipment and emer-

gency procedures

Use personal protective equipment.

Ensure adequate ventilation.

If it can be safely done, stop the leak.

Do not touch or walk through the spilled material. Never return spills in original containers for re-use.

Mark the contaminated area with signs and prevent access to

unauthorized personnel.

Only qualified personnel equipped with suitable protective

equipment may intervene.

For disposal considerations see section 13.

**Environmental precautions** Prevent product from entering drains.

Prevent further leakage or spillage if safe to do so.

If the product contaminates rivers and lakes or drains inform

respective authorities.

Methods and materials for

containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel,

acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

### **SECTION 7. HANDLING AND STORAGE**

fire and explosion

Advice on protection against : Normal measures for preventive fire protection.

Advice on safe handling Do not breathe vapors/dust.

Avoid exposure - obtain special instructions before use.

Avoid contact with skin and eyes.

according to the OSHA Hazard Communication Standard



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For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the ap-

plication area.

Dispose of rinse water in accordance with local and national

regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated

place.

Containers which are opened must be carefully resealed and

kept upright to prevent leakage. Observe label precautions.

Electrical installations / working materials must comply with

the technological safety standards.

Further information on stor-

age 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
propane-1,2-diol	57-55-6	TWA	10 mg/m3	US WEEL

### Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally re-

quired.

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

Wear face-shield and protective suit for abnormal processing

problems.

Skin and body protection : Impervious clothing

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Protective measures : Plan first aid action before beginning work with this product.

Always have on hand a first-aid kit, together with proper in-

structions.

Ensure that eye flushing systems and safety showers are

located close to the working place. Wear suitable protective equipment.

according to the OSHA Hazard Communication Standard



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Hygiene measures : When using do not eat or drink.

When using do not smoke.

Wash hands before breaks and at the end of workday.

#### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state : liquid

Color : cream

white

Odor : neutral

Odor Threshold : No data available

pH : 5.29 (76.8 °F / 24.9 °C)

Concentration: 1.28 %

Melting point/freezing point : No data available

Initial boiling point and boiling

range

No data available

Flash point : 171 - 174 °F / 77 - 79 °C

Evaporation rate : No data available

Upper explosion limit / Upper

flammability limit

No data available

Lower explosion limit / Lower

flammability limit

No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : No data available

Density : 1.2256 g/cm3 (68.2 °F / 20.1 °C)

Bulk density : No data available

Solubility(ies)

Water solubility : Miscible

according to the OSHA Hazard Communication Standard



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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 : 45.9 mPa.s (77.4 °F / 25.2 °C)

42.1 mPa.s (113.5 °F / 45.3 °C)

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : Non-oxidizing

### **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 reac-

tions

No decomposition if stored and applied as directed.

Conditions to avoid : Avoid extreme temperatures.

Protect from frost, heat and sunlight.

Incompatible materials : Avoid strong acids, bases, and oxidizers.

Hazardous decomposition

products

irritating gases

### **SECTION 11. TOXICOLOGICAL INFORMATION**

#### **Acute toxicity**

Harmful if swallowed. Harmful if inhaled.

**Product:** 

Acute oral toxicity : LD50 Oral (Rat): 1,098 mg/kg

GLP: yes

Acute inhalation toxicity : LD50 (Rat): > 1.15 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

according to the OSHA Hazard Communication Standard



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GLP: yes

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg

Method: Calculation method

**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

Method: EPA OPP 81-2

GLP: yes

Assessment: The component/mixture is minimally toxic after

single contact with skin.

Pyroxasulfone:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Remarks: no mortality

Acute inhalation toxicity : LC50 (Rat): > 6.56 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Remarks: no mortality

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

Remarks: no mortality

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

#### sodium diisopropylnaphthalenesulphonate:

according to the OSHA Hazard Communication Standard



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Acute oral toxicity : LD50 (Rat, female): > 300 - 2,000 mg/kg

Method: OECD Test Guideline 423

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

#### Skin corrosion/irritation

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

**Product:** 

Species : Rabbit

Result : slight irritation

Remarks : May cause skin irritation in susceptible persons.

### **Components:**

Sulfentrazone:

Species : Rabbit

Assessment : No skin irritation
Method : EPA OPP 81-5
Result : No skin irritation

GLP : yes

Pyroxasulfone:

Species : Rabbit

Result : No skin irritation

propane-1,2-diol:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

sodium diisopropylnaphthalenesulphonate:

Species : reconstructed human epidermis (RhE)

Method : OECD Test Guideline 431

Result : Corrosive after 4 hours or less of exposure

toluene:

Species : Rabbit

according to the OSHA Hazard Communication Standard



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Assessment : Repeated exposure may cause skin dryness or cracking.

Result : Skin irritation

#### Serious eye damage/eye irritation

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

**Product:** 

Species : Rabbit
Result : slight irritation
Remarks : May irritate eyes.

**Components:** 

Sulfentrazone:

Species : Rabbit

Result : No eye irritation
Assessment : No eye irritation
Method : EPA OPP 81-4

GLP : yes

Pyroxasulfone:

Species : Rabbit

Result : slight irritation

propane-1,2-diol:

Species : Rabbit

Result : No eye irritation

Method : OECD Test Guideline 405

sodium diisopropylnaphthalenesulphonate:

Species : Bovine cornea

Result : Irreversible effects on the eye Method : OECD Test Guideline 437

toluene:

Species : Rabbit

Result : No eye irritation

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.

**Product:** 

Test Type : Local lymph node test

Species : Mouse

Result : Not a skin sensitizer.

according to the OSHA Hazard Communication Standard



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**Components:** 

Sulfentrazone:

Test Type : Maximization Test

Species : Guinea pig

Method : OECD Test Guideline 406

Result : Does not cause skin sensitization.

Pyroxasulfone:

Test Type : Local lymph node assay (LLNA)

Species : Mouse

Result : Does not cause skin sensitization.

propane-1,2-diol:

Test Type : Maximization Test

Species : Guinea pig Result : negative

sodium diisopropylnaphthalenesulphonate:

Test Type : Direct Peptide Reactivity Assay (DPRA)

Method : OECD Test Guideline 442C
Result : Does not cause skin sensitization.

toluene:

Test Type : Maximization Test Species : Guinea pig

Result : Not a skin sensitizer.

Germ cell mutagenicity

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

**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 - : Animal testing did not show any mutagenic effects.

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Assessment

Pyroxasulfone:

Genotoxicity in vitro : Test Type: Ames test

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse Result: negative

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

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

sodium diisopropylnaphthalenesulphonate:

Genotoxicity in vitro : Test Type: reverse mutation assay

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Remarks: No data available

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

Carcinogenicity

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

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### **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 - Assess-

ment

: Animal testing did not show any carcinogenic effects.

Pyroxasulfone:

Species : Rat, male Exposure time : 2 Years

: 2.2 mg/kg bw/day

Result : positive Target Organs : Bladder

Carcinogenicity - Assess-

ment

: Limited evidence of carcinogenicity in animal studies

propane-1,2-diol:

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

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

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

### **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

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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

Pyroxasulfone:

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

toluene:

Effects on fetal development : Species: Rat

Application Route: Inhalation Result: Teratogenic effects.

Remarks: Adverse developmental effects were observed

Reproductive toxicity - As-

sessment

Some evidence of adverse effects on sexual function and

fertility, and/or on development, based on animal experiments.

STOT-single exposure

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

Components:

Sulfentrazone:

Remarks : No significant adverse effects were reported

toluene:

Assessment : May cause drowsiness or dizziness.

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#### STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

#### Components:

Sulfentrazone:

Target Organs : hematopoietic system

Assessment : The substance or mixture is classified as specific target organ

toxicant, repeated exposure, category 2.

Pyroxasulfone:

Target Organs : Nervous system, Kidney, Liver, Cardio-vascular system, Blad-

der

Assessment : The substance or mixture is classified as specific target organ

toxicant, repeated exposure, category 1.

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

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

Target Organs : hematopoietic system, Liver

according to the OSHA Hazard Communication Standard



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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

sodium diisopropylnaphthalenesulphonate:

Remarks : No data available

toluene:

Species : Rat

NOAEL : 625 mg/kg

Application Route : Oral

Symptoms : central nervous system effects

Species: RatNOAEL: 0.098 mg/lApplication Route: InhalationTest atmosphere: vapor

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

**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.

toluene:

May be fatal if swallowed and enters airways.

**Neurological effects** 

**Components:** 

Sulfentrazone:

Neurotoxity observed in animals studies

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**Further information** 

**Product:** 

Remarks : No data available

**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

Toxicity to fish (Chronic tox-

icity)

NOEC (Fish): 5.9 mg/l

Exposure time: 21 d

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC (Crustaceans): 0.51 mg/l

Exposure time: 21 d

Toxicity to terrestrial organ-

isms

LD50 (Anas platyrhynchos (Mallard duck)): > 5,620 ppm

End point: Acute oral toxicity

according to the OSHA Hazard Communication Standard



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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.

Pyroxasulfone:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): > 202 mg/l

Exposure time: 96 h

LL50 (Lepomis macrochirus (Bluegill sunfish)): > 208 mg/l

Exposure time: 96 h

LL50 (Cyprinodon variegatus (sheepshead minnow)): > 3.3

ma/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EL50 (Daphnia magna (Water flea)): > 4.4 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

ErC50 (green algae): 0.000743 mg/l

Exposure time: 72 h

EC50 (Lemna gibba (duckweed)): 0.00043 mg/l

Exposure time: 7 d

Toxicity to fish (Chronic tox-

icity)

NOEC (Pimephales promelas (fathead minnow)): 2 mg/l

Exposure time: 28 d

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 1.9 mg/l

Exposure time: 21 d

according to the OSHA Hazard Communication Standard



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Toxicity to soil dwelling or-

ganisms

LC50 (Eisenia fetida (earthworms)): > 997 mg/kg

Exposure time: 14 d

Toxicity to terrestrial organ-

isms

LD50 (Apis mellifera (bees)): > 100 µg/bee

Exposure time: 48 d Remarks: Contact

LOEC (Anas platyrhynchos (Mallard duck)): 60 mg/kg

End point: Reproduction Test

propane-1,2-diol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

(Mysidopsis bahia (opossum shrimp)): 18,800 mg/l

Exposure time: 96 h

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): 34,100

mg/l

Exposure time: 48 h

Method: OECD Test Guideline 201

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

Toxicity to microorganisms

ic toxicity)

NOEC: 13,020 mg/l Exposure time: 7 d

EC50 (Pseudomonas putida): > 20,000 mg/l

Exposure time: 18 h

sodium diisopropylnaphthalenesulphonate:

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 72 mg/l

Exposure time: 48 h Test Type: static test

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (algae)): > 100 mg/l

Exposure time: 72 h

Test Type: static test Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (algae)): 10 mg/l

Exposure time: 72 h Test Type: static test

Method: OECD Test Guideline 201

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

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Toxicity to algae/aquatic

plants

NOEC (Skeletonema costatum (marine diatom)): 10 mg/l

Exposure time: 72 h

Toxicity to fish (Chronic tox-

icity)

NOEC (Oncorhynchus kisutch (coho salmon)): 1.4 mg/l

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC (Ceriodaphnia sp.): 0.74 mg/l

Exposure time: 7 d

Toxicity to microorganisms : EC50 (Bacteria): 134 mg/l

Exposure time: 3 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.

Pyroxasulfone:

Biodegradability : Result: Not readily biodegradable.

propane-1,2-diol:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 23.6 % Exposure time: 64 d

Method: OECD Test Guideline 306

# sodium diisopropylnaphthalenesulphonate:

Biodegradability : Inoculum: activated sludge, non-adapted

Result: Not readily biodegradable.

Biodegradation: 2 % Exposure time: 21 d

Method: OECD Test Guideline 301D

toluene:

Biodegradability : Result: Readily biodegradable.

### Bioaccumulative potential

#### **Components:**

Sulfentrazone:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

according to the OSHA Hazard Communication Standard



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GLP: yes

Remarks: Low potential for bioaccumulation

Partition coefficient: n-

octanol/water

: Pow: 9.8 pH: 7

Pyroxasulfone:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-

octanol/water

log Pow: 2.39 (77 °F / 25 °C)

propane-1,2-diol:

Partition coefficient: n-

octanol/water

log Pow: -1.07

sodium diisopropylnaphthalenesulphonate:

Partition coefficient: n-

octanol/water

log Pow: > 2.6 (68 °F / 20 °C)

toluene:

Bioaccumulation : Bioconcentration factor (BCF): 90

Partition coefficient: n-

octanol/water

log Pow: 2.73 (68 °F / 20 °C)

Mobility in soil

**Components:** 

Sulfentrazone:

Mobility : Medium: Water

Remarks: Predicted distribution to environmental compart-

ments

Distribution among environ-

mental compartments

Koc: 43 ml/g, log Koc: 1.63

Remarks: Highly mobile in soils

Stability in soil : Remarks: Very persistent in soil.

Pyroxasulfone:

Distribution among environ-

mental compartments

Adsorption/Soil

Koc: 57 - 114 ml/g, log Koc: > 1.75 Remarks: Highly mobile in soils

Stability in soil :

according to the OSHA Hazard Communication Standard



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#### Other adverse effects

**Product:** 

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Pro-

tection 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 infor-

mation

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 chemi-

cal or used container.

Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.

Dispose of as unused product. Do not re-use empty containers.

#### **SECTION 14. TRANSPORT INFORMATION**

#### International Regulations

**UNRTDG** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Pyroxasulfone, Sulfentrazone)

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

IATA-DGR

UN/ID No. : UN 3082

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.

(Pyroxasulfone, Sulfentrazone)

Class : 9 Packing group : III

Labels : Miscellaneous

Packing instruction (cargo

aircraft)

964

Packing instruction (passen-

ger aircraft)

964

according to the OSHA Hazard Communication Standard



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Environmentally hazardous : yes

**IMDG-Code** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Pyroxasulfone, 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.

### **Domestic regulation**

49 CFR Road

UN/ID/NA number : UN 3082

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.

(Pyroxasulfone, Sulfentrazone)

Class : 9
Packing group : III
Labels : CLASS 9

ERG Code : 171
Marine pollutant : yes

Remarks : Shipment by ground under DOT is non-regulated; however it

may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

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

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

#### **SECTION 15. REGULATORY INFORMATION**

### **CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ	Calculated product RQ
		(lbs)	(lbs)

#### **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ	Calculated product RQ
		(lbs)	(lbs)

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

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

according to the OSHA Hazard Communication Standard



### **AUTHORITY EDGE HERBICIDE**

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### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

SARA 311/312 Hazards : Acute toxicity (any route of exposure)

Specific target organ toxicity (single or repeated exposure)

SARA 313 : This material does not contain any chemical components with

known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

propane-1,2-diol 57-55-6 >= 5 - < 10 %

#### **Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

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

This product does not contain any priority pollutants related to the U.S. Clean Water Act

#### **US State Regulations**

#### **Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

#### Pennsylvania Right To Know

water 7732-18-5 2',4'-DICHLORO-5'-(4-DIFLUOROMETHYL-4,5-DIHYDRO-3- Not Assigned

METHYL-5-OXO-1H-1,2,4-TRIAZOL-1-

YL)METHANESULFONANILIDE

 Pyroxasulfone
 447399-55-5

 propane-1,2-diol
 57-55-6

 sodium sulphate
 7757-82-6

#### Maine Chemicals of High Concern

octamethylcyclotetrasiloxane [D4] 556-67-2

#### **Vermont Chemicals of High Concern**

octamethylcyclotetrasiloxane [D4] 556-67-2

### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

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

TCSI : Not in compliance with the inventory

according to the OSHA Hazard Communication Standard



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TSCA : Product contains substance(s) not listed on TSCA inventory.

AICS : Not in compliance with the inventory

DSL : This product contains the following components that are not

on the Canadian DSL nor NDSL.

Pyroxasulfone

**BENTONE EW** 

2',4'-DICHLORO-5'-(4-DIFLUOROMETHYL-4,5-DIHYDRO-3-

METHYL-5-OXO-1H-1,2,4-TRIAZOL-1-

YL)METHANESULFONANILIDE

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.

#### **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:

#### **CAUTION**

Harmful if swallowed, Harmful if inhaled, Avoid breathing dust or spray mist., Avoid contact with skin, eyes and clothing.

### **SECTION 16. OTHER INFORMATION**

#### **Further information**

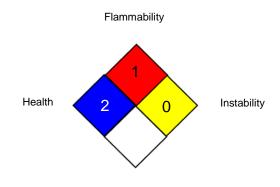
according to the OSHA Hazard Communication Standard



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#### NFPA 704:



Special hazard

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

#### HMIS® IV:



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

#### Full text of other abbreviations

US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)

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 -

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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