



PRODUCT NAME: Avireo™ Herbicide

SPECIFICATION ID#: 50003123

Avireo™ Herbicide is a combination package of two (2) individual products. Attached are the component product SDS which make up **Avireo™ Herbicide**:

Aim® EC Herbicide

PCP # **28573**

SDS Date: **11/12/2025**

Specification ID#: **50001765**

Tolpyralate 400SC Herbicide

PCP # **32901**

SDS Date: **09/29/2025**

Please read the SDS in order to have a complete understanding of all the risks associated with each product before use.

Manufacturer/Distributor:

FMC of Canada Limited
6755 Mississauga Road, Suite 204
Mississauga, ON L5N 7Y2
Canada

Telephone Numbers:

Product Information: 1-833-362-7722
Medical Emergency: 1-800-331-3148 (USA & Canada)
Preparation

Date: 11/17/2025

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AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

SECTION 1. IDENTIFICATION

Product identifier

Product name AIM® EC HERBICIDE

Other means of identification

Product code 50001765

Chemical nature Mixture

Product Registration Number PCP #28573

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
Web: <https://ag.fmc.com/ca/en>
SDS-Info@fmc.com

Supplier Address FMC of Canada Limited
6755 Mississauga Road, Suite 204
Mississauga, ON L5N 7Y2
Canada

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 Hazardous Products Regulations

Carcinogenicity : Category 2

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :



Signal Word : DANGER

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

Precautionary Statements :

Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards

Very toxic to aquatic life with long lasting effects.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	Aromatic hydrocarbons	64742-94-5	$\geq 60 - < 80$ *
carfentrazone-ethyl (ISO)	Carfentrazone-ethyl	128639-02-1	21.9

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version 1.10 Revision Date: 11/12/2025 SDS Number: 50001765 Date of last issue: 10/06/2022
Date of first issue: 05/01/2019

butan-1-ol	1-Butanol	71-36-3	$\geq 1 - < 5$ *
4-hydroxy-4-methylpentan-2-one	4-hydroxy-4-methylpentan-2-one	123-42-2	$\geq 0.1 - < 1$ *

* Actual concentration or concentration range is withheld as a trade secret

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 : 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 : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : May be fatal if swallowed and enters airways.
Suspected of causing cancer.
- Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

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

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

- Hazardous combustion products : Carbon oxides
Fire may produce irritating, corrosive and/or toxic gases.
Nitrogen oxides (NOx)
Fluorine compounds
Hydrogen cyanide
Hydrogen chloride
Chlorinated 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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency 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.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
Never return spills in original containers for re-use.
Only qualified personnel equipped with suitable protective equipment may intervene.
- 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.

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version 1.10 Revision Date: 11/12/2025 SDS Number: 50001765 Date of last issue: 10/06/2022
Date of first issue: 05/01/2019

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.

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	TWA	200 mg/m ³ (total hydrocarbon vapor)	CA AB OEL
		TWAEV	200 mg/m ³	CA QC OEL
		TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
carfentrazone-ethyl (ISO)	128639-02-1	TWA (Inhalable particulate matter)	1 mg/m ³	ACGIH
butan-1-ol	71-36-3	TWA	20 ppm 60 mg/m ³	CA AB OEL
		TWA	15 ppm	CA BC OEL
		C	30 ppm	CA BC OEL
		C	50 ppm 152 mg/m ³	CA QC OEL
		TWA	20 ppm	ACGIH
4-hydroxy-4-methylpentan-2-one	123-42-2	TWA	50 ppm 238 mg/m ³	CA AB OEL
		TWA	50 ppm	CA BC OEL
		TWAEV	50 ppm 238 mg/m ³	CA QC OEL

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version 1.10	Revision Date: 11/12/2025	SDS Number: 50001765	Date of last issue: 10/06/2022 Date of first issue: 05/01/2019
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		TWA	50 ppm	ACGIH
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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 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	:	Ensure that eye flushing systems and safety showers are located close to the working place. Wear suitable protective equipment. When using do not eat, drink or smoke. Always have on hand a first-aid kit, together with proper instructions.
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
Color	:	brown, orange
Odor	:	Aromatic
Odor Threshold	:	No data available
pH	:	5.3 Concentration: 10 g/l
Melting point/freezing point	:	No data available

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Initial boiling point and boiling range : No data available

Flash point : 75.6 °C
Method: closed cup

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

Density : 9 lb/gal

Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : 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

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.

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

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

Product:

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

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

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

Components:

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

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

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

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

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

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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

butan-1-ol:

Acute oral toxicity : LD50 (Rat): 2.292 mg/kg

Acute toxicity estimate: 1,000 mg/kg
Method: Expert judgment

Acute inhalation toxicity : LC0 (Rat): > 17.76 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Remarks: no mortality

Acute dermal toxicity : LD50 (Rabbit): 3,430 mg/kg

4-hydroxy-4-methylpentan-2-one:

Acute oral toxicity : LD50 Oral (Rat, male and female): 3,002 mg/kg
Method: OECD Test Guideline 401
Symptoms: Lethargy, ataxia, Coma

Acute inhalation toxicity : LC0 (Rat, male and female): >= 7.6 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403
Remarks: no mortality

Acute dermal toxicity : LD0 (Rat, male and female): > 1,875 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

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

Product:

Species : Rabbit
Result : slight irritation

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Remarks : May cause skin irritation and/or dermatitis.

Components:

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

carfentrazone-ethyl (ISO):

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

butan-1-ol:

Species	: Rabbit
Result	: Skin irritation

4-hydroxy-4-methylpentan-2-one:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: slight irritation

Serious eye damage/eye irritation

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

Product:

Result	: slight irritation
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Remarks : May cause irreversible eye damage.

Components:

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

carfentrazone-ethyl (ISO):

Species	: Rabbit
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SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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

butan-1-ol:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

4-hydroxy-4-methylpentan-2-one:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days
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.

Product:

Result	:	Does not cause skin sensitization.
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Components:

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

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

butan-1-ol:

Result	:	Not a skin sensitizer.
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SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

4-hydroxy-4-methylpentan-2-one:

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

Germ cell mutagenicity

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

Components:

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

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
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SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

		Method: OECD Test Guideline 473 Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse (male and female) Result: negative GLP: yes
		Test Type: unscheduled DNA synthesis assay Species: Rat (male) Result: negative GLP: yes
Germ cell mutagenicity - Assessment	:	No genotoxic potential.
butan-1-ol:		
Genotoxicity in vitro	:	Test Type: gene mutation test Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse Application Route: Oral Method: OECD Test Guideline 474 Result: negative
4-hydroxy-4-methylpentan-2-one:		
Genotoxicity in vitro	:	Test Type: reverse mutation assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
		Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative
		Test Type: In vitro mammalian cell gene mutation test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative
Germ cell mutagenicity - Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Suspected of causing cancer.

Product:

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Components:

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.

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.

Reproductive toxicity

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

Components:

carfentrazone-ethyl (ISO):

Effects on fertility	: Test Type: Multi-generation study
	Species: Rat, male and female
	Application Route: Ingestion
	Fertility: NOEL: 4,000 ppm
	Result: negative

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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.

4-hydroxy-4-methylpentan-2-one:

Effects on fertility : Test Type: one-generation reproductive toxicity
Species: Rat, male and female
Application Route: Oral
Dose: 30, 100, 300, 1000mg/kg/bw
Duration of Single Treatment: 45 d
General Toxicity Parent: LOAEL: 300 mg/kg bw/day
General Toxicity F1: NOAEL: 300 mg/kg bw/day
Method: OECD Test Guideline 422

Effects on fetal development : Species: Rat
Application Route: Oral
Dose: 100, 300, 1000mg/kg/day
Duration of Single Treatment: 21 d
General Toxicity Maternal: NOAEL: > 1,000 mg/kg bw/day
Embryo-fetal toxicity.: NOAEL: > 1,000 mg/kg bw/day
Method: OECD Test Guideline 414

Species: Rabbit
Application Route: Oral
Dose: 0, 100, 300, 800mg/kg/bw/day
Duration of Single Treatment: 29 d
General Toxicity Maternal: LOAEL: 800 mg/kg bw/day
Embryo-fetal toxicity.: LOAEL: 300 mg/kg bw/day
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment : 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.

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Components:

carfentrazone-ethyl (ISO):

Remarks : No significant adverse effects were reported

butan-1-ol:

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

4-hydroxy-4-methylpentan-2-one:

Target Organs : Respiratory Tract

Assessment : May cause respiratory irritation.

STOT-repeated exposure

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

Components:

carfentrazone-ethyl (ISO):

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

Repeated dose toxicity

Components:

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

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

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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

butan-1-ol:

Species	: Rat
NOAEL	: 1,500 mg/m ³
Application Route	: Inhalation

4-hydroxy-4-methylpentan-2-one:

Species	: Rat, male and female
NOAEL	: 600 mg/kg bw/day
Application Route	: Oral
Exposure time	: 13 weeks
Dose	: 0, 25, 150, 600mg/kg bw/day
Method	: OECD Test Guideline 408

Species	: Rat, male and female
LOAEL	: 300 mg/kg bw/day
Application Route	: Oral
Exposure time	: 45 d
Dose	: 30, 100, 300, 1000mg/kgbw
Method	: OECD Test Guideline 422

Species	: Rat, male and female
NOAEL	: 1000 ppm
Application Route	: inhalation (vapor)
Exposure time	: 6 weeks
Dose	: 50, 225, 1000 ppm
Method	: OECD Test Guideline 412

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

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

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Components:

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

May be fatal if swallowed and enters airways.

carfentrazone-ethyl (ISO):

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

Experience with human exposure

Components:

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

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

Neurological effects

Components:

carfentrazone-ethyl (ISO):

No neurotoxicity observed in animal studies.

Further information

Product:

Remarks : Solvents may degrease the skin.

Components:

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

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

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

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l
Exposure time: 96 h

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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

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 (Silerside)): 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

LC50 (Lepomis macrochirus (Bluegill sunfish)): 2 mg/l
Exposure time: 96 h
Test Type: flow-through test

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

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

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

NOEC (*Daphnia magna* (Water flea)): 0.316 mg/l
End point: Growth
Exposure time: 21 d
Method: OECD Test Guideline 202

NOEC (*Daphnia*): 35 mg/l
End point: reproduction
Exposure time: 21 d
Method: US EPA Test Guideline OPPTS 850.1300
Remarks: Information given is based on data obtained from similar product.

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

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

Method: OECD Test Guideline 216
Remarks: No significant adverse effect on Nitrogen minerali-

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

zation.

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

LC50 (Colinus virginianus (Bobwhite quail)): > 5,620 ppm
End point: Acute oral toxicity
Remarks: Dietary

LD50 (Colinus virginianus (Bobwhite quail)): > 2,000 mg/kg
End point: Acute oral toxicity
Method: EPA OPP 71-1

LD50 (Colinus virginianus (Bobwhite quail)): > 2,250 mg/kg
End point: Acute oral toxicity
Method: EPA OPP 71-1

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.

butan-1-ol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1,376 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,328 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): 225 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

EC50 (Pseudokirchneriella subcapitata (green algae)): 225 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 4.1 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50 (Anabaena flos-aquae (cyanobacterium)): 225 mg/l
Exposure time: 4 d

EC50 (Natural microorganism): 4,390 mg/l
Exposure time: 17 h

4-hydroxy-4-methylpentan-2-one:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): > 1,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (algae)): >= 1,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : LOEC (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Persistence and degradability

Components:

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

carfentrazone-ethyl (ISO):

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 3.9 %

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in water : Degradation half life: 3.6 h pH: 9

Degradation half life: 8.6 d pH: 7

Photodegradation :

butan-1-ol:

Biodegradability : Result: Readily biodegradable.
Remarks: Expected to be biodegradable

4-hydroxy-4-methylpentan-2-one:

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable.
Method: OECD Test Guideline 301A

Bioaccumulative potential

Components:

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

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 (20 °C)

butan-1-ol:

Partition coefficient: n-octanol/water : Pow: 1 (25 °C)

4-hydroxy-4-methylpentan-2-one:

Partition coefficient: n-octanol/water : log Pow: -0.09
Method: QSAR

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Mobility in soil

Components:

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

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

carfentrazone-ethyl (ISO):

Distribution among environmental compartments : Koc: 866, log Koc: 2.93
Remarks: Mobile in soils

Other adverse effects

Product:

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
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.
(Carfentrazone-ethyl)
Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : no

IATA-DGR

UN/ID No. : UN 3082

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Carfentrazone-ethyl)

Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Carfentrazone-ethyl)
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

TDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Carfentrazone-ethyl)
Class : 9
Packing group : III
Labels : 9
ERG Code : 171
Marine pollutant : yes
Remarks : Display "inhalation hazard" mark on package in accordance with TDG 4.23.

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

NPRI Components : Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified butan-1-ol

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

TCSI : On the inventory, or in compliance with the inventory

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version 1.10	Revision Date: 11/12/2025	SDS Number: 50001765	Date of last issue: 10/06/2022 Date of first issue: 05/01/2019
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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	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory
TECI	: Not in compliance with the inventory

Canadian lists

No substances are subject to a Significant New Activity Notification.

PMRA/PCPA Information

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. The following is the hazard information required on the pest control product label: Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product

CAUTION

Avoid breathing dust or spray mist., Avoid contact with skin, eyes and clothing., Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals., Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet., Remove and wash contaminated clothing before reuse., This product is toxic to fish and invertebrates.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA BC OEL / C	:	ceiling limit
CA QC OEL / TWAEV	:	Time-weighted average exposure value
CA QC OEL / C	:	Ceiling

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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SAFETY DATA SHEET

according to the Hazardous Products Regulations



AIM® EC HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 10/06/2022
1.10	11/12/2025	50001765	Date of first issue: 05/01/2019

implied, is made concerning the information provided herein. The information provided herein relates only to the specified product designated and may not be applicable where such product is used in combination with any other materials or in any process. The user is responsible for determining whether the product is fit for a particular purpose and suitable for the user's conditions and methods of use. Since the conditions and methods of use are beyond the control of FMC Corporation, FMC Corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.

CA / EN

Prepared by:

FMC Corporation

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End of Safety Data Sheet

TOLPYRALATE 400SC Herbicide

SECTION 1. IDENTIFICATION

Product Name:	Tolpyralate 400SC Herbicide
Synonyms:	SL-573 400SC, Shieldex 400SC Herbicide
Chemical Name:	Tolpyralate (1-[[1-ethyl-4-[3-(2-methoxyethoxy)-2-methyl-4-(methylsulfonyl)benzoyl]-1H-pyrazol-5-yl]oxy]ethyl methyl carbonate (CA))
Chemical Family:	Benzoyl pyrazole
Recommended Uses:	Agricultural industry: Herbicide
PMRA Registration No.:	32901
Company Identification:	ISK Biosciences Corporation 7470 Auburn Road, Suite A Concord, OH 44077-9703 (440) 357-4640
24 Hour Emergency Number:	For Transportation emergency, spills, leak, fire or accident call: CHEMTREC 1-800-424-9300 For Medical emergency call: 1-888-484-7546

SECTION 2. HAZARDS IDENTIFICATION

Hazard Classification: Specific target organ toxicity, repeated exposure (Category 2)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

Signal Word:

WARNING

Hazard Symbols:



Hazard Statements:

May cause damage to eye, liver and kidney through prolonged or repeated exposure.

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

Do not breathe dust/mist/vapors.

Avoid release to the environment.

Get medical attention if you feel unwell.

Collect spillage.

Dispose of contents and container in accordance with the product label.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS			
Chemical Name:	CAS #:	% by Weight:	TLV/PEL:
Active Ingredient: Tolpyralate*	1101132-67-5	35.7	Not established
Propylene glycol	57-55-6	5 – 10	Not established
*1-[[1-ethyl-4-[3-(2-methoxyethoxy)-2-methyl-4-(methylsulfonyl)benzoyl]-1 <i>H</i> -pyrazol-5-yl]oxy]ethyl methyl carbonate (CA)			

SECTION 4. FIRST-AID MEASURES	
Ingestion:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
Skin Contact:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Eye Contact:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Inhalation:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

SECTION 5. FIRE-FIGHTING MEASURES	
Extinguishing Media:	SMALL FIRE: Use carbon dioxide, foam or dry powder. LARGE FIRE: Use polar resistant foam or water fog. Avoid use of water jet.
Unusual Fire and Explosion Hazards:	May decompose under fire conditions emitting gases and vapors such as nitrous vapors, oxides of sulfur and carbon monoxide, which may be toxic and irritating to the respiratory tract.
Fire Fighting Instructions:	Wear full firefighting turn-out gear and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES	
Precautionary Measures:	Use protective equipment and engineering controls identified in section 8 of this document.
Containment and Clean-Up:	Contain spill. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Wash spillage area with water. Do not allow wash water to enter drains or surface waters. If in bodies of water, immediately discontinue human and animal consumption and contact local competent authorities.

SECTION 7. HANDLING AND STORAGE	
Precautions:	Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before use.
Storage:	Store in original container, in a secured, dry and cool place separate from fertilizer, food, and feed. Do not contaminate water, food or feed by storage or disposal.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The recommendations in this section for exposure controls and Personal Protection are intended for industrial settings (such as formulation or packaging facilities) or for other non-application situations.

For additional information, refer to the precautions/warnings on the product label. Always follow the label instructions when handling and using this product.

Exposure Limits: Not established.

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal Protection:

Ingestion: Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

Eye Contact: Where eye contact is likely, use protective eyewear (such as chemical splash goggles).

Skin Contact: Where contact is likely, wear chemical-resistant gloves (such as polyethylene, polyvinyl chloride (PVC), or nitrile rubber), coveralls over long-sleeved shirt and long pants, socks and chemical-resistant footwear.

Inhalation: A respirator is not normally required when handling sealed containers. Use effective engineering controls to comply with facility occupational exposure limits.

In case of emergency spills, use a NIOSH-approved particulate respirator with any N, R, P or HE filter.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance: Viscous off-white/yellow liquid

Odor: Mild paint/acrylic odor

pH: 7.33 @ 25°C

Boiling Point: 221°F (105°C)

Melting Point: Not available

Freezing Point: Not applicable

Evaporation Rate: Not available

Flash Point: None; substance boils and extinguishes flame at 221°F

Flammable Limits: Not established

Vapor Pressure: 5.9×10^{-4} Pa @ 25°C (active ingredient)

Vapor Density: Not available

Density: 1.102 g/mL

Solubility: Not available

N-Octanol/Water: $\text{Log}_{10}P_{ow} = 1.9$ (active ingredient)

Auto-Ignition Temperature: Not available

Decomposition Temperature: Not available

Volatility: Not available

SECTION 10. STABILITY AND REACTIVITY	
Reactivity:	No evidence of reactivity.
Stability:	This product is stable under normal use and storage conditions.
Possibility of Hazardous Reactions:	None known.
Conditions to Avoid:	Avoid contact with heat or open flame.
Incompatible Materials:	None known.
Hazardous Decomposition Products:	May decompose under fire conditions to release vapors or gases which are toxic and irritating to the respiratory tract.

SECTION 11. TOXICOLOGICAL INFORMATION	
Acute Toxicity:	Acute oral toxicity (LD ₅₀): > 2000 mg/kg [Rat] Acute dermal toxicity (LD ₅₀): > 2000 mg/kg [Rat] Acute inhalation toxicity (LC ₅₀): > 2.74 mg/L [actual airborne concentration]; > 311 mg/L (nominal) 4 hour(s) [Rat].
Skin Irritation:	Non-irritating; Primary dermal irritation index = 0 [Rabbit]
Eye Irritation:	Essentially non-irritating; Any observed redness subsided within 24 hours in test animals [Rabbit]
Sensitization:	Not a sensitizer
Mutagenicity:	No evidence of mutagenicity.
Carcinogenicity:	Tests on mice and rats exposed to tolpyralate showed no potential for carcinogenicity.
Reproductive Toxicity:	A two-generation study on rats with tolpyralate showed no evidence of reproductive toxicity at dietary doses of up to 1000 ppm (up to 90 mg/kg bw/day).
Target Organ Effects:	Ocular opacity was observed in rats and dogs at exposure levels ranging from 50 – 2000 ppm of tolpyralate. Systemic effects to liver and kidneys were seen at extremely high doses of 2000 ppm or greater.
Aspiration:	No data available.

SECTION 12. ECOLOGICAL INFORMATION	
Summary of Effects: Tolpyralate is practically non-toxic to birds, fish and aquatic invertebrates. Tolpyralate is highly toxic to terrestrial and aquatic plants.	
Ecotoxicity Data (Tolpyralate): Fish (Rainbow Trout) 96-hour LC ₅₀ > 1000 mg/L Invertebrate (<i>Daphnia magna</i>) 48-hour EC ₅₀ > 1000 mg/L Algae (<i>Pseudokirchneriella subcapitata</i>) 96-hour ErC ₅₀ > 1000 mg/L Aquatic plant (<i>Lemna gibba</i>) 7-day ErC ₅₀ : > 244 µg a.i./L; NOEC = 1.02 µg a.i./L Bobwhite Quail Acute LD ₅₀ > 2000 mg/kg body weight (practically non-toxic) Mallard Duck Acute LD ₅₀ > 2250 mg/kg body weight (practically non-toxic) Sub-Acute Dietary Bird LD ₅₀ > 5000 ppm in diet for both Quail and Mallard	
Persistence / Degradability:	Tolpyralate degrades rapidly with half-life values ranging from 0.2 to 1.2 days in aerobic soil. Hydrolysis is dependent on pH, with increasing pH causing faster degradation. Hydrolysis @ 25°C: DT ₅₀ = 311 days @ pH 4, 31 days @ pH 7, 8.5 hours @ pH 9.

SECTION 12. ECOLOGICAL INFORMATION (continued)	
Bioaccumulative Potential:	The potential for tolpyralate to bioaccumulate is extremely low (Log P _{ow} = 1.9).
Mobility in Soil:	Tolpyralate shows high to very high mobility in various soils under laboratory conditions, but field dissipation studies show limited downward movement through soil leaching.

SECTION 13. DISPOSAL CONSIDERATIONS	
Waste Disposal:	Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Disposal:	Nonrefillable container. DO NOT reuse or refill this container. Proper disposal procedures depend on the size and composition of the product container, so follow the disposal directions on the product label which are specific to the container.

SECTION 14. TRANSPORT INFORMATION		
US DOT Classification:	CLASS 9. Not regulated when shipped in non-bulk packaging by highway or rail.	
	Non-bulk (Ground Transport)	Bulk (Ground Transport)
Proper Shipping Name:	Not regulated	Environmentally Hazardous Substance, Liquid, N.O.S. (Tolpyralate)
Hazard Class:	Not regulated	Class 9
Identification Number:	Not regulated	UN 3082
Packing Group:	Not regulated	PG III
Hazardous Substances Reportable Quantity:	Not applicable.	
Special Provisions for Transport:	Class 9 placard not required for non-bulk packaging transported by highway or rail within the U.S. [49CFR 172.504(f)(9)].	
	IATA (Air Transport)	IMDG (Ocean Transport)
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Tolpyralate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TOLPYRALATE)
Hazard Class:	Class 9	CLASS 9
Identification Number:	UN 3082	UN 3082
Packing Group:	PG III	PG III

SECTION 15. REGULATORY INFORMATION	
U.S. Federal and State Regulations:	
SARA 313 Inventory Ingredients:	Not Listed
SARA 312 Hazards Classification:	None
Listed as carcinogen by:	
IARC:	Not Listed
NTP:	Not Listed
OSHA:	Not Listed
CA Prop 65:	Not Listed
TSCA:	Exempt, subject to FIFRA

SECTION 15. REGULATORY INFORMATION (Continued)

Canada (PMRA):

Registered under PCP No. 32943

This chemical is a pesticide product registered by the Pest Management Regulatory Agency and is subject to certain labeling requirements under federal law. PMRA requirements can differ from GHS classification criteria and hazard information required for safety data sheets in Section 2. Following is the hazard information as required by PMRA on the pesticide label:

Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash separately from other laundry before reuse. This product is toxic to aquatic organisms and non-target terrestrial plants. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. The use of Tolpyralate 400SC Herbicide in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

SECTION 16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1

Flammability: 1

Instability: 0

0 Minimal

1 Slight

2 Moderate

3 Serious

4 Extreme

Notice to Reader

All information contained in this Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion, the information as of the date of the Safety Data Sheet is reliable; however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you; and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee expressed or implied is made by ISK Biosciences Corporation as to the results to be obtained based upon your use of the information, nor does ISK Biosciences Corporation assume any liability arising out of your use of the information.

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