

SAFETY DATA SHEET

APTITUDE® HERBICIDE



Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	11.05.2023	50002800	Date of first issue: 11.05.2023

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : APTITUDE® HERBICIDE

Other means of identification : Carfentrazone+Metribuzin (10+38.5) WG

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

Company : FMC Australasia Pty Ltd

Address : Building B, Level 2, 12 Julius Avenue,
North Ryde NSW 2113
Australia

Telephone : +6161029887900

Telefax : +61610298870911

E-mail address : SDS-Info@fmc.com

Emergency telephone number : For leak, fire, spill or accident emergencies, call:
1800 033 111 (Ixm)

Medical emergency:
1 800 033 111 (Transport and 24 h Medical information)

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation) : Category 4

Serious eye damage/eye irritation : Category 2B

Specific target organ toxicity - repeated exposure : Category 2 (Blood, Thyroid)

GHS label elements

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- Hazard pictograms :
- Signal word : Warning
- Hazard statements : H320 Causes eye irritation.
H332 Harmful if inhaled.
H373 May cause damage to organs (Blood, Thyroid) through prolonged or repeated exposure.
- Precautionary statements : **Prevention:**
P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
Response:
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/ attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

Very toxic to aquatic life with long lasting effects.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
metribuzin (ISO)	21087-64-9	>= 30 -< 60
kaolin	1332-58-7	>= 10 -< 30
carfentrazone-ethyl (ISO)	128639-02-1	< 10
silica gel	112926-00-8	< 10
sodium dodecylbenzenesulfonate	25155-30-0	>= 1 -< 3

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.

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- | | |
|---|--|
| If inhaled | : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice. |
| In case of skin contact | : Wash off with soap and water.
Get medical attention 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 | : Induce vomiting immediately and call a physician.
Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital. |
| Most important symptoms and effects, both acute and delayed | : Causes eye irritation.
Harmful if inhaled.
May cause damage to organs through prolonged or repeated exposure. |
| Notes to physician | : Treat symptomatically. |
-

SECTION 5. FIREFIGHTING MEASURES

- | | |
|---|---|
| Suitable extinguishing media | : Dry chemical, CO ₂ , water spray or regular foam. |
| Unsuitable extinguishing media | : High volume water jet |
| Specific hazards during fire-fighting | : Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : Thermal decomposition can lead to release of toxic and irritating vapors.
Nitrogen oxides (NO _x)
Sulphur oxides
Carbon oxides
Hydrogen cyanide
Chlorine compounds
Fluorine compounds |
| Specific extinguishing methods | : 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 firefighters | : Wear self-contained breathing apparatus for firefighting if necessary. |

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Hazchem Code : 2Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation.
- 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 : Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.
- Advice on safe handling : Avoid formation of respirable particles.
Do not breathe vapours/dust.
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.
- Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.
- 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.
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

Components with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parameters / Permissible	Basis
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		exposure)	concentration	
metribuzin (ISO)	21087-64-9	TWA	5 mg/m3	AU OEL
		TWA	5 mg/m3	ACGIH
kaolin	1332-58-7	TWA	10 mg/m3	AU OEL
		TWA (Respirable particulate matter)	2 mg/m3	ACGIH
carfentrazone-ethyl (ISO)	128639-02-1	TWA (Inhalable particulate matter)	1 mg/m3	ACGIH
silica gel	112926-00-8	TWA	10 mg/m3	AU OEL
Further information: This value is for inhalable dust containing no asbestos and < 1% crystalline silica				

Personal protective equipment

- Respiratory protection : In case of dust exposure wear suitable personal respiratory protection and protective suit.
- Hand protection
Material : Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.
- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
- Skin and body protection : Dust impervious protective suit
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : granules
- Colour : light brown
- Odour : sweet, musty
- pH : 5 - 7
In a 1% aqueous dispersion
- Melting point/freezing point : No data available
- Boiling point/boiling range : Not applicable
- Flash point : Not applicable

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Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Will not burn
Self-ignition	:	No data available
Vapour pressure	:	not determined
Density	:	No data available
Solubility(ies)	:	
Water solubility	:	dispersible
Partition coefficient: n-octanol/water	:	Not applicable
Viscosity	:	
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The product is not oxidizing.
Particle size	:	not determined

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. Dust may form explosive mixture in air.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Strong oxidizing agents Strong acids and strong bases
Hazardous decomposition products	:	Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if inhaled.

Product:

Acute oral toxicity	:	LD50 (Rat, female): > 2,000 mg/kg Method: OECD Test Guideline 425
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 2.08 mg/l Exposure time: 4 h

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Test atmosphere: dust/mist
Method: OECD Test Guideline 403

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

Components:

metribuzin (ISO):

Acute oral toxicity : LD50 (Rat, female): 322 mg/kg

LD50 (Rat, male): 510 mg/kg

LD50 (Mouse): 700 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2.05 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Highest attainable concentration.

LC50 (Rat, male and female): > 0.648 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Highest attainable concentration.

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg

kaolin:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

LD50: > 2,000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): 36 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg
LD50: > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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carfentrazone-ethyl (ISO):

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: FIFRA 81.01
- Acute inhalation toxicity : LC50 (Rat): > 5.09 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rat): > 4,000 mg/kg
Method: US EPA Test Guideline OPP 81-2
Assessment: The substance or mixture has no acute dermal toxicity

silica gel:

- 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 : LC0 (Rat, male and female): > 0.14 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials
no mortality
- Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Remarks: Based on data from similar materials

sodium dodecylbenzenesulfonate:

- Acute oral toxicity : LD50 (Rat, male and female): 1,080 mg/kg
Method: OECD Test Guideline 401
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Product:

- Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
- Remarks : May cause skin irritation in susceptible persons.

Components:

metribuzin (ISO):

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

kaolin:

Method	:	OECD Test Guideline 404
Result	:	No skin irritation

carfentrazone-ethyl (ISO):

Species	:	Rabbit
Method	:	US EPA Test Guideline OPP 81-5
Result	:	No skin irritation

silica gel:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
Remarks	:	Based on data from similar materials

sodium dodecylbenzenesulfonate:

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

Serious eye damage/eye irritation

Causes eye irritation.

Product:

Species	:	Rabbit
Result	:	Mild eye irritation
Method	:	OECD Test Guideline 405

Remarks	:	Product dust may be irritating to eyes, skin and respiratory system.
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Components:

metribuzin (ISO):

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

kaolin:

Result	:	No eye irritation
Method	:	OECD Test Guideline 405

carfentrazone-ethyl (ISO):

Species	:	Rabbit
Assessment	:	No eye irritation

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Method : EPA OPP 81-4
Remarks : Minimal effects that do not meet the threshold for classification.

silica gel:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

sodium dodecylbenzenesulfonate:

Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Product:

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Not a skin sensitizer.

Components:

metribuzin (ISO):

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

kaolin:

Method : OECD Test Guideline 429
Result : Does not cause skin sensitisation.

carfentrazone-ethyl (ISO):

Species : Guinea pig
Method : US EPA Test Guideline OPP 81-6
Result : Does not cause skin sensitisation.

sodium dodecylbenzenesulfonate:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig

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Assessment : Does not cause skin sensitisation.

Chronic toxicity

Germ cell mutagenicity

Not classified based on available information.

Components:

metribuzin (ISO):

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

kaolin:

Genotoxicity in vitro : Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Remarks: No data available

carfentrazone-ethyl (ISO):

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

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: Metabolic activation
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Result: positive

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

Germ cell mutagenicity - Assessment : No genotoxic potential

silica gel:

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 : Species: Rat (male)
Application Route: Inhalation
Result: negative
Remarks: Based on data from similar materials

sodium dodecylbenzenesulfonate:

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Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Not classified based on available information.

Product:

Carcinogenicity - Assessment : This product contains crystalline silica (quartz) in a non-respirable form. Inhalation of crystalline silica is unlikely to occur from exposure to this product.
, Weight of evidence does not support classification as a carcinogen

Components:

metribuzin (ISO):

Species : Rat, male
Application Route : Oral
Exposure time : 2 Years
NOAEL : 1.3 mg/kg bw/day

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

carfentrazone-ethyl (ISO):

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

Species : Mouse, male and female
Application Route : Oral
Exposure time : 80 weeks
NOAEL : > 7,000 ppm
Result : negative

Species : Dog, male and female
Exposure time : 52 weeks
NOAEL : 150 mg/kg bw/day
Result : negative

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

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silica gel:

Species	: Rat
Application Route	: Oral
Exposure time	: 103 weeks
Method	: OECD Test Guideline 453
Result	: negative
Remarks	: Based on data from similar materials

sodium dodecylbenzenesulfonate:

Species	: Rat, male and female
Application Route	: Oral
Exposure time	: 2 years
Result	: negative

Reproductive toxicity

Not classified based on available information.

Components:

metribuzin (ISO):

Reproductive toxicity - Assessment	: Weight of evidence does not support classification for reproductive toxicity
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kaolin:

Effects on fertility	: Remarks: No data available
Effects on foetal development	: Remarks: No data available

carfentrazone-ethyl (ISO):

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

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silica gel:

Effects on fertility	:	Species: Rat General Toxicity - Parent: NOAEL: 1.5 mg/kg bw/day Fertility: NOAEL: > 6.9 mg/kg body weight
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Oral General Toxicity Maternal: NOAEL: 2 mg/kg bw/day Embryo-foetal toxicity: NOAEL: 2 mg/kg bw/day Symptoms: Reduced foetal weight, Reduced number of viable fetuses Test Type: Embryo-foetal development Species: Rabbit Application Route: Oral General Toxicity Maternal: NOAEL: 500 mg/kg bw/day Embryo-foetal toxicity: NOAEL: 500 mg/kg bw/day Symptoms: Reduced foetal weight, fused or incompletely ossified sternebrae

sodium dodecylbenzenesulfonate:

Effects on fertility	:	Species: Rat, male and female Application Route: Oral Method: OECD Test Guideline 422 Result: negative
Effects on foetal development	:	Species: Rat Application Route: Oral Method: OECD Test Guideline 422 Result: negative

STOT - single exposure

Not classified based on available information.

Components:

kaolin:

Remarks	:	No significant adverse effects were reported
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carfentrazone-ethyl (ISO):

Remarks	:	No significant adverse effects were reported
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sodium dodecylbenzenesulfonate:

Assessment	:	May cause respiratory irritation.
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STOT - repeated exposure

May cause damage to organs (Blood, Thyroid) through prolonged or repeated exposure.

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Components:

metribuzin (ISO):

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

kaolin:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
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carfentrazone-ethyl (ISO):

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

Components:

metribuzin (ISO):

Species	:	Rat
NOAEL	:	<5 mg/kg bw/day
Application Route	:	Oral
Exposure time	:	90-day

kaolin:

Remarks	:	No data available
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carfentrazone-ethyl (ISO):

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

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

silica gel:

Species	:	Rat, male and female
NOAEL	:	2,500 mg/kg
Application Route	:	Oral
Exposure time	:	13 weeks
Method	:	OECD Test Guideline 408
Remarks	:	Based on data from similar materials

Species	:	Rat, male and female
NOAEL	:	1.3 - 10 mg/l
LOAEL	:	5.9 mg/l
Application Route	:	Inhalation

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Exposure time : 13 weeks
Method : OECD Test Guideline 413
Remarks : Based on data from similar materials

sodium dodecylbenzenesulfonate:

Species : Rat, male and female
NOAEL : 100 mg/kg
LOAEL : 200 mg/kg
Application Route : Oral
Exposure time : 14 d
Method : OECD Test Guideline 422

Species : Rat, male
NOAEL : < 286 mg/kg
LOAEL : 286 mg/kg

Aspiration toxicity

Not classified based on available information.

Components:

carfentrazone-ethyl (ISO):

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

Neurological effects

Components:

carfentrazone-ethyl (ISO):

No neurotoxicity observed in animal studies

Further information

Product:

Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

metribuzin (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 74.6 mg/l
Exposure time: 96 h

LC50 (Leuciscus idus (Golden orfe)): 141.6 mg/l
Exposure time: 96 h

LC50 (Cyprinodon variegatus (sheepshead minnow)): 85 mg/l
Exposure time: 96 h

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Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 49.6 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 0.022 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	EC50 (activated sludge): 761 mg/l
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): 331.8 mg/kg
Toxicity to terrestrial organisms	:	LD50 (Colinus virginianus (Bobwhite quail)): 164 mg/kg LD50 (Anas platyrhynchos (Mallard duck)): 460 - 680 mg/kg LD50 (Apis mellifera (bees)): 35 µg/bee

kaolin:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 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 (Raphidocelis subcapitata (freshwater green alga)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: No data available
Toxicity to microorganisms	:	Remarks: No data available

carfentrazone-ethyl (ISO):

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 1.6 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): > 9.8 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Anabaena flos-aquae (cyanobacterium)): 0.012 mg/l Exposure time: 72 h NOEC (algae): 0.001 mg/l Exposure time: 96 h EC50 (Lemna gibba (gibbous duckweed)): 0.0057 mg/l Exposure time: 14 d

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

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

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

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

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

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

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

silica gel:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 10,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : NOELR (Desmodesmus subspicatus (green algae)): 10,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

sodium dodecylbenzenesulfonate:

Toxicity to fish : LC50 (Cyprinodon sp. (minnow)): 4.5 - 6.4 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 6.3 mg/l
Exposure time: 48 h

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Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Lemna minor (duckweed)): 2.7 mg/l
Exposure time: 7 d
Method: OECD Test Guideline 221

Toxicity to fish (Chronic toxicity) : NOEC (Fish): 3.2 mg/l
Exposure time: 30 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1.65 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50 (activated sludge): 500 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition
Method: OECD Test Guideline 209

Persistence and degradability

Components:

metribuzin (ISO):

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life (DT50): 7 d

kaolin:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

carfentrazone-ethyl (ISO):

Biodegradability : Result: Not readily biodegradable.

silica gel:

Biodegradability : Result: Not biodegradable
Remarks: Based on data from similar materials

sodium dodecylbenzenesulfonate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 75 %
Exposure time: 11 d
Method: OECD Test Guideline 301E

Bioaccumulative potential

Components:

metribuzin (ISO):

Bioaccumulation : Remarks: Does not bioaccumulate.

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Partition coefficient: n-octanol/water : log Pow: 1.6

kaolin:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : Remarks: Not applicable

carfentrazone-ethyl (ISO):

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

Partition coefficient: n-octanol/water : log Pow: 3.36 (20 °C)

silica gel:

Bioaccumulation : Bioconcentration factor (BCF): 3.16
Remarks: Based on data from similar materials

sodium dodecylbenzenesulfonate:

Bioaccumulation : Bioconcentration factor (BCF): 130
Exposure time: 3 d

Partition coefficient: n-octanol/water : log Pow: 1.96

Mobility in soil

Components:

metribuzin (ISO):

Distribution among environmental compartments : Koc: 24 - 106 ml/g, log Koc: > 1.38
Remarks: Highly mobile in soils

kaolin:

Distribution among environmental compartments : Remarks: Low mobility in soil

carfentrazone-ethyl (ISO):

Distribution among environmental compartments : 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.

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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- | | | |
|------------------------|---|--|
| Waste from residues | : | The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company. |
| Contaminated packaging | : | Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers. |

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

- | | | |
|----------------------|---|---|
| UN number | : | UN 3077 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Carfentrazone-ethyl, Metribuzin) |
| Class | : | 9 |
| Subsidiary risk | : | ENVIRONM. |
| Packing group | : | III |
| Labels | : | 9 (ENVIRONM.) |

IATA-DGR

- | | | |
|--|---|---|
| UN/ID No. | : | UN 3077 |
| Proper shipping name | : | Environmentally hazardous substance, solid, n.o.s.
(Carfentrazone-ethyl, Metribuzin) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | Miscellaneous |
| Packing instruction (cargo aircraft) | : | 956 |
| Packing instruction (passenger aircraft) | : | 956 |
| Environmentally hazardous | : | yes |

IMDG-Code

- | | | |
|----------------------|---|---|
| UN number | : | UN 3077 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Carfentrazone-ethyl, Metribuzin) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |
| EmS Code | : | F-A, S-F |
| Marine pollutant | : | yes |
| Remarks | : | Environmentally hazardous substances/Marine Pollutants in single or combination packaging containing a net quantity per |

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single or inner packaging of 5 kg or less for solids, or having a net quantity per single or inner packaging of 5 L or less for liquids may be transported as non-dangerous goods as provided in special provision A197 of the IATA and section 2.10.2.7 of IMDG code.

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

Not applicable for product as supplied.

National Regulations

ADG

UN number	: UN 3077
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Carfentrazone-ethyl, Metribuzin)
Class	: 9
Packing group	: III
Labels	: 9
Hazchem Code	: 2Z
Remarks	: Environmentally hazardous substances meeting the descriptions of UN 3077 or UN 3082 are not subject to the ADG Code when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg / liters, or IBCs

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

Safety, health and environmental regulations/legislation specific for the substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons	: Schedule 6
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APVMA Code: 69052

Prohibition/Licensing Requirements	: There is no applicable prohibition, authorisation and restricted use requirements, including for carcinogens referred to in Schedule 10 of the model WHS Act and Regulations.
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The components of this product are reported in the following inventories:

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TCSI	: On the inventory, or in compliance with the inventory
TSCA	: Product contains substance(s) not listed on TSCA inventory.
AIIC	: Not in compliance with the inventory
DSL	: This product contains the following components that are not on the Canadian DSL nor NDSL. ETHYL (RS)-2-CHLORO-3-{2-CHLORO-5-[4-(DIFLUOROMETHYL)-4,5-DIHYDRO-3-METHYL-5-OXO-1H-1,2,4-TRIAZOL-1-YL]-4-FLUOROPHENYL}PROPIONATE metribuzin (ISO)
ENCS	: Not in compliance with the inventory
ISHL	: Not 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

SECTION 16. OTHER INFORMATION

Revision Date	: 11.05.2023
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Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
AU OEL	: Australia. Workplace Exposure Standards for Airborne Contaminants.
ACGIH / TWA	: 8-hour, time-weighted average
AU OEL / TWA	: Exposure standard - time weighted average

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

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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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