ACURON HERBICIDE

Version	Revision Date:	SDS Number:	Date of last issue: 09/29/2022
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SECTION 1. IDENTIFICATION

Product name : ACURON HERBICIDE
Design code : A19707C

Product Registration number : 31846

Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Syngenta Canada Inc.
Address : 140 Research Lane, Research Park
Guelph ON N1G 4Z3
Canada

Telephone : 1-87-SYNGENTA (1-877-964-3682)
Telefax : 1-519-823-0504

E-mail address :

Recommended use of the chemical and restrictions on use

Recommended use : Herbicide

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Acute toxicity (Oral) : Category 4

Skin irritation : Category 2

Skin sensitisation : Sub-category 1B

Reproductive toxicity : Category 1B

Specific target organ toxicity - repeated exposure : Category 2 (Heart)

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs (Heart) through prolonged or repeated exposure.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
S-metolachlor	S-metolachlor	87392-12-9	23.4338
atrazine (ISO)	atrazine (ISO)	1912-24-9	10.9352
propane-1,2-diol	propane-1,2-diol	57-55-6	>= 5 - < 10 *
mesotrione (ISO)	mesotrione (ISO)	104206-82-8	2.6037
nitric acid ammonium salt (1:1)	nitric acid ammonium salt (1:1)	6484-52-2	>= 1 - < 5 *
benoxacor	benoxacor	98730-04-2	>= 1 - < 5 *
poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, phosphate	poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-	9046-01-9	>= 1 - < 5 *

	, phosphate		
amines, coco alkyl, ethoxylated	amines, coco alkyl, ethoxylated	61791-14-8	>= 1 - < 5 *
bicyclopyrone	bicyclopyrone	352010-68-5	0.651
copper dihydroxide	copper dihydroxide	20427-59-2	>= 0.1 - < 1 *

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

SECTION 4. FIRST AID MEASURES

General advice : Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

If inhaled : Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required.

If swallowed : If swallowed, seek medical advice immediately and show this container or label.
Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed : Nonspecific
No symptoms known or expected.
Harmful if swallowed.
Causes skin irritation.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Notes to physician : There is no specific antidote available.
Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
Alcohol-resistant foam
or
Water spray

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during fire- : As the product contains combustible organic components, fire

fighting		will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.
Further information	:	Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.
Special protective equipment for firefighters	:	Wear full protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. 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). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8.
Conditions for safe storage	:	No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
S-metolachlor	87392-12-9	TWA	5 mg/m3	Syngenta
atrazine (ISO)	1912-24-9	TWA	2 mg/m3	Syngenta
		TWA	5 mg/m3	CA AB OEL
		TWA	5 mg/m3	CA BC OEL
		TWAEV	5 mg/m3	CA QC OEL

		TWA (Inhalable particulate matter)	2 mg/m3	ACGIH
propane-1,2-diol	57-55-6	TWA (Vapour and aerosols)	50 ppm 155 mg/m3	CA ON OEL
		TWA (aerosol)	10 mg/m3	CA ON OEL
mesotrione (ISO)	104206-82-8	TWA	5 mg/m3	Syngenta
benoxacor	98730-04-2	TWA	1 mg/m3	Syngenta
bicyclopyrone	352010-68-5	TWA	0.7 mg/m3	Syngenta

Engineering measures : THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT. FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.
Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : No special protective equipment required.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Remove and wash contaminated clothing before re-use.

Protective measures	:	Wear as appropriate: Impervious clothing The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	No data available
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	3 - 7 Concentration: 1 %w/v
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	Method: method not specified does not flash
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	1.08 - 1.12 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	460 °C

Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	No decomposition if used as directed.
Incompatible materials	:	None known.
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity	:	LD50 (Rat, female): 1,750 mg/kg Remarks: Based on data from similar materials
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 2.56 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg Remarks: Based on data from similar materials

Components:

S-metolachlor:

Acute oral toxicity	:	LD50 (Rat, male and female): 2,672 mg/kg

Acute inhalation toxicity	:	LC50 (Rat, male and female): > 2.91 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 2,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

atrazine (ISO):

Acute oral toxicity	:	LD50 (Rat, male and female): 3,090 mg/kg
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.82 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, male and female): > 3,100 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

propane-1,2-diol:

Acute oral toxicity	:	LD50 (Rat): > 20,000 mg/kg Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rabbit): 317,042 mg/l Exposure time: 2 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

mesotrione (ISO):

Acute oral toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 4.75 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, male and female): > 2,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

nitric acid ammonium salt (1:1):

Acute oral toxicity : LD50 (Rat): 2,462 mg/kg

benoxacor:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,010 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

amines, coco alkyl, ethoxylated:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

bicyclopyrone:

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.21 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, male and female): > 5,000 mg/kg

copper dihydroxide:

Acute oral toxicity : LD50 (Rat): 489 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.47 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes skin irritation.

Product:

Species : Rabbit
Result : Irritating to skin.
Remarks : Based on data from similar materials

Components:

S-metolachlor:

Species : Rabbit
Result : No skin irritation

atrazine (ISO):

Species : Rabbit
Result : No skin irritation

propane-1,2-diol:

Result : No skin irritation

mesotrione (ISO):

Species : Rabbit
Result : No skin irritation

benoxacor:

Species : Rabbit
Result : No skin irritation

poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, phosphate:

Result : Irritating to skin.

amines, coco alkyl, ethoxylated:

Result : Corrosive after 3 minutes to 1 hour of exposure

bicyclopyrone:

Species : Rabbit
Result : No skin irritation

copper dihydroxide:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

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

Product:

Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

Components:

S-metolachlor:

Species : Rabbit
Result : No eye irritation

atrazine (ISO):

Species	:	Rabbit
Result	:	No eye irritation

propane-1,2-diol:

Result	:	No eye irritation

mesotrione (ISO):

Species	:	Rabbit
Result	:	No eye irritation

nitric acid ammonium salt (1:1):

Result	:	Eye irritation

benoxacor:

Species	:	Rabbit
Result	:	No eye irritation

poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, phosphate:

Result	:	Risk of serious damage to eyes.

amines, coco alkyl, ethoxylated:

Result	:	Irreversible effects on the eye

bicyclopyrone:

Species	:	Rabbit
Result	:	No eye irritation

copper dihydroxide:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Product:

Test Type	:	Local lymph node assay (LLNA)
Species	:	Mouse
Result	:	The product is a skin sensitiser, sub-category 1B.
Remarks	:	Based on data from similar materials

Components:

S-metolachlor:

Species : Guinea pig
Result : The product is a skin sensitiser, sub-category 1B.

atrazine (ISO):

Test Type : Maximisation Test
Species : Guinea pig
Result : The product is a skin sensitiser, sub-category 1A.

propane-1,2-diol:

Result : Does not cause skin sensitisation.

mesotrione (ISO):

Species : Guinea pig
Result : Does not cause skin sensitisation.

benoxacor:

Species : Guinea pig
Result : May cause sensitisation by skin contact.

bicyclopyrone:

Test Type : mouse lymphoma cells
Species : Mouse
Result : Does not cause skin sensitisation.

copper dihydroxide:

Species : Guinea pig
Result : Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

S-metolachlor:

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

atrazine (ISO):

Germ cell mutagenicity - Assessment : Did not show mutagenic or teratogenic effects in animal experiments.

propane-1,2-diol:

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

mesotrione (ISO):

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

Assessment

benoxacor:

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

bicyclopyrone:

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

copper dihydroxide:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects., Information given is based on data obtained from similar substances.

Carcinogenicity

Not classified due to lack of data.

Components:

S-metolachlor:

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

atrazine (ISO):

Carcinogenicity - Assessment : This substance has been reported to cause tumours in certain animal species., There is no evidence that these findings are relevant to humans.

propane-1,2-diol:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

mesotrione (ISO):

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

benoxacor:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

bicyclopyrone:

Carcinogenicity - Assessment : This substance has been reported to cause tumours in certain animal species., There is no evidence that these findings are relevant to humans., Weight of evidence does not support classification as a carcinogen

copper dihydroxide:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies., Information given is based on data obtained from similar substances.

Reproductive toxicity

May damage fertility or the unborn child.

Components:

S-metolachlor:

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.

atrazine (ISO):

Reproductive toxicity - Assessment : No toxicity to reproduction

propane-1,2-diol:

Reproductive toxicity - Assessment : No toxicity to reproduction, No effects on or via lactation
Animal testing did not show any effects on foetal development.

mesotrione (ISO):

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

benoxacor:

Reproductive toxicity - Assessment : No toxicity to reproduction

bicyclopyrone:

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility., These concentrations exceed relevant human dose levels., Clear evidence of adverse effects on development, based on animal experiments.

copper dihydroxide:

Reproductive toxicity - Assessment : No toxicity to reproduction, Information given is based on data obtained from similar substances.

STOT - single exposure

Not classified due to lack of data.

Components:

propane-1,2-diol:

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

STOT - repeated exposure

May cause damage to organs (Heart) through prolonged or repeated exposure.

Components:

S-metolachlor:

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

atrazine (ISO):

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

propane-1,2-diol:

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

mesotrione (ISO):

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

benoxacor:

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

bicyclopyrone:

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

copper dihydroxide:

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

Aspiration toxicity

Not classified due to lack of data.

Components:

propane-1,2-diol:

No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

S-metolachlor:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 1.23 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Americamysis): 1.4 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.077 mg/l Exposure time: 96 h

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.016 mg/l
End point: Growth rate
Exposure time: 96 h

EC50 (Lemna gibba (gibbous duckweed)): 0.023 mg/l
Exposure time: 14 d

NOEC (Lemna gibba (gibbous duckweed)): 0.0076 mg/l
Exposure time: 14 d

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.03 mg/l
Exposure time: 35 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Americamysis): 0.13 mg/l
Exposure time: 28 d

M-Factor (Chronic aquatic toxicity) : 10

atrazine (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4.5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Americamysis): 5.4 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.16 mg/l
Exposure time: 96 h

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.011 mg/l
End point: Growth rate
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : (Oncorhynchus mykiss (rainbow trout)): 0.06 mg/l
Exposure time: 21 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Americamysis): 0.26 mg/l
Exposure time: 28 d

NOEC (Daphnia magna Straus): 0.04 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

propane-1,2-diol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l
Exposure time: 96 h
Test Type: static test

Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : (Ceriodaphnia dubia (water flea)): 18,340 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 19,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (Water flea)): 13,020 mg/l
Exposure time: 7 d
Test Type: semi-static test

mesotrione (ISO):

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

LC50 (Cyprinus carpio (Carp)): > 97.1 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 900 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 12 mg/l
Exposure time: 96 h

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.75 mg/l
End point: Growth rate
Exposure time: 96 h

ErC50 (Lemna gibba (gibbous duckweed)): 0.0301 mg/l
Exposure time: 7 d

EC10 (Lemna gibba (gibbous duckweed)): 0.00187 mg/l
End point: Growth rate
Exposure time: 7 d

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 12.5 mg/l
Exposure time: 36 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 180 mg/l
Exposure time: 21 d

benoxacor:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.9 mg/l
Exposure time: 96 h

LC50 (Ictalurus punctatus (channel catfish)): 1.4 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 17 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 13.5 mg/l Exposure time: 72 h EC10 (Desmodesmus subspicatus (green algae)): 0.22 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0.31 mg/l Exposure time: 32 d NOEC (Oncorhynchus mykiss (rainbow trout)): 0.016 mg/l Exposure time: 21 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.354 mg/l Exposure time: 21 d

poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, phosphate:

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic to aquatic life.
Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

amines, coco alkyl, ethoxylated:

Ecotoxicology Assessment

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

bicyclopyrone:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 5.4 mg/l Exposure time: 96 h EC10 (Raphidocelis subcapitata (freshwater green alga)): 1.9 mg/l End point: Growth rate Exposure time: 96 h NOEC (Raphidocelis subcapitata (freshwater green alga)): 1

mg/l
End point: Growth rate
Exposure time: 96 h

ErC50 (Lemna gibba (gibbous duckweed)): 0.055 mg/l
Exposure time: 7 d

NOEC (Lemna gibba (gibbous duckweed)): 0.0032 mg/l
End point: Growth rate
Exposure time: 7 d

M-Factor (Acute aquatic toxicity)	:	10
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 10 mg/l Exposure time: 33 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 100 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	10
Toxicity to microorganisms	:	EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h

Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.

copper dihydroxide:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.012 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.041 mg/l
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.034 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0.023 mg/l Exposure time: 92 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.046 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	10

Persistence and degradability

Components:

S-metolachlor:

Biodegradability	:	Result: Not readily biodegradable.

Stability in water	:	Degradation half life: 53 - 147 d Remarks: Product is not persistent.

atrazine (ISO):

Biodegradability	:	Result: Not readily biodegradable.
Stability in water	:	Remarks: Product is not persistent.

propane-1,2-diol:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 81 % Exposure time: 28 d Method: OECD Test Guideline 301F

mesotrione (ISO):

Stability in water	:	Degradation half life: > 30 d (25 °C) Remarks: Persistent in water.

benoxacor:

Biodegradability	:	Result: Not readily biodegradable.

bicyclopyrone:

Biodegradability	:	Result: Not readily biodegradable.

Bioaccumulative potential

Components:

S-metolachlor:

Bioaccumulation	:	Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 3.05 (25 °C)

atrazine (ISO):

Bioaccumulation	:	Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 2.5 (25 °C)

mesotrione (ISO):

Bioaccumulation	:	Remarks: Low bioaccumulation potential.

benoxacor:

Bioaccumulation	:	Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 2.6 (25 °C)

bicyclopyrone:

Bioaccumulation	:	Remarks: No data available
Partition coefficient: n-octanol/water	:	log Pow: -1.9 (25 °C)

Mobility in soil

Components:

S-metolachlor:

Distribution among environmental compartments	:	Remarks: Moderately mobile in soils
Stability in soil	:	Dissipation time: 12 - 46 d Percentage dissipation: 50 % (DT50) Remarks: Product is not persistent.

atrazine (ISO):

Distribution among environmental compartments	:	Remarks: Highly mobile in soils
Stability in soil	:	Dissipation time: 38.5 d Percentage dissipation: 50 % (DT50) Remarks: Product is not persistent.

mesotrione (ISO):

Distribution among environmental compartments	:	Remarks: Highly mobile in soils
Stability in soil	:	Dissipation time: 6 - 105 d Percentage dissipation: 50 % (DT50) Remarks: Product is not persistent.

benoxacor:

Distribution among environmental compartments	:	Remarks: Moderately mobile in soils
Stability in soil	:	Dissipation time: 0.9 - 5.3 d Percentage dissipation: 50 % (DT50) Remarks: Product is not persistent.

bicyclopyrone:

Distribution among environmental compartments	:	Remarks: Very highly mobile in soil.
Stability in soil	:	Remarks: Product is not persistent.

Other adverse effects

Components:

atrazine (ISO):

Results of PBT and vPvB assessment	:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

mesotrione (ISO):

Results of PBT and vPvB assessment	:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

benoxacor:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

bicyclopyrone:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Refer to the product label for specific disposal/recycling information
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Refer to the product label for specific disposal/recycling information
Empty remaining contents.
Triple rinse containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(S-METOLACHLOR, ATRAZINE)
Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : yes
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(S-METOLACHLOR, ATRAZINE)
Class : 9

Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
Environmentally hazardous	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (S-METOLACHLOR, ATRAZINE)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

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

Not applicable for product as supplied.

National Regulations

TDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (S-METOLACHLOR, ATRAZINE)
Class	:	9
Packing group	:	III
Labels	:	9
ERG Code	:	171
Marine pollutant	:	yes(S-METOLACHLOR, ATRAZINE)
Remarks	:	Class 9 Exemption from Part 3, Documentation, and Part 4, Dangerous Goods Safety Marks, if transported solely on land by road vehicle or railway vehicle. 1.45.1. SOR/2008-34

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

Read the label, authorised under the Pest Control Products Act, prior to using or handling the pest control product

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.
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:
Warning, contains the allergen 1,2-benzisothiazolin-3-one
Warning
Skull and crossbones
poison
Skin irritant
Eye irritant
Potential skin sensitiser

Canadian PBT Chemicals : This product contains the following components on the DSL that are classified as Persistent, Bioaccumulative and/or Toxic (PBT) under CEPA:
octamethylcyclotetrasiloxane [D4]Cyclopentasiloxane, 2,2,4,4,6,6,8,8,10,10-decamethyl-

NPRI Components : nitric acid ammonium salt (1:1)
ethanediol
copper dihydroxide
Solvent naphtha (petroleum), heavy arom.; Kerosine — un-specified
hydrogen chloride
propan-2-ol
toluene
naphthalene
xylene
ethylbenzene
nitric acid sodium salt

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

DSL : This product contains the following components that are not on the Canadian DSL nor NDSL.
bicyclopyrone

S-metolachlor

mesotrione (ISO)

benzenesulfonic acid, C10-13-alkyl derivs., calcium salts

Oxirane, 2-methyl-, polymer with oxirane

benoxacor

Canadian lists

The following substance(s) is/are subject to a Significant New Activity Notification:
atrazine (ISO) 1912-24-9

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

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 ON OEL	:	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Syngenta	:	Syngenta Occupational Exposure Limit
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 ON OEL / TWA	:	Time-Weighted Average Limit (TWA)
CA QC OEL / TWAEV	:	Time-weighted average exposure value
Syngenta / TWA	:	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 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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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / EN