

SECTION 1: Identification
1.1. Identification

Product form : Mixture
 Product name : INFERNO® TRIO
 Other means of identification : PMRA# 33273

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use : Herbicide
 Restrictions on use : Agriculture, For professional users only

1.3. Details of the supplier of the safety data sheet

Arysta LifeScience Canada, Inc.
 400 Michener Road, Unit 2
 Guelph, Ontario N1K 1E4 - Canada
 T 1-866-761-9397
sds@arysta.com

1.4. Emergency telephone number

Emergency number : Exposure calls (PROPHARMA): 1-866-303-6952 or +1-651-603-3432 (international)
 Spill calls (CHEMTREC) (Contract # CCN1779): +1-800-424-9300 or +1-703-527-3887 (international)

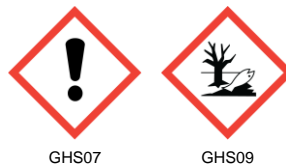
SECTION 2: Hazards identification
2.1. Classification of the substance or mixture
GHS-US classification

Skin Irrit. 2 H315
 Eye Irrit. 2B H320
 Skin Sens. 1 H317
 Aquatic Acute 1 H400
 Aquatic Chronic 1 H410

Full text of hazard classes and H-statements : see section 16

2.2. Label elements
GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H315 - Causes skin irritation.
 H317 - May cause an allergic skin reaction.
 H320 - Causes eye irritation
 H400 - Very toxic to aquatic life.
 H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 - Wash hands, forearms and face thoroughly after handling.
 P272 - Contaminated work clothing must not be allowed out of the workplace
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352 - If on skin: Wash with plenty of water/...
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P321 - Specific treatment (see supplemental first aid instruction on this label)
 P332+P313 - If skin irritation occurs: Get medical advice/attention.
 P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
 P337+P313 - If eye irritation persists: Get medical advice/attention.
 P362+P364 - Take off contaminated clothing and wash it before reuse.

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P363 - Wash contaminated clothing before reuse.
P391 - Collect spillage.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	% (w/w)	GHS-US classification
Surfactant 1	(CAS-No.) trade secret	40 - 50	Eye Irrit. 2B, H320
carfentrazone-ethyl (ISO) (Active)	(CAS-No.) 128639-02-1	1 - 3	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Flucarbazon sodium (Active)	(CAS-No.) 181274-17-9	1 - 3	Not classified
florasulam (ISO) (Active)	(CAS-No.) 145701-23-1	1 - 3	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Surfactant 2	(CAS-No.) trade secret	1 - 3	Skin Irrit. 2, H315 Eye Dam. 1, H318
Polymer/emulsifier	(CAS-No.) trade secret	1 - 3	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Distillates (petroleum), hydrotreated light	(CAS-No.) 64742-47-8	1 - 3	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Artificial respiration and/or oxygen if necessary.
First-aid measures after skin contact	: Wash skin thoroughly with mild soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Burning produces irritating, toxic and noxious fumes.
Reactivity	: No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Do not get in eyes, on skin, or on clothing. Do not breathe vapour. Do not breathe aerosol. Use personal protective equipment as required.

6.1.1. For non-emergency personnel

Protective equipment : Refer to section 8.2.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Refer to section 8.2.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe aerosol. Do not breathe vapours. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. Use personal protective equipment as required.
Hygiene measures : Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well ventilated place.
Incompatible products : Strong bases. Strong acids. Strong oxidizers.
Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

INFERNO® TRIO	
ACGIH	Not applicable
OSHA	Not applicable
Flucarbazone sodium (181274-17-9)	
ACGIH	Not applicable
OSHA	Not applicable
florasulam (ISO) (145701-23-1)	
ACGIH	Not applicable
OSHA	Not applicable
carfentrazone-ethyl (ISO) (128639-02-1)	
ACGIH	Not applicable

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carfentrazone-ethyl (ISO) (128639-02-1)	
OSHA	Not applicable

Surfactant 2 (trade secret)	
ACGIH	Not applicable
OSHA	Not applicable

Distillates (petroleum), hydrotreated light (64742-47-8)	
ACGIH	Not applicable
OSHA	Not applicable

Polymer/emulsifier (trade secret)	
ACGIH	Not applicable
OSHA	Not applicable

Surfactant 1 (trade secret)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Appropriate engineering controls

Appropriate engineering controls : Avoid creating mist or spray. Avoid splashing. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Hand protection:

Wear suitable gloves resistant to chemical penetration. Butyl rubber. Nitrile rubber. neoprene gloves. Latex gloves. Viton

Eye protection:

Chemical goggles or safety glasses

Skin and body protection:

Wear suitable protective clothing. Long sleeved protective clothing

Respiratory protection:

In case of inadequate ventilation wear respiratory protection.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: tan
Odour	: mild characteristic
Odour threshold	: No data available
pH	: 4.65
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 93 °C
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available

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Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Vapour pressure	: No data available
Relative density	: No data available
Relative vapour density at 20 °C	: No data available
Density	: 1.0931 g/ml @ 25 °C
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 940 mPa.s @ 25 °C

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6. Hazardous decomposition products

None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Inhalation; Skin and eye contact

Acute toxicity : Not classified

INFERNO® TRIO	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 2.13 mg/l/4h
Flucarbazone sodium (181274-17-9)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 5.13 mg/l/4h
florasulam (ISO) (145701-23-1)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 5.09 mg/l/4h
carfentrazone-ethyl (ISO) (128639-02-1)	
LD50 oral rat	5143 mg/kg
LD50 dermal rat	> 4000 mg/kg
LC50 inhalation rat (mg/l)	> 5.09 mg/l/4h

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carfentrazone-ethyl (ISO) (128639-02-1)	
ATE US (oral)	5143 mg/kg bodyweight
Surfactant 2 (trade secret)	
LD50 oral rat	> 3000 mg/kg
LD50 dermal rabbit	> 10000 mg/kg male
Distillates (petroleum), hydrotreated light (64742-47-8)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
Surfactant 1 (trade secret)	
LD50 oral rat	> 5000 mg/kg No mortality observed
LD50 dermal rabbit	> 2000 mg/kg Read-across category approach, no mortality observed

Skin corrosion/irritation	: Causes skin irritation. Irritating to rabbits on cutaneous application
Serious eye damage/irritation	: Causes eye irritation. Irritating to rabbits on ocular application
Respiratory or skin sensitisation	: May cause an allergic skin reaction. OECD Guidelines Number 429: Skin Sensitization: Local Lymph Node Assay
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

florasulam (ISO) (145701-23-1)	
LOAEL (oral, rat, 90 days)	500 mg/kg bodyweight/day
Aspiration hazard	: Not classified
Symptoms/effects after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

Flucarbazone sodium (181274-17-9)	
LC50 fish 1	> 96.7 mg/l 96 h oncorhynchus mykiss
LC50 other aquatic organisms 1	6.4 mg/l 96 h green algae
EC50 Daphnia 1	38.8 mg/l 48 h
LC50 fish 2	> 99.3 mg/l 96 h bluehill

florasulam (ISO) (145701-23-1)	
LC50 fish 1	> 100 mg/l 96 h
EC50 Daphnia 1	> 292 mg/l 48 h
EC50 other aquatic organisms 1	0.00118 mg/l Lemna gibba
NOEC (chronic)	38.9 mg/l 21-d daphnia magna
NOEC chronic fish	119 mg/l 28-d

carfentrazone-ethyl (ISO) (128639-02-1)	
LC50 fish 1	1.6 mg/l 96 h
EC50 Daphnia 1	> 9.8 mg/l 48 h
NOEC (chronic)	0.22 mg/l 21-d crustacea
NOEC chronic fish	0.0187 mg/l 21-d

Surfactant 2 (trade secret)	
LC50 fish 1	27 mg/l 96 h
EC50 Daphnia 1	6.6 mg/l 48 h
EC50 Daphnia 2	10.3 mg/l 48 h

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Distillates (petroleum), hydrotreated light (64742-47-8)	
LC50 fish 1	25 mg/l 96 h Oncorhynchus mykiss
EC50 Daphnia 1	1.4 mg/l 48 h

12.2. Persistence and degradability

INFERNO® TRIO	
Persistence and degradability	Not established.
florasulam (ISO) (145701-23-1)	
Persistence and degradability	Not readily biodegradable. Not expected to persist.
carfentrazone-ethyl (ISO) (128639-02-1)	
Persistence and degradability	Not readily biodegradable. Not expected to persist. Hydrolyses.
Surfactant 2 (trade secret)	
Biodegradation	100 % 28 d
Surfactant 1 (trade secret)	
Persistence and degradability	Readily biodegradable.
Biodegradation	75 % 29 d

12.3. Bioaccumulative potential

INFERNO® TRIO	
Bioaccumulative potential	Not established.
Flucarbazon sodium (181274-17-9)	
Bioconcentration factor (BCF REACH)	3 (estimated)
florasulam (ISO) (145701-23-1)	
Bioconcentration factor (BCF REACH)	< 2.21
Log Kow	-1.79 - 1.11 25 °C
carfentrazone-ethyl (ISO) (128639-02-1)	
Bioaccumulative potential	Not potentially bioaccumulable.
Surfactant 1 (trade secret)	
BCF fish 1	2.41
Log Pow	> 6.2

12.4. Mobility in soil

Flucarbazon sodium (181274-17-9)	
Mobility in soil	mobile in soil; Koc = 36 (estimated)
florasulam (ISO) (145701-23-1)	
Ecology - soil	Mobile.

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Transportation of Dangerous Goods

Transport document description : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (florasulam (ISO), carfentrazone-ethyl (ISO)), 9, III

UN-No. (TDG) : UN 3082

Proper Shipping Name (Transportation of Dangerous Goods) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

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TDG Primary Hazard Classes	: 9 - Class 9 - Miscellaneous Products, Substances or Organisms
Packing group	: III - Minor Danger
TDG Special Provisions	: Small means of containment (< = 450 L) Not Regulated; Large means of containment (> 450 L) Regulated as stated

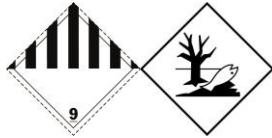
Transport by sea

IMDG

Transport hazard class(es) (IMDG)	: 9
	: 
Marine pollutant	: Yes
UN-No. (IMDG)	: 3082
Transport document description (IMDG)	: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (florasulam (ISO), carfentrazone-ethyl (ISO)), 9, III, MARINE POLLUTANT
Class (IMDG)	: 9 - Miscellaneous dangerous substances and articles
Packing group (IMDG)	: III - substances presenting low danger
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F

Air transport

IATA

Transport hazard class(es) (IATA)	: 9
	: 
Marine pollutant	: Yes
UN-No. (IATA)	: 3082
Transport document description (IATA)	: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (florasulam (ISO), carfentrazone-ethyl (ISO)), 9, III
Class (IATA)	: 9 - Miscellaneous Dangerous Goods
Packing group (IATA)	: III - Minor Danger

SECTION 15: Regulatory information

CANADA

Flucarbazono sodium (181274-17-9)
Not listed on the Canadian DSL (Domestic Substances List) inventory.
florasulam (ISO) (145701-23-1)
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
carfentrazone-ethyl (ISO) (128639-02-1)
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
Surfactant 2 (trade secret)
Listed on the Canadian DSL (Domestic Substances List) inventory.
Polymer/emulsifier (trade secret)
Listed on the Canadian DSL (Domestic Substances List) inventory.
Surfactant 1 (trade secret)
Listed on the Canadian DSL (Domestic Substances List) inventory.

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SECTION 16: Other information

Data sources : European Chemicals Agency (ECHA) Registered Substances list. Accessed at <http://echa.europa.eu/>. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition. National Fire Protection Association. Fire Protection Guide to Hazardous Materials; 10th edition. OSHA 29CFR 1910.1200 Hazard Communication Standard. REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. TSCA Chemical Substance Inventory. Accessed at <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>.

Other information : None.

Full text of H-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Eye Irrit. 2B	Serious eye damage/eye irritation, Category 2B
Flam. Liq. 3	Flammable liquids, Category 3
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H320	Causes eye irritation
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Abbreviations and acronyms:

	ACGIH (American Conference of Government Industrial Hygienists)
	ATE: Acute Toxicity Estimate
	CAS (Chemical Abstracts Service) number
	CLP: Classification, Labelling, Packaging.
	EC50: Environmental Concentration associated with a response by 50% of the test population.
	GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).
	LD50: Lethal Dose for 50% of the test population
	OSHA: Occupational Safety & Health Administration
	TSCA: Toxic Substances Control Act

Indication of changes:

Product identifier.

SDS Prepared by: The Redstone Group, LLC.
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614.923.7472
www.redstonegrp.com

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product