1. IDENTIFICATION OF THE SUBSTANCE

Product name: Advantage Glufosinate Ammonium 150 SN Herbicide and Desiccant

Company Identification: Advantage Crop Protection Ltd.
620 4th Ave East
Regina, Saskatchewan Canada S4N 4Z5

Telephone: 1-888-931-2530

Emergency Phone: Canutec 1-613-996-6666

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to GHS

Acute hazards to aquatic environment-Category 3

2.2 Label elements

Labelling according to GHS

Pictogram None

Signal word None

Hazard statement(s)

H402: Harmful to aquatic life.

Precautionary statement(s)

P273: Avoid release to the environment.

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

2.3 Other hazards

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: phosphinic acid herbicide

Ingredient Name	CAS Number	Concentration(w/v)
Glufosinate ammonium	77182-82-2	150 g/L
Other Ingredients	-	To 1 liter

4. FIRST AID MEASURES

General information

Eyes: Flush with plenty of water. Get medical attention if irritation persists.

Skin: Remove contaminated clothing. Wash skin immediately with plenty of soap and water. Get medical attention if irritation occurs.

Ingestion: Rinse mouth thoroughly with plenty of water. Do not induce vomiting. Get medical attention immediately.

Inhalation: Remove individual to fresh air. Get medical attention if breathing difficulty develops.

Advice to doctor

Special notes to a physician: Endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration. Respiratory, Cardiac and Central Nervous Systems should be monitored with particular regard

to ECG, electrolyte balance (especially for potassium) and signs of increased intracranial pressure. In the event of a large exposure, dialysis and/or hemoperfusion should be conducted as soon as possible to eliminate the compound from the body. In the event of convulsions, administer Phenobarbital or diazepam. There is no specific antidote. Glufosinate- ammonium does not inhibit cholinesterase; thus atropine and 2-PAM are contraindicated. Recovery is normally spontaneous, usually within 48h.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Water fog, fine water spray, foam, dry chemical, carbon dioxide.

Hazards from Combustion products

In a fire, irritant and toxic fumes containing oxides of carbon, nitrogen, phosphorus and sulphur,
and other toxic substances may be generated.

Precautions for fire fighters

Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water or other extinguishing agent and spillage safely later.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Isolate hazard area. Keep unauthorized people away. Avoid contactwith spilld product or contaminated surfaces.

Environmental precautions: Do not apply directly to water, or to areas where surface water is present. Do not aply to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters or rinsate.

Methods and materials for containment and cleaning up:

Soak up with inert absorbent material (e.g.sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

7. HANDLING AND STORAGE

Handling

Keep out of reach of children. Harmful if absorbed by skin contact or if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water. Wash hands after use. After each day's use, wash gloves, face shield or goggles, respirator if worn, and contaminated clothing.

Storage

Store in the closed, original container in a cool, dry, well-ventilated area. Do not store for prolonged periods in direct sunlight. Keep away from all ignition sources. Keep the

container tightly closed, and protect from moisture. Do not store in steel or aluminium containers. The product should be stored between 5 °C and 30 °C.

Flammability

Not flammable under conditions of use. Not classified as a combustible liquid, as the boiling point (96°C) is less than the fire point (> 96°C). The product does not sustain combustion.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure standards

NOHSC Exposure Standards:

Propylene glycol monomethyl ether (1-methoxy-2-propanol) TLV-TWA 100 ppm, 369 mg/m^3 , TLV-STEL 150 ppm, 553 mg/m^3

Exposure standard – Time Weighted Average (TWA) means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

Exposure standard – Short term exposure limit (STEL) means a 15 minute TWA exposure which should not be exceeded at any time during the working day.

Biological limit

None allocated.

Engineering controls

Control process conditions to avoid contact. Use only in well-ventilated areas. If necessary, use local exhaust ventilation to keep airborne concentration below the exposure limits.

Personal Protective

Wear face shield or goggles

Equipment

Wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat.

Wear elbow-length PVC or nitrile gloves.

If working in a poorly ventilated area or if occupational exposure levels are likely to be exceeded, wear a respirator suitable for organic vapours - AS/NZS 1715/1716 approved.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Blue liquid.

pH: 7.27

Relative Density: 1.08 g/cm^3

Melting point/freezing point: No data available.

Flash point: No data available.

Evaporation rate: No data available.

Flammability (solid, gas): Not applicable.

Vapor pressure: No data available.

Solubility: Soluble in water

Partition coefficient: No data available.
Auto-ignition temperature: No data available.
Decomposition temperature: No data available.

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions of use.
Conditions to avoid: Avoid sources of ignition and extreme heat.
Incompatible: Avoid contact with strong oxidising agents, acids or bases. Ammonia may be evolved in the materials presence of alkalis.
Hazardous: Ammonia. In a fire, oxides of carbon, nitrogen, phosphorus and sulphur may be emitted.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD_{50} (rat): >5000 mg/kg.
Acute Dermal LD_{50} (rat): > 2000 mg/kg.
Acute Inhalation LC_{50} (rat-4hrs): >5.212 mg/l
Skin irritation(rat): non-irritation
Eye irritation(rabbit): non-irritation
Sensitization(Guinea pig): non-sensitizing.
Chronic toxicity: No data available.
Carcinogenicity: None.
Teratogenicity: No data available.
Mutagenicity: No mutagenic activity was detected in a battery of mutagenicity tests.
Neurotoxicity: No data available.
Reproductive toxicity: No data available.

12. ECOLOGICAL INFORMATION

Toxicity
Fish:
LC50 for *Danio rerio*: 53.59 mg/L (96 h)
Aquatic invertebrates:
EC50 for *Daphnia manga* : > 100 mg/L, (48 h)
Algae:
EC50 for *Pseudokirchneriella subcapitata* : 80.49 mg/L, (96 h)
Earthworms:
LC50 for *Eisenia foetida* : > 1,000 mg/kg soil
Birds:
LC50 for *Coturnix coturnix japonica* : 1812.66 mg/kg b.w.
Persistence and degradability
This product is considered to be readily biodegradable. The potential for groundwater contamination with glufosinate ammonium is minimal.
Bioaccumulative potential

Glufosinate-ammonium does not accumulate in the fatty tissues of fish or other animals.

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

10 litre packs

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Do not re-use empty container for any other purpose. Dispose of waste product through a reputable waste contractor.

120, 500, 1000 litre packs

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty container by pumping through dry-break connection system. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products. Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed and drained after each use. When empty, or contents no longer required, return the container to the point of purchase.

14. TRANSPORT INFORMATION

PRODUCT NOT FOUNDED IN THE RESOLUTION IN FORCE ON TRANSPORT OF DANGEROUS GOODS.

ACPL Glufosinate 150 SN under DG inclusion 2.28-2.35 does not qualify as a Dangerous Good. All criteria exceed exemption status as stated in MSDS sheet.

15. REGULATORY INFORMATION

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

This safety data sheet complies with the requirements of GHS (third revised edition).

16. OTHER INFORMATION

This information is provided in good faith but without express or implied warranty. Buyer assumes all responsibility for safety and use not in accordance with label instruction.