SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **Apparent Bromoxynil 200 Herbicide**

Other Names:	Bromoxynil as the n-octanoyl ester, Nitrile herbicide, Group 6 Herbicide.
Use:	A liquid broadleaf agricultural herbicide.
Company:	AIRR Apparent Pty Ltd
Address:	15/16 Princes Street, Newport NSW 2106
Phone Number:	03 5820 8400
Email:	enquiries@apparentag.com.au
Emergency Contact:	0437 303 689

SECTION 2 HAZARDS IDENTIFICATION

Classified as hazardous according to criteria of Safe Work Australia.
Not classified as a Dangerous Good according to the ADG Code.
Combustible Liquid (C1).

Globally Harmonised System (GHS) classification of the substance/mixture:

Flammable Liquids – Category 4.
Aspiration Hazard: Category 2.
Acute Toxicity – Inhalation: Category 4.
Carcinogenicity: Category 1.
Toxic to Reproduction: Category 2.
Sensitization –Skin: Category 1, 1A, 1B.
Specific Target Organ Toxicity (Single Exposure): Category 3.
Hazardous to the Aquatic Environment – Long-Term Hazard – Category 1.

Signal Word: DANGER.

Hazard statements:

H227	Combustible liquid.
H305	May be harmful if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H410	Very toxic to aquatic life with long lasting effects.
AUH066	Repeated exposure may cause skin dryness and cracking.

Precautionary Statements:

Prevention:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces: — No smoking.
P261	Avoid breathing mist, vapours or spray.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

SECTION 2 HAZARDS IDENTIFICATION (Continued)

Response:

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P321	Specific treatment (see Safety Directions on the product label).
P331	Do NOT induce vomiting.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use carbon dioxide, foam or dry agent for extinction.
P391	Collect Spillage.

Storage:

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Disposal:

P501	Dispose of contents/container in accordance with national regulations.

Pictograms:



SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION*
Bromoxynil present as the n-octanoyl ester	1689-99-2	200 g/L
Hydrocarbon liquid	64742-95-6	616 g/L
Other ingredients (including water) determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES

FIRST AID

Ingestion: If swallowed do NOT induce vomiting. Wash mouth with water. If poisoning occurs, contact a Doctor or Poisons Information Centre, Phone 131 126. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Eye contact: Immediately hold eyes open and flood gently with clean water. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. If irritation persists, seek medical advice.

Skin contact: Remove contaminated clothing. Wash skin with soap and water to remove chemical. If skin is irritated, seek medical advice.

Inhalation: Remove to fresh air and observe until recovered. If effects persist, seek medical advice. In severe case, symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Advice to Doctor: The formulation contains liquid hydrocarbons that can cause severe pneumonitis or fatal pulmonary oedema if aspirated. Consideration should be given to gastric lavage with an endotracheal tube in place. Treat Symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Combustible liquid (C1). Flash point 68°C.

Extinguishing media: Extinguish fire using carbon dioxide, foam or dry agent. If not available, use waterfog or fine water spray but ensure all runoff is contained. Contain all runoff.

Hazards from combustion products: Sealed, overheated containers may present an explosion hazard. Thermal decomposition and burning will produce toxic by-products. Fire-fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or smoke.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind residents. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke or vapours generated.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Emergency procedures: Extinguish all sources of ignition. Wear elbow-length PVC gloves and face-shield. In the case of spillage, contain and absorb spilled material with absorbent material such as sand, clay, cat litter or material such as vermiculite and dispose of waste as per the requirements of Local or State Waste Management Authorities. Wear prescribed protective clothing and equipment. Keep out animals and unprotected persons.

Material and methods for containment and cleanup procedures: To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: No smoking, eating or drinking should be allowed where material is used or stored. Product is poisonous if inhaled or swallowed. May irritate the eyes and skin. Avoid contact with eyes and skin. Do not inhale spray mist. When preparing spray wear elbow-length PVC gloves and face-shield. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves and face shield.

Conditions for Safe Storage: Store in the closed, original container in a well ventilated area away from children, animals, food, feedstuffs, seed and fertilisers. Do not store for prolonged periods in direct sunlight. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations. This product is classified as a C1 (Combustible Liquid) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to state regulations for storage and transport requirements.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:
Exposure guidelines have not been established for this product by Safe Work Australia. However the following standard may apply:

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m³)
Aromatic hydrocarbons	100 ppm	Not set

TWA = Time-weight Average

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Use in well ventilated areas adequate to keep exposure below the TWA. Keep containers closed when not in use. Generally natural ventilation is sufficient.

Personal Protective Equipment (PPE):
General: When preparing spray wear elbow-length PVC gloves and face-shield. After each use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves and face shield.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Hygiene: Product is poisonous if inhaled or swallowed. May irritate the eyes and skin. Avoid contact with eyes and skin. Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber coloured liquid.
Odour:	Mild hydrocarbon odour.
Boiling point:	Approximately 100°C.
Freezing point:	Approximately 0°C.
Specific Gravity:	1.03 approx at 20°C.
Solubility in Water:	Emulsifies in water.
pH:	No data available.
Flammability:	Combustible liquid (C1).
Corrosive hazard:	Not corrosive.
Flashpoint (°C):	68°C.
Flammability Limits (%):	No data.
Poisons Schedule:	This product is a Schedule 6 (S6) poison.
Formulation type:	Emulsifiable Concentrate.

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight.

Incompatible materials: Strong oxidising agents - may react violently.

Hazardous decomposition products: On burning will emit toxic and noxious fumes.

Hazardous reactions: Hazardous polymerisation will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Potential Health Effects:

ACUTE EFFECTS

Swallowed: Harmful if swallowed. Acute oral LD_{50} for bromoxynil 238 mg/kg. Possible symptoms of poisoning with bromoxynil include headache, nausea, dizziness, muscle weakness, slowed heart rate, shortness of breath, central nervous system effects, benzoic acid in the urine, incontinence, cyanosis and exhaustion following repeated muscle spasms. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result.

Skin: May irritate the skin especially with prolonged or repeated exposure. May produce skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Avoid skin contact. Acute dermal LD_{50} > 2000 mg/kg (bromoxynil).

Eye: This product is an eye irritant. Prolonged contact with the concentrate may cause damage to the eye.

Inhaled: Acute inhalation LD_{50} > 0.72 mg/L/4hrs (bromoxynil). Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and incoordination. Avoid breathing vapour or spray mist.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Long Term Exposure:

Chronic toxicity: In one documented case of chronic exposure (about 1 year) of humans to Bromoxynil, workers showed symptoms of weight loss, fever, vomiting, headache, and urinary problems. Studies have shown that Bromoxynil has no effect on rats given dietary doses of 15 and 50 mg/kg/day for 90 days. Doses up to 5 mg/kg/day for 2 years had no impact on blood chemistry or urine.

Reproductive effects: No changes in reproduction were noted in female rats fed 15 mg/kg/day of Bromoxynil over three generations. This suggests that Bromoxynil does not cause reproductive effects.

Teratogenic effects: Bromoxynil is a suspected teratogen. Bromoxynil produced birth defects in rats at oral doses above 35 mg/kg. Toxic effects included abnormal rib formation and reduced foetal weight. Newborn rabbits had birth defects when Bromoxynil was administered to pregnant mothers at doses above 30 mg/kg. In the rabbit, birth defects included changes in bone formation in the skull and hydrocephaly.

Mutagenic effects: No data are currently available.

Carcinogenic effects: Rats fed Bromoxynil at low levels of 5 mg/kg and below did not develop any cancer related effects.

Organ toxicity: No data were available regarding the target organs affected by Bromoxynil.

Fate in humans and animals: No Bromoxynil was present in the milk or faeces of cows 9 days after exposure to low doses of the herbicide. Less than 20% of the compound was excreted in urine as the parent compound.

Safe Work Australia has classified bromoxynil in the occupational environment as toxic to reproduction Category 3 substance. Safe Work Australia has classified the aromatic hydrocarbon contained in this product in the occupational environment as carcinogenic and mutagenic Category 2 substance.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Bromoxynil is highly toxic to pheasants (LD_{50} = 50 mg/kg) and is moderately toxic to hens (LD_{50} = 240 mg/kg), quail (LD_{50} of 100 mg/kg), and mallard ducks (LD_{50} = 200 mg/kg). Bromoxynil is very highly toxic to moderately toxic to freshwater fish; the potassium salt of Bromoxynil has an LC_{50} = 5 mg/L in harlequin fish, 0.46 mg/L in goldfish, and 0.063 mg/L in catfish. Bromoxynil has an LC_{50} of 0.05 mg/L in rainbow trout. Bromoxynil is not toxic to bees.

Environmental Fate:
Bromoxynil has a low persistence in soil. In sandy soil, the half-life is about 10 days. Degradation in clay was slower, with half of the Bromoxynil degraded to its metabolites in about a 2-week period at 25°C. The persistence of the compound is also slightly longer in peat field soils than in the sandy soils. The evidence suggests that, while Bromoxynil is broken down by some soil bacteria, it may inhibit the action of other bacteria that promote the formation of nitrite by a process called nitrification. The herbicidal mode of action of Bromoxynil is by disrupting the plants ability to produce energy for cell-related activities. It is not readily translocated throughout the plant once it has been absorbed.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills and Disposal: Persons involved in cleanup require adequate skin protection - see Section 8. In case of spillage, contain and absorb spilled material with absorbent material such as clay, sand or cat litter and dispose of waste in accordance with the requirements of Local or State Waste Management Authorities. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum.

Disposal of empty containers: Triple-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 deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.

SECTION 13 DISPOSAL CONSIDERATIONS (Continued)

If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).

Do not cut or saw empty containers, as there is the possibility that fumes inside the container may be ignited and cause the container to explode.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: This product is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail in containers less than 3000 litres. Bulk shipments should use UN 3082, as per below. This product is a Combustible Liquid (C1) for storage purposes.

Marine and Air Transport: Apparent Bromoxynil 200 Herbicide is a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:-
UN 3082, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains Bromoxynil). Hazchem ●3Z. Hazard Identification Number (HIN) 90. Hazard Identification Number (HIN) 90. Australian Standards Initial Emergency Response Guide No. 47.

SECTION 15 REGULATORY INFORMATION

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a Schedule 6 poison.
This product is registered with the Australian Pesticides and Veterinary Medicines Authority. APVMA number 67042
This product is classified as a Hazardous Substance under the criteria of Safe Work Australia.
T: Toxic, Xi: Irritant.
This product is not classified as a Dangerous Good according to the ADG Code (7th Ed) in containers less than 3000 litres.
This product is classified as a Dangerous Good according to IMDG and IATA.
Requirements concerning special training:
Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16 OTHER INFORMATION

Issue Date: 8 November 2021. Valid for 5 years till 8 November 2021. (Revised to GHS).

Key to abbreviations and acronyms used in this MSDS:

ADG Code:	Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
Carcinogen:	An agent which is responsible for the formation of a cancer.
Cyanosis:	A bluish or purplish discoloration (of skin) due to deficient oxygenation of the blood.
Dyspnea:	Difficult of laboured respiration.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
HSIS:	Hazardous Substances information System.
Lacrimation:	The production, secretion, and shedding of tears.
Lavage:	A general term referring to cleaning or rinsing.
Mutagen:	An agent capable of producing a mutation.
Myotoxic:	Having or being a toxic effect on muscle.
OCS:	Office of Chemical Safety.
Pneumonitis:	A general term that refers to inflammation of lung tissue.
PPE:	Personal protective equipment.
Teratogen:	An agent capable of causing abnormalities in a developing foetus.

SECTION 16 OTHER INFORMATION (Continued)

TWA:	The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.
Safe Work Australia:	Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. "Search Hazardous Substances". Safe Work Australia website. (2016).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2009.

This SDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End SDS.