SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **Apparent Ramjet 75-D Herbicide**

Other Names: 2,4-D as the triisopropanolamine salt plus picloram as the triisopropanolamine salt, a phenoxy 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.

Globally Harmonised System (GHS) classification of the substance/mixture:
Acute Toxicity – Oral: Hazard Category 4.
Eye Damage/Irritation: Hazard Category 1.
Sensitization – Skin: Hazard Category 1.
Hazardous to the Aquatic Environment – Long-Term (Chronic) Hazard – Hazard Category 2.

Signal Word: DANGER.

Hazard statements:
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements:
Prevention:
P261 Avoid breathing mist, vapours or spray.
P264 Wash hands, arms and face 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.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
P310 Immediately call a POISON CENTER or doctor.
P321 Specific treatment see Safety Directions on the product label.
P330 Rinse mouth.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

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

SECTION 2 HAZARDS IDENTIFICATION (Continued)

Pictograms:

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION*
2,4-D present the triisopropanolamine salt	32341-80-3	300 g/L
Picloram as the triisopropanolamine salt	6753-47-5	75 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 and give water to drink. If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 131 126.

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.

Advice to Doctor: No specific antidote. Treat symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Generally considered a low risk due to the water content, but once the water has evaporated the product is combustible.

Extinguishing media: Not flammable. Choose extinguishing media to suit the burning material. Contain all runoff.

Hazards from combustion products: There is a very low risk of an explosion from this product if involved in a fire. Product is unlikely to decompose until heated to dryness. On further heating will emit toxic fumes. Firefighters 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: As a minimum wear PVC or rubber apron, overalls, elbow-length PVC gloves and face shield. In the case of spillage, stop leak if safe to do so, and contain spill. Prevent spillage entering drains or watercourses. Contain and absorb spilled material with absorbent material such as sand, clay, cat litter or material such as vermiculite. Collect recoverable product for use as labelled on the product. Vacuum, shovel or pump contaminated spilled material into an approved container and dispose of waste as per the requirements of Local or State Waste Management Authorities. Keep out animals and unprotected persons. Launder protective clothing before storage or re-use.

Material and methods for containment and clean-up procedures: To clean spill area, tools and equipment, wash with a solution of soap, water and acetic acid/vinegar. Follow this with a neutralisation step of washing the area with a bleach or caustic soda ash solution.

SECTION 6 ACCIDENTAL RELEASE MEASURES (Continued)

Finally, wash with a strong soap and water solution. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected. This product is a herbicide and spills can damage crops, pastures and desirable vegetation. Prevent from entering drains, waterways or sewers. Use earthen bunds or absorbent bunding to prevent spreading of spillage.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: No smoking, eating or drinking should be allowed where material is used or stored. Poisonous if swallowed. Avoid contact with eyes and skin. DO NOT inhale spray mist. When preparing the spray and using the prepared spray, wear PVC or rubber apron, elbow-length PVC gloves and a face shield. If product on skin, immediately wash area with soap and water. 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, face shield and contaminated clothing.

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. Not classified as a Dangerous Good. This product is a Schedule 6 Poison (S6) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:
Exposure guidelines have not been established for this product by Safe Work Australia. The following standards are for the active ingredients.

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m³)
2,4-D	10 mg/m³	-
Picloram	10 mg/m³	-

TWA = Time-weight Average STEL = Short Term Exposure Limit

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Use in ventilated areas. Keep containers closed when not in use.

Personal Protective Equipment (PPE):
General: When preparing the spray and using the prepared spray, wear PVC or rubber apron, elbow-length PVC gloves and a face shield. If product on skin, immediately wash area with soap and water. 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, face shield and contaminated clothing.

Personal Hygiene: Poisonous if swallowed. Avoid contact with eyes and skin. DO NOT inhale spray mist. 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:	Dark brown liquid.
Odour:	No odour.
Boiling point:	Approximately 100°C.
Freezing point:	Approximately 0°C.
Specific Gravity:	1.1 - 1.3 at 20°C.
Solubility in Water:	Soluble in water.
pH:	6 – 7.5.
Flammability:	Not flammable.
Corrosive hazard:	Not corrosive.
Flashpoint (°C):	Not flammable.
Flammability Limits (%):	Not established.
Poisons Schedule:	This product is a Schedule 6 (S6) poison.
Formulation type:	Aqueous 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 acids, strong bases and strong oxidising agents. Reaction of the concentrate or spray mix with acids will precipitate solid 2,4-D acid and significantly deactivate the product and cause blockages in spray equipment.
Hazardous decomposition products: Product is unlikely to decompose until heated to dryness. On further heating will emit toxic fumes.
Hazardous reactions: No particular reactions to avoid. 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 2,4-D ranges from 375 to 666 mg/kg. Picloram has an Acute oral LD_{50} > 3500 mg/kg.

Eye: This product may cause severe eye irritation and possible damage if not washed out immediately. If exposure is brief, symptoms should disappear soon after exposure has ceased. If irritation persists seek medical advice.

Skin: May cause skin irritation. Avoid skin contact. Acute dermal LD_{50} > 1500 mg/kg (2,4-D) and > 2000 mg/kg (Picloram).

Inhaled: Product components are of low volatility and no adverse effect would be expected from handling the concentrate. A moderate hazard exists from inhalation of spray and should be avoided.

Long Term Exposure:

Chronic toxicity: Rats given high amounts of 2,4-D in the diet for 2 years showed no adverse effects. Dogs fed lower amounts in their food for 2 years died, probably because dogs do not excrete organic acids efficiently. A human given a total of 16.3 g in 32 days therapeutically, lapsed into a stupor and showed signs of incoordination, weak reflexes, and loss of bladder control. No significant effects have been shown in animal feeding studies with Picloram.

Reproductive effects: High levels of 2,4-D administered orally to pregnant rats did not cause any adverse effects. The evidence suggests that if 2,4-D causes reproductive effects in animals, this only occurs at very high doses. Thus reproductive problems associated with 2,4-D are unlikely in humans under normal circumstances. Picloram is unlikely to produce significant adverse effects.

Teratogenic effects: 2,4-D may cause birth defects at high doses. Rats fed 150 mg/kg/day on days 6 to 15 of pregnancy had offspring with increased skeletal abnormalities. This suggests that 2,4-D exposure is unlikely to be teratogenic in humans at expected exposure levels. Picloram is not teratogenic.

Mutagenic effects: 2,4-D was found to be non-mutagenic in most systems. 2,4-D did not damage DNA in human lung cells. However, one study found significant effects occurred in chromosomes in cultured human cells at low exposure levels. The data suggest that 2,4-D is not mutagenic or has low mutagenic potential. Picloram is not mutagenic.

Carcinogenic effects: 2,4-D fed to rats for 2 years caused an increase in malignant tumours. Female mice given a single injection of 2,4-D developed cancer (reticulum-cell sarcomas). In humans, a variety of studies give conflicting results. Several studies suggest an association of 2,4-D exposure with cancer. An increased occurrence of non-Hodgkin's lymphoma was found among a Kansas and Nebraska farm population associated with the spraying of 2,4-D. Other studies done in New Zealand, Washington, New York, Australia, and on Vietnam veterans from the U.S. were all negative. There remains considerable controversy about the methods used in the various studies and their results. Thus, the carcinogenic status of 2,4-D is not clear. Picloram is not carcinogenic.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Organ toxicity: Most symptoms of 2,4-D exposure disappear within a few days, but there is a report of liver dysfunction from long-term exposure. At high doses picloran induced liver changes at high doses.

Fate in humans and animals: The absorption of 2,4-D is almost complete in mammals after ingestion and nearly all of the dose is excreted in the urine. 2,4-D is readily absorbed through the skin and lungs. Men given 5 mg/kg excreted about 82% of the dose as unchanged 2,4-D. The half-life is between 10 and 20 hours in living organisms. There is no evidence that 2,4-D accumulates to significant levels in mammals or in other organisms. Picloram is excreted quickly and does not appear to bioaccumulate.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: 2,4-D is biodegradable. It will not accumulate in the soil or water or cause long term problems. 2,4-D is harmful to wildfowl and slightly to moderately toxic to birds. The LD_{50} is 1000 mg/kg in mallards, 272 mg/kg in pheasants, and 668 mg/kg in quail and pigeons. Picloram has low toxicity to birds with LD_{50} values > 2500 mg/kg. Limited studies indicate a half-life of less than 2 days in fish and oysters. Concentrations of 10 mg/L for 85 days did not adversely affect the survival of adult dungeness crabs. For immature crabs, the 96-hour LC_{50} is greater than 10 mg/L, indicating that 2,4-D is only slightly toxic. Brown shrimp showed a small increase in mortality at exposures of 2 mg/L for 48 hours. Picloram has moderate toxicity to fish. Rainbow trout LC_{50} (96 hr) = 19.3 mg/L. With LC_{50} values ranging from 10 to 68 mg/L, picloram is only slightly toxic to aquatic invertebrates. Moderate doses of 2,4-D severely impaired honeybees brood production. At lower levels of exposure, exposed bees lived significantly longer than the controls. The honeybee LD_{50} is 0.0115 mg/bee. Picloram is non-toxic to bees.

Environmental Fate:
2,4-D has low soil persistence. The half-life in soil is less than 7 days. Soil microbes are primarily responsible for its breakdown. In aquatic environments, microorganisms readily degrade 2,4-D. Rates of breakdown increase with increased nutrients, sediment load, and dissolved organic carbon. Under oxygenated conditions the half-life is 1 week to several weeks. 2,4-D interferes with normal plant growth processes. Uptake of the compound is through leaves, stems, and roots. Breakdown in plants is by a variety of biological and chemical pathways. 2,4-D is toxic to most broadleaf crops especially cotton, tomatoes, beets, and fruit trees.

In heavy clay soil, picloram has a half-life of slightly over two months. However, when more organic material is present, the half-life of the compound nearly doubles. Breakdown by soil microorganisms occurs slowly, resulting in the formation of carbon dioxide (CO_2) and the release of a chloride ion. The compound is mobile and relatively persistent in soil and can therefore leach to groundwater. In water, the action of sunlight is an important mechanism leading to the breakdown of the product. Herbicide levels in farm ponds which were 1 ppm at the time of spraying reached 10 ppb in 100 days primarily due to dilution and the action of sunlight. The movement of picloram in runoff after heavy rainfall may occur. Picloram is readily absorbed by plant roots, less so by the foliage, and is readily translocated throughout plants. It remains stable and intact in plants.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills and Disposal: Persons involved in cleanup require adequate skin protection - see Section 8. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. 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. On site disposal of the concentrated product is not acceptable.

Ideally the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemClear®).

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

SECTION 13 DISPOSAL CONSIDERATIONS (Continued)

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 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. Not classified as a Dangerous Good for marine or air transport.

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 80713.
This product is classified as a Hazardous Substance under the criteria of Safe Work Australia.
This product is not classified as a Dangerous Good according to the ADG Code (7th Ed).
This product is not classified as a Dangerous Good according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (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: 17 November 2021. Valid for 5 years till 17 November 2026. (5 year update).

Key to abbreviations and acronyms used in this SDS:

ADG Code:	Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
Ataxia:	Inability to control the coordinate movements of the muscles.
Bradycardia:	Is a resting heart rate of under 60 beats per minute (adults).
Clonic:	An abnormality in neuromuscular activity characterized by rapidly alternating muscular contraction and relaxation.
Carcinogen:	An agent which is responsible for the formation of a cancer.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
HCIS:	Hazardous Chemical Information System.
LD_{50}:	Median Lethal Dose. A statistically derived single dose of a substance that can be expected to cause death in 50% of dosed animals.
Mutagenic:	Capable of inducing a genetic mutation in an organism.
Oedema:	Accumulation of fluid in tissues.
PPE:	Personal protective equipment.
Sarcoma:	A malignant tumour of connective or other non-epithelial tissue.
Teratogen:	An agent capable of causing abnormalities in a developing foetus.
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. “Hazardous Chemicals Information System”. Safe Work Australia HCIS website. (2021).
2. “Classifying Hazardous Substances” Safe Work Australia. August 2018.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2017 (7th Ed).

SECTION 16 OTHER INFORMATION (Continued)

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.