SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **Apparent Clethodim 360 Herbicide**

Other Names:	Clethodim, cyclohexanedioneoxime derivative,
Use:	A selective agricultural liquid herbicide.
Company:	Apparent Pty Ltd
Address:	Suite G.08, 762 Toorak Rd, Hawthorn East, Vic. 3123. PO Box 3092, Cotham PO, Kew, Vic 3101
ACN/ABN:	143 724 136
Telephone Number:	03 9822 1321
Email:	enquiries@apparentag.com.au
Emergency Contact:	0411 227 338

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).

Global Harmonization System (GHS) classification:
Aspiration Hazard: Category 1.
Flammable Liquids – Category 4.

Signal Word: DANGER.

Hazard statements:
H304 May be fatal if swallowed and enters airways.
H227 Combustible liquid.

Precautionary Statements:
Prevention:
P210 Keep away from flames and hot surfaces. – No smoking.
P280 Wear protective gloves/eye protection/face protection.

Response:
P370 + P378 In case of fire use carbon dioxide, dry chemical or foam for extinction.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331 Do NOT induce vomiting.

Storage and Disposal:
P403 + P235 Store in a well ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container in accordance with national regulations.

Pictograms:

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION*
Clethodim	99129-21-2	360 g/L
Aromatic hydrocarbons	64742-94-5	570 g/L
Other ingredients determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES

FIRST AID

Ingestion: If swallowed do NOT induce vomiting. Give a glass of water. If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 131 126.

Eye contact: Immediately hold eyes open and flood 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. 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: Treat symptomatically. The principal hazard is aspiration of the solvent into the lungs resulting in chemical pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: This product is a C1 combustible liquid. Flash Point > 61°C

Extinguishing media: Use carbon dioxide, dry chemical or foam. If no alternative use water fog and contain all run off. Violent steam generation or eruption may occur if directed water stream is applied on hot liquids. If containers are ruptured contain all runoff.

Hazards from combustion products: Product will decompose when burnt and will emit toxic fumes. 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. In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear cotton overalls buttoned to the neck and wrist, washable hat, elbow length PVC gloves and face shield or goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, the use of a respirator is recommended. In the case of spillage, stop leak if safe to do so, and contain spill.

Material and methods for containment and cleanup procedures:
Absorb spilled material with absorbent material such as sand, clay or cat litter and dispose of waste as indicated in section 13 or according to the Australian Standard 2507 - Storage and Handling of Pesticides. 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. Keep out animals and unprotected persons.

After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Thoroughly launder protective clothing before storage or re-use.

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. Harmful if swallowed. Will irritate the eyes and skin. When preparing spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist, washable hat, elbow-length chemical resistant gloves and face shield or goggles. If product in eyes, wash it out immediately with 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 and face shield or goggles 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. Protect from frost. 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. Do not store or use near naked flame, or heat sources. Do not cut or weld container. Not classified as a Dangerous Good.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines:
No exposure limits have been assigned by Safe Work Australia to the ingredients in this product.

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Keep containers closed when not in use. No special engineering controls are required, however make sure that the work environment remains clean and that vapours and mists are minimised.

Personal Protective Equipment (PPE):
General: When preparing spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist, washable hat, elbow length PVC gloves and face shield or goggles. After each day's use, wash contaminated clothing, gloves and face shield or goggles.

Personal Hygiene: Harmful if swallowed. Will irritate the 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:	Clear amber liquid.
Odour:	Aromatic odour.
Boiling point:	No data available.
Freezing point:	No data available.
Solubility in Water:	Emulsifies in water.
pH:	No data available.
Flammability:	Combustible liquid.
Flashpoint (°C):	> 61°C.
Poisons Schedule:	This product is a schedule 5 (S5) poison.
Formulation type:	Emulsifiable Concentrate (EC).

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 near naked flame or heat sources. Unstable at extreme pH's.

Incompatible materials: Strong oxidizing agent such as chlorates, nitrates, peroxides etc.

Hazardous decomposition products: This product is will decompose when burnt. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds and oxides, in some circumstances hydrogen cyanide gas.

Hazardous reactions: Avoid contact of the concentrate with strong alkalis and alkaline materials such as lime. Polymerisation is unlikely.

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. Acute Oral LD_{50} > 1630 mg/kg (male rats) and 1360 mg/kg (female rats).

Eye: The concentrate is irritating to the eyes. Prolonged contact with the concentrate may cause damage to the eye.

Skin: This product may be irritating to the skin. Acute dermal LD_{50} > 5,000 mg/kg.

Inhaled: Inhalation of mists or sprays may produce respiratory irritation. Expected to be moderately toxic by inhalation.

Long Term Exposure:

This product contains a solvent mixture. Reports have associated repeated and prolonged occupational overexposures to solvents with permanent brain and nervous system damage. Symptoms reported include fatigue, concentration difficulties, anxiety, depression, rapid mood swings and short-term memory loss. Since many other diseases cause some or all of these symptoms, a doctor should be consulted if any appear. Overall, this product is not expected to be a chronic hazard when used according to the label directions.

Studies with high doses of clethodim technical in mice, rats and dogs, indicated decreased body weights, increased liver size (increased liver weights and hypertrophy) and anaemia (decreased haemoglobin, hematocrit or erythrocyte counts). In chronic studies with clethodim technical in the mouse, rat and dog, similar effects as seen in sub chronic have been noted. No treatment related increases in neoplasms were observed in any study.

Teratology/development toxicity: Developmental toxicity in rats and rabbits was observed only at maternally toxic dose levels of clethodim technical.

Reproductive toxicity: No reproductive toxicity was observed in a study with rats exposed to clethodim technical for two generations.

Mutagenicity: Clethodim technical does not present any genetic hazard to intact animal systems.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Low toxicity to birds. The dietary LC_{50} in mallard ducks > 6000 mg/kg. Acute oral LD_{50} bobwhite quail > 2000 mg/kg. Moderate toxicity to aquatic organisms. The reported 96-hour LC_{50} values for rainbow trout is 67 mg/L and bluegill sunfish 120 mg/L. The 48-hour LC_{50} for Daphnia (water flea), an important food source for freshwater fish, is 120 mg/L. The EC_{50} (5 days) for fresh water algae is 57.8 mg/L. Low toxicity to honeybees contact LC_{50} > 100 µg/bee. The reported LC_{50} values for earthworms in soil is 454 mg/kg.

Environmental Fate: Clethodim is of low persistent in most soils with T½ 3 days. Breakdown is mainly by aerobic processes and photolysis is accepted as making a contribution to breakdown. In water, clethodim is highly persistent with half-lives of 128 days in the aqueous phase and 214 days in the sediment. The reported hydrolysis half life at pH 7-9 is 300 days. Clethodim is rapidly degraded on the leaf surfaces by an acid-catalysed reaction and photolysis. The remaining clethodim will rapidly penetrate the cuticle and enter the plant.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills and Disposal: Persons involved in cleanup require adequate skin protection - see section 8. 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.

SECTION 13 DISPOSAL CONSIDERATIONS (Continued)

Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

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.

drumMuster is the national program for the collection and recycling of empty, cleaned, non returnable crop production and on-farm animal health chemical containers. If the label on your container carries the drumMuster symbol, triple rinse the container, ring your local Council, and offer the container for collection in the program.

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. This product is a Schedule 5 Poison (S5) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 15 REGULATORY INFORMATION

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 5 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 80404.
This product is classified as a Hazardous Substance under the criteria of Safe Work Australia. Xn: Harmful.
This product is not classified as a Dangerous Good according to the ADG Code (7th Ed).
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: 14 January 2016. Valid for 5 years till 14 January 2021. (First Issue).

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).
Carcinogen:	An agent which is responsible for the formation of a cancer.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
Hematocrit:	the ratio of the volume of red blood cells to the total volume of blood
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.
Mutagen:	An agent capable of producing a mutation.
PPE:	Personal protective equipment.
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:	Formerly known as Australian Safety & Compensation Council (ASCC) which was formerly known as the National Occupational Health & Safety Commission (NOHSC).

SECTION 16 OTHER INFORMATION (Continued)

References

1. "Search Hazardous Substances". Australian Safety and Compensation Council 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