SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **Apparent Trifluralin 480 Herbicide**

Other Names:	Trifluralin. Trifluralin is a dinitroaniline compound.
Use:	A liquid pre-emergence grass 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).

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

Aspiration Hazard: Category 1.
Sensitization – Skin: Category 1, 1A, 1B.
Carcinogenicity: Category 2.
Hazardous to the Aquatic Environment – Acute Hazard: Category 1.
Hazardous to the Aquatic Environment – Long-Term Hazard: Category 4.
Flammable Liquids: Category 4.

Signal Word: DANGER.

Hazard statements:

H227	Combustible liquid.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H413	May cause long lasting harmful effects to aquatic life.

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 flames and hot surfaces. – No smoking.
P261	Avoid breathing mist, vapours or spray.
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.

Response:

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P308 + P313	IF exposed or concerned: Get medical advice/ attention:
P321	Specific treatment see Safety Directions on the product label.

SECTION 2 HAZARDS IDENTIFICATION (Continued)

Response (Continued):

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 + 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***
Trifluralin	1582-69-8	480 g/L
Liquid hydrocarbon	64742-94-5	30 - 60 % w/w
Other ingredients determined not to be hazardous		1 - 10%

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 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. If skin is irritated, seek medical advice.

Inhalation: Remove to fresh air and observe until recovered. If effects persist for more than about 30 minutes, seek medical advice.

Advice to Doctor: Treat symptomatically. The formulation contains petroleum distillate that can cause severe pneumonitis or fatal pulmonary oedema if aspirated. Consideration should be given to gastric lavage with an endotracheal tube in place. Treatment is otherwise symptomatic and supportive.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Combustible liquid (C1) – flash point > 62°C. Hazchem code ●3Z.

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: On burning will emit toxic fumes. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk to 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: 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 and a washable hat and elbow-length PVC gloves and face shield or goggles. 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.

Material and methods for containment and cleanup 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. 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.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: Keep out of reach of children. No smoking, eating or drinking should be allowed where material is used or stored. Contact with the concentrate will result in a yellow stain. Harmful if swallowed. Will irritate the eyes and skin. Repeated exposure may cause allergic disorders. Sensitive workers should use protective clothing. Avoid contact with eyes and skin. Do not inhale spray mist. When opening the container and using the prepared spray wear cotton overalls, buttoned to the neck and wrist and a washable hat and elbow length PVC gloves and face shield or goggles. 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 or goggles and contaminated clothing.

Conditions for Safe Storage: DO NOT FREEZE. Store this product in heated storage. Crystallization of the active ingredient (Trifluralin) may occur at temperatures below 5°C. If stored below 5°C, check for crystals in the bottom of each container. If crystals are present, place the container in a warm area (at least 15°C) for several hours. For smaller containers, agitate contents by inverting several times and return it to the upright position. For larger containers, circulate contents. After several hours, if any crystals remain, agitate or circulate container contents again.

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 5 Poison (S5) and must be stored, transported and sold in accordance with the relevant Health Department regulations. This product is a combustible liquid (C1) and must be stored away from naked lights, heat sources and oxidising agents. Observe procedures detailed in Australian Standard AS1940-1988 for flammable and combustible liquids.

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:
Use in ventilated areas where vapours and mists are able to accumulate. Keep containers closed when not in use. No special engineering controls are required.

Personal Protective Equipment (PPE):
General: When opening the container and using the prepared spray wear cotton overalls, buttoned to the neck and wrist and a washable hat and elbow length PVC gloves and face shield or goggles. 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 or goggles and contaminated clothing.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Personal Hygiene: Harmful if swallowed. Will irritate the eyes and skin. Repeated exposure may cause allergic disorders. Sensitive workers should use protective clothing. 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:	Clear bright orange/yellow liquid.
Odour:	Petroleum type odour.
Boiling point:	No data available.
Freezing point:	No data available.
Melting Point:	Some crystallisation occurs between 0 and -7°C.
Specific Gravity:	1.0 at 20°C.
Solubility in Water:	Emulsifies in water- emulsifiable concentrate formulation.
pH:	No data available.
Flammability:	Combustible liquid.
Corrosive hazard:	Not corrosive.
Flashpoint (°C):	> 62°C.
Flammability Limits (%):	Not established.
Poisons Schedule:	S5.

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture. Product is unlikely to react or decompose under normal storage conditions.

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

Incompatible materials: Strong acids, strong bases and strong oxidising agents.

Hazardous decomposition products: Hazardous decomposition products include carbon dioxide, carbon monoxide and nitrogen oxides.

Hazardous reactions: No particular reactions to avoid.

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.

Acute Toxicity: Trifluralin is practically nontoxic to test animals by oral, dermal, or inhalation routes of exposure. Nausea and severe gastrointestinal discomfort may occur after eating Trifluralin. Trifluralin does not cause skin irritation but may produce slight eye irritation. Skin sensitization (allergies) may occur in some individuals. Inhalation may cause irritation of the lining of the mouth, throat, or lungs.

Potential Health Effects:

ACUTE EFFECTS

Swallowed: The acute oral LD_{50} for technical Trifluralin in rats is greater than 10,000 mg/kg. Swallowing can cause nausea, vomiting and central nervous system depression caused by the solvent in this product. If patient shows sign of central nervous system depression (like those of drunkenness) there is a greater chance of the patient breathing in vomit and causing damage to the lungs. Breathing in vomit may lead to aspiration pneumonia (inflammation of the lung).

Eye: This formulated product may be irritating to the eyes. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Skin: The dermal LD_{50} for technical Trifluralin in rabbits > 2000 mg/kg. This product may be irritating to the skin. Product will have a degreasing action on the skin. Repeated or prolonged exposure may lead to irritant contact dermatitis.

Inhaled: The 1 hour inhalation LC_{50} for technical Trifluralin (rats) > 2.8 mg/L. Inhalation of mists or sprays may produce respiratory irritation. Breathing in vapours may result in headaches, dizziness and possible nausea. Breathing high concentrations can produce central nervous system depression, which can lead to loss of coordination, impaired judgement, and in circumstances of prolonged exposure, unconsciousness.

Long Term Exposure:

Chronic toxicity: Prolonged or repeated skin contact with Trifluralin may cause allergic dermatitis. No toxicity was observed in dogs fed 25 mg/kg/day for 2 years. However, another study observed decreased red blood cell counts and increases in methaemoglobin, total serum lipids, triglycerides, and cholesterol at 18.75 mg/kg/day. Trifluralin has been shown to cause liver and kidney damage in other studies of chronic oral exposure in animals.

Reproductive effects: The reproductive capacity of rats fed dietary concentrations of Trifluralin was unimpaired through four successive generations. Loss of appetite and weight loss followed by miscarriages were observed when pregnant rabbits were fed high doses. Foetal weight decreased and there was an increase in the number of foetal runts at the 500 mg/kg/day dosage. It is unlikely effects on reproduction will be produced in humans at expected exposure levels.

Teratogenic effects: No abnormalities were observed the offspring of rats fed for four generations. Studies show no evidence that Trifluralin is teratogenic. **Mutagenic effects:** No evidence of mutagenicity was observed when Trifluralin was tested in live animals, and in assays using bacterial and mammalian cell cultures.

Carcinogenic effects: Safe Work Australia has classified trifluralin in the occupational environment as a Carcinogen Category 3 substance. This means that the substance is not classifiable as to carcinogenicity to humans. In a 2-year study of rats fed 325 mg/kg/day, the highest dose tested, malignant tumours developed in the kidneys, bladder, and thyroid. However, more data are needed to characterize its carcinogenicity. **Organ toxicity:** Liver, kidney, and thyroid damage appear to be the main toxic effects in chronic animal studies.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: No data is available on this product. The active ingredient, Trifluralin is practically nontoxic to birds. The LD_{50} in bobwhite quail, female mallards and pheasants > 2000 mg/kg. Trifluralin is very highly toxic to fish and other aquatic organisms. The 96-hour LC_{50} in rainbow trout is 0.02 to 0.06 mg/L, and 0.05 to 0.07 mg/L in bluegill sunfish. The 96-hour LC_{50} in channel catfish = 1.4 to 3.4 mg/L. Variables such as temperature, pH, life stage, or size may affect the toxicity of the compound. Trifluralin is highly toxic to Daphnia with a 48-hour LC_{50} of 0.5 to 0.6 mg/L. Trifluralin shows a moderate tendency to accumulate in aquatic organisms. Although extremely high application rates (100 mg/kg) of Trifluralin has been shown to be toxic to earthworms, label application rates will result in soil residues of approximately 1 mg/kg Trifluralin, a level that had no adverse effects on earthworms. Nontoxic to bees.

Environmental Fate: No data is available on this product. The active ingredient, trifluralin, is biodegradable. It does not accumulate in the soil or water or cause long term problems. Trifluralin has moderate to high persistence in the soil environment, depending on conditions. Trifluralin is subject to degradation by soil microorganisms and UV light or may volatilize if left exposed to the air. Half-lives of Trifluralin in the soil vary from 45 to 60 days to 6 to 8 months. After 6 months to 1 year, 80 to 90% of its activity will be gone. Trifluralin is strongly adsorbed to soils and nearly insoluble in water. It will probably be found adsorbed to soil sediments and particulates in the water column. Trifluralin inhibits the growth of roots and shoots when it is absorbed by newly germinated plants.

Trifluralin residues in crop plants will occur only in root tissues which are in direct contact with contaminated soil. Trifluralin is not translocated into the leaves, seeds, or fruit of most plants. On most crops, Trifluralin applied to the leaves has no effect, but on certain crops, such as tobacco and summer squash, leaf distortion may occur.

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. 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.

EXPLOSION WARNING: “EMPTY” containers may contain liquid and/or vapour residue which can be explosive if exposed to an ignition source at temperatures above 90°C. Such conditions may occur during cutting or welding. DO NOT cut or weld these containers.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: This product is exempt from classification as a Dangerous Good in packs less than 3,000 kg or litres under the Australian Code for the Transport of Dangerous Goods by Road and Rail. For bulk shipments this product is a class 9, UN 3082 (3077). (See special provision AU01).

Marine and Air Transport: Product 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 48% Trifluralin). Hazchem code ●3Z. 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 5 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 65080.
This product is classified as a Hazardous Substance under the criteria of Safe Work Australia. Xn: Harmful, Xi irritant.
This product is not classified as a Dangerous Good according to the ADG Code for packs less than 3000 litres (SP AU01) (7th Ed).
This product is 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 2016. Valid for 5 years till 17 November 2021. (Revised to GHS).

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.
Mutagenic	Able to produce a mutation (a change in the genetic material of cells).
Oedema	Accumulation of fluid in tissues.

SECTION 16 OTHER INFORMATION (Continued)

PPE Personal protective equipment.
Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).
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.

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