

Section 1 - Identification of The Material and Supplier

Turf Culture Pty Ltd Unit 9, 57-59 Horne St Sunbury, Vic 3429 Australia	Phone: +61 3 9553 3121 Fax: +61 3 8888 9991 www.turfculture.com.au
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Chemical nature: Blend of herbicide ingredients in water solution.

Trade Name: **Turf Culture Bow & Arrow NZ Herbicide**

EPA Approval No: HSR100816

Product Use: Herbicide for the control of certain broadleaf weeds in turf.

Creation Date: **May 2014**

This version issued: **November, 2017** and is valid for 5 years from this date.

New Zealand Supplier: PGG Wrightson Turf Ltd
 31 Allright Place, Mt Wellington, Auckland, New Zealand
 Ph: +64 09 570 2570, Fax: +64 09 570 4064
www.pggwrightsonturf.co.nz

Emergency Telephone No. 0800 764 766 (from anywhere in New Zealand).

Section 2 - Hazards Identification

Statement of Hazardous Nature.

This substance is classified as hazardous according to the HSNO (Minimum Degrees of Hazard) Regulations 2001.

This substance is classified as a dangerous good for Land Transport in New Zealand according to NZS5433: 2012.

EPA Approval Code: HSR100816

HSNO Classification: 6.1D (oral), 6.1E (dermal), 6.3A, 6.9A, 8.3A, 9.1A, 9.2A, 9.3B

Signal Word: **Danger**

Label Pictograms



Hazard Code	Hazard Statement	GHS Category
H302	Harmful if swallowed.	Acute Oral Toxicity Category 4
H313	May be harmful in contact with skin.	Acute Dermal Toxicity Category 5
H315	Causes skin irritation.	Skin Irritation Category 2
H372	Causes damage to organs through prolonged or repeated exposure.	STOT Systemic Toxicity Category 1
H318	Causes serious eye damage.	Category 1
H410	Very toxic to aquatic life with long lasting effects.	Category 1
H421	Very toxic to the soil environment.	NA

SAFETY DATA SHEET

H432 Toxic to terrestrial vertebrates.

Prevention Code

Prevention Statement

- P102 Keep out of reach of children.
- P103 Read label before use.
- P260 Do not breathe mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- S77A Do not apply onto or into water.

Response code

Response Statement

- P101 If medical advice is needed, have product container or label at hand.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment (first aid instructions on this label).
- P330 Rinse mouth.
- P331 Do NOT induce vomiting.
- P362 Take off contaminated clothing and wash before re-use.
- P391 Collect spillage.
- P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician 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.
- P332 + P313 If skin irritation occurs: Get medical advice/ attention.

Storage Code

Storage Statement

- P410 Protect from sunlight.
- P402+P404 Store in a dry place. Store in a closed container.
- P403+P235 Store in a well-ventilated place. Keep cool.

Disposal

Disposal Statement

- Container Disposal Ensure the container is empty. Triple rinse empty container and add rinsate to spray tank. Recycle punctured container without caps through Agrecovery (0800 247 326, www.agrecovery.co.nz). Otherwise crush and bury in a suitable landfill. DO NOT reuse this container for any other purpose.
- Product Disposal Disposal of this product only by using according to this label, or at an approved landfill or other approved facility.

Section 3 - Composition/Information on Ingredients

Ingredients (mg/m ³)	CAS No.	Conc. %	TWA (mg/m ³)	STEL
Diflufenican	83164-33-4	15g/L	not set	not set
MCPA (as the potassium salt)	94-74-6	300g/L	not set	not set
Clopyralid (as the potassium salt)	1702-17-6	20g/L	not set	not set
Other non hazardous ingredients	various	<10	not set	not set
Water	7732-18-5	to 100	not set	not set

SAFETY DATA SHEET

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non-hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8-hour working day for a 5-day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term 'peak' is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 0800 764 766 in New Zealand and is available at all times. Have this SDS with you when you call.

Inhalation: No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

Skin Contact: Wash gently and thoroughly with warm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. If irritation persists, repeat flushing and seek medical attention.

Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses. Immediately call a POISON CENTER or doctor/physician.

Ingestion: If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

Section 5 - Fire Fighting Measures

HAZCHEM CODE: 3Z Contain Spillage

Fire and Explosion Hazards: The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases. There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

Fire decomposition products from this product are likely to be toxic and corrosive if inhaled. Take appropriate protective measures.

Extinguishing Media: Not combustible. Use extinguishing media suited to burning materials.

Fire Fighting: Use breathing apparatus. Contain spillage.

Flash point: Does not burn.

Upper Flammability Limit: Does not burn.

Lower Flammability Limit: Does not burn.

Autoignition temperature: Not applicable - does not burn.

Flammability Class: Does not burn.

Section 6 - Accidental Release Measures

Accidental release: In the event of a major spill, prevent spillage from entering drains or watercourses. Wear full protective clothing including eye/face protection. All skin areas should be covered. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8). Otherwise, not normally necessary.

Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area-preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS

SAFETY DATA SHEET

and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Approved Handler: This Product must be under the personal control of an Approved Handler.

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under 'Storage' should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under 'Incompatibilities' in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian/New Zealand Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits

TWA (mg/m³)

STEL (mg/m³)

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for MCPA (as the potassium salt) is set at 0.01mg/kg/day. The corresponding NOEL is set at 1.1mg/kg/day.

The ADI for Clopyralid (as the potassium salt) is set at 0.5mg/kg/day. The corresponding NOEL is set at 50mg/kg/day. ADI means Acceptable Daily Intake; NOEL means No-observable-effect-level. Data from Australian ADI List, June 2013.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: This product should only be used in a well-ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Eye Protection: Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.

Skin Protection: Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC.

Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian/ New Zealand Standard mentioned above. Otherwise, not normally necessary. Eyebaths or eyewash stations and safety deluge showers should, if practical, be provided near to where this product is being handled commercially.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Viscous light brown suspension concentrate.
Odour:	Characteristic odour.
Boiling Point:	100°C at 100kPa
Freezing/Melting Point:	No specific data. Liquid at normal temperatures.
Volatiles:	Water component.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).
Vapour Density:	No data.
Specific Gravity:	1.16 – 1.18 at 25°C
Water Solubility:	Completely soluble.

SAFETY DATA SHEET

pH:	7.0-9.0 (1% in water)
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water Distribution:	No data
Viscosity:	200 - 300 cP (After 1 min at 20°C, spindle 2, 20 RPM)
Autoignition temp:	Not applicable - does not burn.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: strong acids, strong bases, strong oxidising agents.

Fire Decomposition: Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. May form hydrogen chloride gas, other compounds of chlorine. May form hydrogen fluoride gas and other compounds of fluorine. Potassium compounds. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Local Effects:

Target Organs: Kidney and liver toxicity.

Emergency Overview

Physical Description & Colour: Viscous light brown suspension concentrate.

Odour: Characteristic odour.

Major Health Hazards: irritating to eyes and skin, harmful if swallowed.

Potential Health Effects

Inhalation:

Short Term Exposure: Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

Long Term Exposure: No data for health effects associated with long-term inhalation.

Skin Contact:

Short Term Exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but all should disappear once exposure has ceased.

Long Term Exposure: No data for health effects associated with long-term skin exposure.

Eye Contact:

Short Term Exposure: This product is an eye corrosive. 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.

Long Term Exposure: Can cause permanent eye damage.

Ingestion:

Short Term Exposure: Significant oral exposure is considered to be unlikely. Available data shows that this product is harmful, but symptoms are not available. However, this product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat. Other symptoms may also become evident, but all should disappear once exposure has ceased.

Long Term Exposure: Target organ toxicant (liver/kidney)

MCPA

SAFETY DATA SHEET

Oral administration of technical MCPA to male and female beagle dogs (6/sex/dose) at doses of 0, 6, 30, or 150 ppm (0, 0.15, 0.75, or 3.75 mg/kg/day) for 52 weeks resulted in kidney and liver toxicity at the mid-and/or high-dose levels, with alterations in clinical chemistries (kidneys: urea, potassium, creatinine; liver: bilirubin, GPT, GOT, triglycerides, and cholesterol) associated with concomitant organ weight changes (liver) and histopathology changes (kidney: increased kidney pigment deposition in proximal tubular epithelium; liver: change in the nature/coloration of gall fluid). Therefore, based upon kidney and liver toxicity at the 30 and 150 ppm dose levels, the LEL for systemic toxicity is 30 ppm (0.75 mg/kg/day). The NOEL for systemic toxicity is 6 ppm (0.15 mg/kg/day).

Carcinogen Status:

NTP: No significant ingredient is classified as carcinogenic by NTP.

IARC: No significant ingredient is classified as carcinogenic by IARC.

Classification of Hazardous Ingredients

Diflufenican: No Data

MCPA (as the potassium salt):

LD50 (mouse) = 439 mg/kg

STOT:Primary Organ: Hepatotoxicity (liver)

Oral administration of technical MCPA to male and female beagle dogs (6/sex/dose) at doses of 0, 6, 30, or 150 ppm (0, 0.15, 0.75, or 3.75 mg/kg/day) for 52 weeks resulted in kidney and liver toxicity at the mid-and/or high-dose levels, with alterations in clinical chemistries (kidneys: urea, potassium, creatinine; liver: bilirubin, GPT, GOT, triglycerides, and cholesterol) associated with concomitant organ weight changes (liver) and histopathology changes (kidney: increased kidney pigment deposition in proximal tubular epithelium; liver: change in the nature/coloration of gall fluid). Therefore, based upon kidney and liver toxicity at the 30 and 150 ppm dose levels, the LEL for systemic toxicity is 30 ppm (0.75 mg/kg/day). The NOEL for systemic toxicity is 6 ppm (0.15 mg/kg/day). [IRIS]

Clopyralid (as the potassium salt)

LD50 (Rat) = 2675 mg/kg bw

Eye Corrosivity: SPECIES: Rabbit

RESULT: Exposure to Lontel T (95.4% clopyralid) dust revealed a severe irritating effect in the eyes of rabbits. Slight discomfort was observed in all animals immediately upon instillation of the test material. Observations of the conjunctivae post-treatment were characterised as slight to marked redness and chemosis. All animals had a marked amount of discharge from the treated eye. Reddening of the iris was observed in all animals. Corneal opacity was observed in all animals and ranged from scattered or diffuse areas of opacity to marked opacity. Signs of irritation were present in all animals 21 days post treatment.

Section 12 - Ecological Information

This product is very toxic to aquatic organisms. Do not allow to enter waterways.

Diflufenican 9.1A (algae)

MCPA (as the potassium salt) 9.1A (algal)

ACUTE: SPECIES: *Navicula pelliculosa* (Algae), TYPE OF EXPOSURE: DURATION: 96 hr ; ENDPOINT: EC50: VALUE: 0.21 mg/l ;REFERENCE SOURCE: AH Marks and Company Ltd Bradford [IUCRID]

CHRONIC : SPECIES: other aquatic plant ; TYPE OF EXPOSURE: DURATION: 14 day; ENDPOINT: NOEC ; VALUE: < 0.014 mg/l ; REFERENCE SOURCE: AH Marks and Company Ltd Bradford [IUCRID]

Biocumulative: No

SAFETY DATA SHEET

Clopyralid (as the potassium salt)

Aquatic Toxicity

Biocumulative: No

Bluegill sunfish <1.0 in 28 days

Based on this BCF, clopyralid is not bioaccumulative under HSNO criteria. This is also supported by a Log Kow of -2.63 at pH 7.

EFSA Scientific Report (2005).

Rapidly Degradable: No

Soil Toxicity

SPECIES: Soybean; ENDPOINT: EC50 (14 day); VALUE: 0.0076 lb/acre [MEA salt] (Converted to 0.0016 mg/kg ai soil); REFERENCE SOURCE: USEPA Pesticides Database (2004).

Soil DT 50 > 30 days: yes

Terrestrial Vertebrate Toxicity

SPECIES: Mallard duck, Anas platyrhynchos ; ENDPOINT: LD50: VALUE: 1465 mg/kg bw [MEA salt]

REFERENCE SOURCE: USDA Forest Service (2004).

Section 13 - Disposal Considerations

- Product Disposal** Dispose of this product only by using according to this label, or at an approved landfill or other approved facility. Do not allow product to enter waterways.
- Container Disposal** Ensure the container is empty. Triple rinse empty container and add rinsate to spray tank. Recycle punctured container without caps through Agrecovery (0800 247 326, www.agrecovery.co.nz). Otherwise crush and bury in a suitable landfill. DO NOT reuse this container for any other purpose.

Section 14 - Transport Information

New Zealand

Classified as a Dangerous Good for transport in accordance with the Land Transport Rule Dangerous Goods 2005 and NZS 5433:2012.

Transport Pictogram



Road and Rail Transport

UN No	3082
Class-primary	9
Packing Group	PGIII
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Marine Transport

UN No	3082
Class-primary	9
Packing Group	PGIII

SAFETY DATA SHEET

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, LIQUID, N.O.S.

Air Transport

UN No 3082

Class-primary 9

Packing Group PGIII

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, LIQUID, N.O.S.

Section 15 - Regulatory Information

New Zealand:

EPA Approval No: HSR100816 See www.epa.govt.nz for controls.

HSNO Classification: 6.1D (oral), 6.1E (dermal), 6.3A, 6.9A, 8.3A, 9.1A, 9.2A, 9.3B

HSNO Controls

Approved Handler	This product must be under the control of an approved handler.
Additional Controls s77A	The substance must not be applied onto or into water.
Location Certificate	Not applicable
Tracking	Tracked
Signage Trigger Quantities	100L (9.1A)
Emergency Response Plan trigger Quantities	100L (9.1A)
Secondary Containment	100L (9.1A)

Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

CAS number Chemical Abstracts Service Registry Number
Hazchem Code Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC International Agency for Research on Cancer
NOS Not otherwise specified
NTP National Toxicology Program (USA)
UN Number United Nations Number

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 MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This SDS is prepared in accordance with the NZ Code of Practice (HSNOCOP8) Preparation of Safety Data Sheets.

Issue Date 17/09/14

Review Date 17/09/19

SAFETY DATA SHEET