

## Section 1 - Identification of Chemical Product and Company

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Trade Name: **Nuturf Millennium Herbicide**  
Product Use: Selective Herbicide  
Creation Date: **February 2008**

## Section 2 - Hazards Identification

### Statement of Hazardous Nature

This product is classified as hazardous –Xi Irritant according to the criteria of ASCC Australia

This product is not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

**Risk Phrases:** R36 Irritating to eyes. R22 Harmful if swallowed  
**Safety Phrases:** S25 Avoid contact with eyes S39 Wear eye protection  
**SUSDP Classification:** S5  
**ADG Classification:** Not a Dangerous Good  
**Packaging Group:** Not a Dangerous Good  
**UN Number:** None allocated  
**Hazchem Code:** None allocated

### Emergency Overview

**Physical Description & colour:** Dark amber coloured liquid

**Odour:** Characteristic amine odour

**Major Health Hazards:** Harmful to eyes, may cause long lasting or permanent effects such as corneal damage

### Potential Health Effects

**Inhalation:** Low inhalation toxicity. Overexposure may cause upper respiratory tract irritation

**Skin Contact:** Short Term: Slightly irritating and slightly toxic by skin absorption.  
Overexposure: may cause symptoms similar to those of ingestion.

**Eye Contact:** Short Term: Irritating to eyes, will cause discomfort such as stinging pain, watering and redness, effects may last after exposure has ceased.

Overexposure: Long lasting or permanent effects such as corneal damage may occur

**Ingestion:** Harmful if swallowed. Ingestion of 2,4-D in relatively large amounts can produce headaches, nausea, vomiting, abdominal pain, lethargy, motor weakness, muscle spasm.

### Carcinogen Status:

**ASCC:** No significant ingredient is classified as carcinogenic by ASCC at stated concentration.

**NTP:** No significant ingredient is classified as carcinogenic by NTP at stated concentration

**IARC:** No significant ingredient is classified as carcinogenic by IARC at stated concentration

## Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc.%	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
2,4-D (diethanolamine salt)	5742-19-8	36*	10	not set
Clopyralid (mono-ethanolamine salt)	1702-17-6	4.5*	not set	not set
Dicamba	1918-00-9	4.7*	not set	not set
Water	7732-18-5	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible. \*Note that these salts are added at slightly higher levels to ensure the stated concentrations of the active components.

### MATERIAL SAFETY DATA SHEET

The 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 should not be exceeded for more than 15 minutes and should not be repeated for 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.

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## 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 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

**Ingestion:** Call Poison Information Centre or doctor immediately. **Do not** induce vomiting unless instructed to do so by medical advice. Wash mouth with water and give a glass of water to drink if affected person able to drink. Do not give anything by mouth to an unconscious person.

**Inhalation:** If vapour or mists have been inhaled, and irritation has developed, move person to fresh air and observe until recovered. If irritation persists or becomes more painful, seek medical advice.

**Skin Contact:** Remove all contaminated clothing and rinse affected areas with copious amounts of water for 15 minutes or until chemical is removed. If irritation persists, seek medical advice.

**Eye Contact:** Immediately irrigate with copious amounts of lukewarm, gently flowing water for 15 – 20 minutes or until the product is removed or irritation has ceased, while holding the eyelid(s) open. Remove contact lenses after 5 minutes then continue rinsing. Obtain medical advice immediately.

**Notes to Doctor:** Treat symptomatically. Note nature of product

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## Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** There is no risk of an explosion from this product under normal circumstance if it is involved in a fire

**Extinguishing Media:** Use extinguishing media suited to materials burning – Large fires, foam or water spray, small fires, Carbon dioxide, dry chemical

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade. Immediately evacuate area. Fire fighters to wear non-flammable protective clothing, gloves, hat, goggles and self contained breathing apparatus. All skin areas to be covered.

**Flash point:** Does not burn

**Upper Flammability Limit:** N/A

**Lower Flammability Limit:** N/A

**Auto ignition temperature:** No data

**Flammability Class:** N/A

**Fire Decomposition Products:** Carbon dioxide, oxides of carbon and nitrogen. If combustion is incomplete – carbon monoxide.

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## Section 6 - Accidental Release Measures

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Immediately call the Fire Brigade. Wear full protective chemically resistant clothing including face mask, face shield, gauntlets and self contained breathing apparatus. See above under Personal Protection regarding Australian Standards relating to personal protective equipment. Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. Avoid using sawdust or other combustible material. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Triple or preferably pressure rinse containers before disposal. Add rinsate to spray tank. Do not dispose of undiluted chemical on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in local authority landfill. Empty containers should not be burnt. If there is any conflict between this MSDS and label, instructions on the label prevail. Dispose of only in accord with all regulations. Launder all contaminated clothing before re-use and advise laundry of nature of contaminant.

## Section 7 - Handling and Storage

**Handling:** This product is a S5 Poison. Observe all relevant regulations regarding sale, transport and storage of this class of product. Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS 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:** Store in a cool, dry place away from children and animals or foodstuffs..Containers should be kept closed in order to minimise contamination. Keep from extreme heat and open flames, and make sure that the product does not come into contact with substances listed under "Materials to avoid" in Section 10.

## Section 8 - Exposure Controls and Personal Protection

This product is intended for outdoor use where engineering controls are not necessary. The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

Exposure Limits	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	ADI (mg/Kg/day)	NOEL (mg/Kg/day)
2,4-D	10	not set	0.01	1
Clopyralid	not set	not set	0.5	50
Dicamba	not set	not set	0.03	3

**ADI** means Acceptable Daily Intake and **NOEL** means No-observable-effect-level.

**Ventilation:** Avoid vapours and provide local exhaust ventilation where necessary.

**Eye Protection:** To avoid contact with eyes, wear face shield, goggles or safety glasses. Emergency eyewash should be readily accessible.

**Skin Protection:** Wear impermeable elbow length PVC gloves to prevent skin contact. Wear overall and long sleeves to prevent contact as absorption through the skin is harmful.

**Respirator:** Use P2 type canister respirator if required

**Safety Boots:** Leather may be permeable to the concentrate, so wear rubber or plastic boots

Provision of eye wash facilities and safety shower recommended.

Wash hands before eating, drinking, smoking or going to toilet, launder protective clothing before re-use or destroy contaminated clothing. Advise laundry of nature of contamination.

## Section 9 - Physical and Chemical Properties:

**Physical Description & colour:** Dark amber liquid  
**Odour:** Characteristic amine odour  
**Boiling Point:** Approx 100°C at 100kPa

**Freezing Point:** 0°C  
**Melting Point:** N/A  
**Volatiles:** Water component  
**Vapour Pressure:** No data  
**Vapour Density:** No data.  
**Specific Gravity:** 1.152 @ 20°C  
**Water Solubility:** Dispersible  
**pH:** No data.  
**Odour Threshold:** No data.  
**Evaporation Rate:** No data.  
**Coeff Oil/water distribution:** No data  
**Flash Point:** 67°C  
**Auto ignition temp:** N/A

### MATERIAL SAFETY DATA SHEET

## Section 10 - Stability and Reactivity

**Reactivity:** This product is stable under normal temperatures and pressures, when stored and handled in accordance with this MSDS

**Conditions to Avoid:** Store away from heat or fire, keep away from strong oxidising agents or strong acids or alkalis

**Incompatibilities:** Incompatible with strong acids, strong oxidising agents, strong alkalis.

**Fire Decomposition:** Fire decomposition products may form toxic mixtures in confined spaces. Carbon dioxide, oxides of carbon and nitrogen. If combustion is incomplete – carbon monoxide.

**Polymerisation:** Unlikely to spontaneously polymerise

## Section 11 - Toxicological Information

Data from laboratory studies on a similar, but not identical, formulation

**Eye Effects:** (Rabbit) Severely irritating/corrosive

**Skin Effects:** (Rabbit) Slightly irritating

**Dermal:** LD<sub>50</sub>(Rabbit) > 4000mg/Kg

**Oral:** LD<sub>50</sub> (Rat) 1,600mg/Kg

**Inhalation:** LC<sub>50</sub> (Rat, 4hr actual) > 4.38mg/L

**Skin Sensitisation:** Not a contact sensitiser in guinea pigs following repeated skin exposure

**Subchronic (Target Organ) Effects** Excessive exposure to Clopyralid may cause effects to liver and kidneys. Repeated over exposure to dicamba may cause liver changes or a decrease in body weight.

**Carcinogenicity** The ingredients are not listed as carcinogenic in Worksafe's document "Exposure Standards for Atmospheric Contaminants in the Occupational Environment" (May 1995) nor in the ASCC Hazardous Substances Information System (1999)

**Reproductive Toxicity:** No impairment of reproductive function attributable any of the components of this product.

**Developmental Toxicity:** Animal tests with dicamba have not demonstrated developmental effects. Effects from Clopyralid and 2,4-D were seen only at severely exaggerated doses.

**Genotoxicity:** Weight of evidence suggests that 2,4-D, Clopyralid and Dicamba are not mutagenic.

## Section 12 - Ecological Information

### Ecotoxicity:

**Effects on birds:** 2,4-D is slightly toxic to wildfowl and slightly to moderately toxic to birds.

LD<sub>50</sub> is >5,620 mg/kg in mallards, 272 mg/kg in pheasants, and 668 mg/kg in quail and pigeons

Clopyralid: Bobwhite Quail 8 day Dietary LC<sub>50</sub>: >4,640ppm; Mallard Duck 8-day Dietary LC<sub>50</sub>: >4,640 ppm;

Mallard Duck Oral LD<sub>50</sub>: 1,465 mg/kg

Dicamba: Bobwhite Quail 8 day Dietary LC<sub>50</sub>: >10,000ppm; Mallard Duck 8-day Dietary LC<sub>50</sub>: >10,000 ppm

**Effects on aquatic organisms:** 2,4-D 96-hour LC<sub>50</sub> Bluegill: 524 mg/l; 96-hour LC<sub>50</sub> Rainbow Trout: 250 mg/l; 48-hour EC<sub>50</sub> Daphnia: 184 mg/l

Clopyralid: 96-hour LC<sub>50</sub> Bluegill:125m g/l ; 96-hour LC<sub>50</sub> Rainbow Trout: 104 mg/l; 48-hour EC<sub>50</sub> Daphnia: 232 mg/l

Dicamba: 96-hour LC<sub>50</sub> Bluegill 135mg/l; 96-hour LC<sub>50</sub> Rainbow Trout: 104mg/l; 48-hour EC<sub>50</sub> Daphnia: 110mg/l

**Effects on other organisms:** 2,4-D LD<sub>50</sub> Honeybee is 0.0115 mg/bee

Clopyralid: Oral LD<sub>50</sub> Honeybee 0.01mg/l

### Environmental Fate:

In laboratory and field studies, 2,4-D DMA salt rapidly dissociated to parent acid in the environment. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks. The bioconcentration for Clopyralid is low and the potential for mobility in the soil is very high. Biodegradation under aerobic laboratory conditions is below detectable limits. The photolysis half-life of Clopyralid in water is 261 days. The photolysis half-life in soil is >12 years. Under aerobic soil conditions the half-life of Clopyralid is 71 days. Dicamba has low bioaccumulation potential, is not persistent in soil, is highly mobile in soil and degrades rapidly.

## Section 13 - Disposal Considerations

**Disposal:** Full details regarding disposal of used containers, and unused material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Dispose of only in accord with all regulations.

## Section 14 - Transport Information

**ADG Code:** This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

## Section 15 - Regulatory Information

**AICS:** All of the significant ingredients in this formulation are to be found in the public AICS Database.

## Section 16 - Other Information

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

### Acronyms:

<b>ADG Code</b>	Australian Code for the Transport of Dangerous Goods by Road and Rail
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>ASCC</b>	Australian Safety & Compensation Council
<b>CAS number</b>	Chemical Abstracts Service Registry Number
<b>Hazchem Number</b>	Emergency action code of numbers and letters that provide information to emergency services especially fire-fighters
<b>IARC</b>	International Agency for Research on Cancer
<b>NOS</b>	Not otherwise specified
<b>NTP</b>	National Toxicology Program (USA)
<b>R-Phrase</b>	Risk Phrase
<b>SUSDP</b>	Standard for the Uniform Scheduling of Drugs & Poisons
<b>UN Number</b>	United Nations Number

THIS MSDS 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 MSDS 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 MSDS is prepared in accord with the NOHSC document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]  
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