

Section 1 - Identification of Chemical Product and Company

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Trade Name: Nuturf Exporsan Selective Turf Herbicide
Product Use: Herbicide
Creation Date: January 2008

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as hazardous - Xn Harmful according to the criteria of ASCC Australia

This product is a Dangerous Good according to the Australian Dangerous Goods (ADG) Code.

Risk Phrases: R20/21/22 Harmful if swallowed, inhaled or by skin contact. R65 Harmful, may cause lung damage if swallowed

Safety Phrases: S24 Avoid contact with skin S36 Wear suitable clothing S23 Do not breathe aerosols

SUSDP Classification: S6

ADG Classification: 6.1 Toxic Substance

Packaging Group: III

UN Number: 3018

Proper Shipping Name: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC

Hazchem Code: 2X

Emergency Overview

Physical Description & colour: Amber coloured liquid

Odour: Aromatic hydrocarbon odour

Major Health Hazards: Harmful if ingested, inhaled or absorbed through skin

Potential Health Effects

Acute Effects

Acute overexposure to organophosphates degrades acetylcholinesterase in the tissues. This typically leads to headache, dizziness, weakness, shaking, nausea, stomach cramps, diarrhoea and sweating. Small amounts of the hydrocarbon solvent, if aspirated into the lungs during ingestion or subsequent vomiting, may induce severe lung congestion which could in turn result in laboured breathing, coma and death.

Inhalation: Harmful if inhaled. **Short term:** Exposure may lead to short term health problems

Long Term: May lead to permanent health problems

Skin Contact: May be absorbed through skin, causes skin irritation. Avoid contact with skin

Eye Contact: Moderate eye irritation. Avoid contact with eyes

Ingestion: Toxic if swallowed. Ingestion of small quantities can be harmful and larger quantities may lead to death. Irritation of the gastrointestinal tract is associated with ingestion of the hydrocarbon solvent. See acute effects.

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 ³)	STEL (mg/m ³)
Bensulide	741-58-2	50	not set	not set
Solvent naphtha, heavy aromatic	64742-94-5	47	not set	not set
Non hazardous emulsifiers	secret	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.

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.

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. **Do not** give any liquid to the affected person.

Inhalation: If inhaled, move person to fresh air and call Poison Information Centre or Doctor. If person is not breathing call ambulance then give mouth to mouth resuscitation.

Skin Contact: Remove all contaminated clothing and rinse affected areas with copious amounts of water for 15 minutes or until chemical is removed. Call Poison Centre or doctor for treatment 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.

Notes to Doctor: This product contains a cholinesterase inhibitor. Atropine treatment may be required or treat with up to 10mg of IV diazepam. Curare therapy is contraindicated. Treat pulmonary pneumonitis secondary to pulmonary oedema. Do not give adrenergic amines, aminophylline, succinylcholine, phenothiazines or reserpine alkaloids or oils. Contains petroleum distillates – vomiting may cause aspiration pneumonia

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: This product is classified as a C1 combustible product. There is a slight risk of an explosion from this product if it is involved in a fire

Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

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: 67°C

Upper Flammability Limit: 7.0%

Lower Flammability Limit: 0.6% (solvent)

Auto ignition temperature: No data

Flammability Class: Flammable C1 Combustible liquid.

Fire Decomposition: Fire decomposition products may form toxic and corrosive mixtures in confined spaces. Vapours from this product are heavier than air and may accumulate in sumps, pits & other low lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Decomposition products - carbon dioxide and if combustion is incomplete, carbon monoxide and smoke, Nitrogen and its compounds, oxides of sulfur, oxides of phosphorus

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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. Breakdown products still have significant toxicity. Bury these wastes in an approved landfill. On-site disposal is not acceptable. For minor contamination of soil, bensulide has a field half-life of 120 days under normal conditions of temperature and moisture. Triple rinse containers, add rinsate to the spray tank, then offer container for recycling/reconditioning, or puncture top, sides and bottom and dispose of in landfill in accordance with local authorities. If there is any conflict between this MSDS and the label, instructions on the label prevail. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Handling: This product is a S6 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. Protect from temperatures below 6°C as temperatures below this may cause product to crystallise. 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/m³)** not set **STEL (mg/m³)** not set

ADI (Bensulide) 0.04 mg/Kg/day

NOEL (Bensulide) 4 mg/Kg/day

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

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

Eye Protection: Eye protection such as protective glasses or goggles is recommended when this product is being used.

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:	Amber liquid
Odour:	Aromatic hydrocarbon (solvent) odour
Boiling Point:	Decomposes at approx 155°C
Melting Point:	33-36°C
Volatiles:	Expected to be low at 100°C
Vapour Pressure:	8.2×10^{-7} torr @25°C
Vapour Density:	No data.
Specific Gravity:	1.224 @ 25°C
Water Solubility:	5.6ppm @25°C (Bensulide)
pH:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Flash Point	67°C
Auto ignition temp:	No Data

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 alkalis

Incompatibilities: Incompatible with strong acids, strong oxidising agents, strong alkalis. The active ingredient is corrosive to copper

Fire Decomposition: Fire decomposition products may form toxic and corrosive mixtures in confined spaces. Vapours from this product are heavier than air and may accumulate in sumps, pits & other low lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids.

Decomposition products - carbon dioxide and if combustion is incomplete, carbon monoxide and smoke, Nitrogen and its compounds, oxides of sulfur, oxides of phosphorus

Polymerisation: Does not occur.

Section 11 - Toxicological Information

Eye Effects:	(Rabbit) moderately irritating
Skin Effects:	(Rabbit) not irritating
Dermal:	LD ₅₀ (Rabbit) > 2000mg/Kg
Oral:	LD ₅₀ (Rat, male) 360mg/Kg, (Rat, female) 270mg/Kg
Inhalation:	LC ₅₀ (Rat, 4hr actual) > 6.73mg/L

Section 12 - Ecological Information

Environmental Data:

Breakdown in soil and groundwater: Bensulide is highly persistent in both plants and soil [8]. Because it strongly binds to the top 0 to 2 inches of soil, bensulide does not evaporate easily but can be carried off site with sediment or dust. The rate of application, temperature, soil organic matter, and soil acidity can all affect its breakdown. Bensulide leaches very little in sand, clay, or organic soils. Bensulide is slowly broken down by soil microorganisms. The rate of degradation increases with increasing soil temperature and organic matter, but decreases with increasing basicity [8]. At 70 to 80 F, the half-life of bensulide is 4 months in a moist loam soil and 6 months in a moist, loamy sand [13]. As of 1988, it had not been found in

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groundwater or in well water [42].

Breakdown in water: In flooded rice fields the half-life of bensulide averages 4 to 6 days [13]. Some

decomposition by sunlight occurs over several days [8].

Breakdown in vegetation: Bensulide is rapidly absorbed by roots and foliage and is translocated to the active growing portions of the plant (root or stem tips) where it works to stop cell division and plant growth [13]. When applied to roots, bensulide is not translocated to leaves except as metabolites [8].

Ecotoxicological Information:

Effects on birds: Bensulide is only slightly toxic to birds. The bensulide herbicide, Betasan, was fed to adult Japanese quail for 3 weeks, & egg hatchability was significantly reduced at the highest dose (about 50 mg/kg/day), but fertility was not affected. Blood cholinesterase was inhibited at lower doses, but recovered within 2 weeks after the treatments stopped [8]. The oral LD50 in bobwhite quail is 1386 mg/kg [13].

Effects on aquatic organisms: Bensulide is moderately to highly toxic to aquatic organisms, including rainbow trout and bluegill [8]. The LC50 for bensulide is 1.1 mg/L in rainbow trout, 1.4 mg/L in bluegill, and 1.2 mg/L in goldfish. The compound is moderately toxic to aquatic invertebrates like the amphipod *Gammarus lacustris* [6]. The calculated bioconcentration is low and it is not expected to bioaccumulate [6].

Effects on other organisms: Bensulide is very highly toxic to bees [13]. The LD50 of bensulide is 0.0016 mg per bee [13].

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: This product is classed as UN3018, Dangerous Goods Class 6.1 Toxic Substances. Proper Shipping name is ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC. Class 6 Toxic Substances shall not be loaded in the same vehicle or packed in the same freight container with Classes 1 (Explosives), 3 (Flammable Liquids where the Flammable Liquid is nitromethane), 5.1 (Oxidising Agents where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides where the Toxic Substances are Fire Risk Substances), 8 (Corrosive Substances where the Toxic Substances are cyanides and the Corrosives are acids), Foodstuffs and foodstuff empties. They may however be loaded in the same vehicle or packed in the same freight container with Classes, 2.1 (Flammable Gases), 2.2 (Non-Flammable, Non-Toxic Gases), 2.3 (Toxic Gases), 3 (Flammable liquids, except where the flammable liquid is nitromethane), 4.1 (Flammable Solids), 4.2 (Spontaneously Combustible Substances), 4.3 (Dangerous When Wet Substances), 5.1 (Oxidising Agents except where the Toxic Substances are Fire Risk Substances), 5.2 (Organic Peroxides except where the Toxic Substances are Fire Risk Substances), 7 (Radioactive Substances), 8 (Corrosive Substances except where the Toxic Substances are cyanides and the Corrosives are acids), 9 (Miscellaneous Dangerous Goods)

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:

ADG Code

Australian Code for the Transport of Dangerous Goods by Road and Rail

AICS

Australian Inventory of Chemical Substances

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Council
CAS number

Chemical Abstracts Service Registry Number

Hazchem Number

Emergency action code of numbers and letters that provide information to emergency services especially fire-fighters

IARC

International Agency for Research on Cancer

NOS

Not otherwise specified

NTP

National Toxicology Program (USA)

R-Phrase

Risk Phrase

SUSDP

Standard for the Uniform Scheduling of Drugs & Poisons

UN Number

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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