

SAFETY DATA SHEET**Section 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER**

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| Product Name: | BARRICADE Herbicide |
| Design Code: | A12333G |
| Recommended Use: | For pre-emergent control of weeds in established turf, garden beds and nursery pots as per the Directions for Use |
| Company Details: | Syngenta Crop Protection Limited |
| Address: | Tower II, Level 7, 110 Symonds Street Private Bag 92618, Symonds Street AUCKLAND NEW ZEALAND |
| Telephone number: | (weekdays) 09 - 306 1500 |
| Emergency Telephone number: | (24 Hours) 0800 734 607 |
| National Poisons & Hazchem Information Centre : | 0800 POISON (0800 764 766) |
| Date of Preparation: | 14 August 2017 |

Section 2: HAZARDS IDENTIFICATION

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| Hazard classification: | 6.9B (oral)9.1A, 9.2A |
| Priority Identifier: | WARNING KEEP OUT OF REACH OF CHILDREN |
| Secondary Identifiers: | 6.9B May cause damage to the liver 9.1A Very harmful to aquatic organisms. 9.2A Very toxic to the soil environment |

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS**Pure Substance:**

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| Chemical Identity of pure substance: | Prodiamine |
| Common Name: | |

Mixture:**Chemical Identity of ingredients:**

| Ingredient | CAS no. | Content (% w/w) |
|--|----------------|------------------------|
| Prodiamine | 29091-21-2 | 40.7 |
| Propane-1,2-diol | 57-55-6 | ≥2 - ≤10 |
| other ingredients determined not to be hazardous | - | to 100% |

Section 4: FIRST AID MEASURES

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| Necessary First Aid measures: | <p>For advice contact the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately. Have the product container, label or SDS with you when calling the National Poisons Centre. Begin artificial respiration if the victim is not breathing. Use mouth to nose rather than mouth to mouth. Obtain medical attention.</p> <p>Swallowed: If swallowed DO NOT induce vomiting. Rinse mouth.</p> <p>Eye: If concentrate or spray solution enters the eyes wash it out immediately with water. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice / treatment.</p> <p>Skin: If skin contact occurs remove contaminated clothing and wash affected areas thoroughly with running water. DO NOT scrub the skin.</p> <p>Inhaled: If inhaled move the victim to fresh air immediately. Begin artificial respiration if breathing has stopped. Use mouth to nose rather than mouth to mouth. Obtain medical attention. Take to hospital without delay..</p> |
| Poisoning symptoms: | No case of human poisoning due to this product is on record. |
| Workplace facilities: | No specific facilities required. Standard emergency equipment must be available. |
| Hygiene Practices: | Avoid contact with skin and eyes and inhalation of concentrate or spray mist. When mixing or applying, wear protective clothing, including cotton overalls, gloves and face shield. Wash splashes of concentrate from eyes or skin immediately. DO NOT eat, drink or smoke while using. Wash hands and face before eating, drinking or smoking and after work. Wash protective clothing after use. |
| Notes for Medical Personnel: | No specific antidote is available. If poisoning is suspected apply symptomatic therapy. |

Section 5: FIRE-FIGHTING MEASURES

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| Type of Hazard: | This product is combustible. |
| Fire Hazard Properties: | As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion. Exposure to decomposition products may be a hazard to health. |
| Regulatory Requirements: | Not required. |
| Extinguishing Media and methods: | <u>Extinguishing media - small fires:</u> Use water spray, alcohol resistant foam, dry chemical or carbon dioxide. <u>Extinguishing media - large fires:</u> Alcohol resistant foam, water spray DO NOT use a solid water stream as it may scatter and spread fire. |
| Hazchem Code: | 2X |
| Recommended Protective Clothing: | When fighting a major fire wear full protective clothing and self-contained breathing apparatus. |
| Advice for firefighters: | Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray. |

Section 6: ACCIDENTAL RELEASE MEASURES

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| Personal Precautions: | Emergency Procedures: Ensure suitable personal protection during removal of spillages. This means wearing eye protection, chemically resistant gloves, boots and overalls. |
| Environmental Precautions: | Prevent further leakage or spillage if safe to do so. Do not flush into surface water, water drains, waterways or sanitary sewer system. |
| Procedure for spill: | <ol style="list-style-type: none">(1) Keep all bystanders away.(2) Wear goggles, half face-piece respirator with combined dust and vapour cartridge, full length clothing and PVC gloves.(3) Reposition any leaking containers so as to minimise further leakage.(4) Dam and absorb spill with an absorbent material (e.g. sand or soil).(5) Shovel the absorbed spill into drums.(6) Decontaminate the spill area with detergent and water and rinse with the smallest volume of water practicable. |
| Procedure for Disposal: | Disposal of the absorbed material will depend upon the extent of the spill. Contaminated material must be disposed of in accordance with all local authority requirements. It is suggested: <ul style="list-style-type: none">• For quantities up to 50 litres of product bury in a secure approved landfill site.• For quantities greater than 50 litres seek advice from the manufacturer (use emergency contact number below) before attempting disposal. Contain in a secure location until disposal method is established. |

Section 7: HANDLING AND STORAGE

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| Precautions for safe handling: | Handling: No special technical protective measures required. No special handling advice required. |
| Regulatory Requirements: | Not required. |
| Handling practices: | Avoid contact with skin and eyes and inhalation of concentrate or spray mist. When using, do not eat, drink or smoke. Wash face and hands before eating, drinking or smoking. |
| Approved Handlers: | Not required. |

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| Conditions for Safe Storage: | Storage: Keep out of reach of children. Store in original container, tightly closed, away from foodstuffs. Store in a cool, dry, well ventilated place and protect from sunlight. Avoid temperatures below minus 5°C or above 35°C. |
| Store Site Requirements: | Signage and secondary containment will be required at sites. Stores containing quantities of 100 litres or more require signage and secondary containment of any product classified as 6.9B, 9.1A, 9.2A (eg BARRICADE). |
| Packaging: | Store in original container, tightly closed, away from foodstuffs. |

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

ALWAYS READ AND FOLLOW THE LABEL INSTRUCTIONS AND WARNINGS

| Workplace Exposure Guidelines: | |
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| Workplace Exposure Standards: | <p>Prodiamine (Source: Syngenta) 8 h TWA: 10 mg/m³</p> <p>Propane-1,2-diol (Source UK HSE) 8 h TWA: 10 mg/m³ (Particulates) 8 h TWA: 150 ppm, 470 mg/m³ (Total (vapour & particulates))</p> |
| Application in the workplace: | not applicable |
| Exposure standards outside the workplace: | none set |
| Engineering controls: | <p>No special requirements. Product is used outdoors. Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne mists or vapours are generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.</p> <p>Follow precaution statements on the label and the use and safety directions in Code of Practice for the Management of Agrichemical NZS8409.</p> |
| Personal Protection: | Use only protective equipment bearing the mark of the Standards Association with Australia/ New Zealand. In case of heavy exposure, wear half face-piece respirator with combined dust and vapour cartridge, chemical resistant gloves and heavy duty cotton overalls. |
| General Hygiene: | Change work clothes daily. May irritate the eyes and skin. Avoid contact with eyes and skin. Do not inhale spray mist. If product gets on skin immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. |

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance: | Yellow liquid |
| Odour: | Weak ammonia |
| pH: | 8 – 10 at 1% suspension in water |
| Flashpoint: | >100°C |
| Density: | 1.17 g/mL at 20°C |
| Solubility: | 0.013 ppm at 25°C |
| Vapour Pressure: | <5.6 x 10 ⁻⁵ mmHg at 20°C |
| Explosive properties: | Not applicable |
| Oxidising properties: | Not applicable |

Section 10: STABILITY AND REACTIVITY

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| Stability of the Substance: | No information available. |
| Conditions to Avoid: | None known |
| Material to Avoid: | None known |
| Hazardous decomposition products | Combustion or thermal decomposition will evolve toxic and irritant vapours. |
| Hazardous polymerisation | Hazardous polymerisation does not occur. |
| Specific Data | not applicable |

Section 11: TOXICOLOGICAL INFORMATION

HSNO Classifications:

6.9B May cause damage to the liver.

Acute Effects

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| Swallowed: | LD ₅₀ | >5,000 mg/kg (rat) |
| Dermal absorption: | LD ₅₀ | >5,000 mg/kg (rat) |
| Inhaled: | LC ₅₀ (4 h) | >2.55 mg/L (rat) |
| Irritation | | |
| Eye: | Mild IRRITANT (rabbit) | |
| Skin: | Practically NON-IRRITATING (rabbit) | |
| Sensitization | NOT A SKIN SENSITISER (guinea pigs) | |

Chronic / Long Term Effects (Active Ingredient – Prodiamine)

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| Chronic | Liver (alteration and enlargement) and thyroid effects (hormone imbalances) at high dose levels (rats); decreased body weight gains. |
| Carcinogenicity: | Benign thyroid tumours (rats); Non observed (mouse) |
| Reproductive toxicity: | Fetal toxicity at high dose levels (rats); developmental and maternal toxicity observed at 1g/kg/day. |

Section 12: ENVIRONMENTAL INFORMATION

HSNO Classifications:

9.1A Very toxic to aquatic organisms

9.2A Very toxic to the soil environment

Environmental Risk and Safety Avoid contamination of any water supply with chemical or empty container

Phrases:

The information presented below is for the active ingredient, Prodiamine. A thorough review of environmental information is not possible in this document.

Ecotoxicity Effects

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| Acute toxicity to Fish: | LC ₅₀ (96 h) = 0.83 mg/L <i>Oncorhynchus mykiss</i> (rainbow trout) LC ₅₀ (96 h) = 0.55 mg/L <i>Lepomis macrochirus</i> (bluegill) |
| Toxicity to aquatic Invertebrates: | EC ₅₀ (48 h) = 19.1 mg/L (<i>Daphnia magna</i> (water flea)) |
| Growth inhibition, Algae: | EC ₅₀ (72 h) = 0.034 mg/L (<i>Pseudokirchneriella subcapitata</i> (green algae)) |
| Acute toxicity to Birds: | Dietary LC ₅₀ = >10,000 mg/kg ai (mallard ducks and bobwhite quail) |
| Toxicity to soil dwelling organisms: | LC ₅₀ (14 days) = >1000 mg ai/kg (Earthworms) |
| Toxicity to honey bees | Oral LD ₅₀ (48 hour) >109 ug ai/bee Contact LD ₅₀ (48 hour) >100 ug ai/bee |

| Environmental Fate – Prodiamine | |
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| Persistence and Degradability: | |
| Stability in water: | Prodiamine is stable in water and sinks after 24 hours |
| Stability in soil: | Prodiamine is persistent in soil |
| Bioaccumulative Potential: | Prodiamine does not bioaccumulate. |
| Mobility in Soil: | Prodiamine is immobile in soil. |
| Results of PBT and vPvB assessment: | This substance is not considered to be persistent, bioaccumulating nor toxic (PBT) This substance is not considered to be very persistent nor very bioaccumulating (vPvB). |

Section 13: DISPOSAL CONSIDERATIONS

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| Product Disposal: | Dispose of this product only by using according to the label, or at an approved landfill or other approved facility. |
| Container Disposal: | Ensure the container is empty. Triple rinse the container and add rinsate to the spray tank. Recycle empty container 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

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| Rail / Road (RID/ADR) | UN-No: | 3082 |
| | Class: | 9 |
| | Packaging Group: | III |
| | Proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Prodiamine) |
| Sea (IMDG-Code) | UN-No: | 3082 |
| | Class: | 9 |
| | Packaging Group: | III |
| | Proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Prodiamine) |
| | Marine Pollutant: | Marine Pollutant |
| Air (ICAO/IATA) | UN-No: | 3082 |
| | Class: | 9 |
| | Packaging Group: | III |
| | Proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Prodiamine) |

Section 15: REGULATORY INFORMATION

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| HSNO Approval Number: | HSR101240 |
| HSNO Controls (inc. Tracking and Record Keeping): | See http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx for controls. |
| ACVM Registration: | Not required. Exempt from registration |
| ACVM Controls: | Exempt from registration |

Section 16: OTHER INFORMATION

Referenced Pesticide Manual

Note: This product is a registered agricultural chemical and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

CONTACT POINT: Business Manager - Crop Protection: (09) 306 1503
24 HOURS EMERGENCY CONTACT: 0800 734 607

This Material Safety Data Sheet 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 MSDS 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.

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DISCLAIMER

This product complies with the specifications in its statutory registration. Implied terms and warranties are excluded. Syngenta's liability for breach of the express or any non-excludable implied warranty is limited to product replacement or purchase price refund. The purchaser must determine suitability for intended purpose and take all proper precautions in the handling, storage and use of the product including those on the label and/or safety data sheet failing which Syngenta shall have no liability.