# Apparent Diuron 900 WG Herbicide

## AIRR Apparent Pty Ltd.

Chemwatch Hazard Alert Code: 3

Chemwatch: **9656-30**
Version No: **2.1**
Safety Data Sheet according to Work Health and Safety Regulations (Hazardous Chemicals) 2023 and ADG requirements

Initial Date: **27/10/2026**
Revision Date: **27/10/2026**
Print Date: **23/11/2026**
L.GHS.AUS.EN.E

## SECTION 1 Identification of the substance / mixture and of the company / undertaking

### Product Identifier

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|---|---|
| **Product name** | Apparent Diuron 900 WG Herbicide |
| **Chemical Name** | Not Applicable |
| **Synonyms** | Not Available |
| **Proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains diuron) |
| **Chemical formula** | Not Applicable |
| **Other means of identification** | Not Available |

### Relevant identified uses of the substance or mixture and uses advised against

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| **Relevant identified uses** | A selective agricultural water dispersible granule herbicide.<br>Use according to manufacturer's directions. |

### Details of the manufacturer or importer of the safety data sheet

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|---|---|
| **Registered company name** | **AIRR Apparent Pty Ltd.** |
| **Address** | 15/16 Princes Street, Newport NSW 2106 Australia |
| **Telephone** | +61 3 5820 8400 |
| **Fax** | Not Available |
| **Website** | www.apparent.com.au |
| **Email** | enquiries@apparentag.com.au |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **AIRR Apparent Pty Ltd.** |
| **Emergency telephone number(s)** | 1800 033 111 (24 Hours) |
| **Other emergency telephone number(s)** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

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| **Poisons Schedule** | Not Applicable |
| **Classification [1]** | Acute Toxicity (Oral) Category 4, Serious Eye Damage/Eye Irritation Category 2A, Carcinogenicity Category 2, Specific Target Organ Toxicity - Repeated Exposure Category 2, Hazardous to the Aquatic Environment Long-Term Hazard Category 1 |
| ***Legend:*** | ***1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*** |

### Label elements

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| **Hazard pictogram(s)** |  |
| **Signal word** | **Warning** |

### Hazard statement(s)

**Page 1 continued...**

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| **H302** | Harmful if swallowed. |
| **H319** | Causes serious eye irritation. |
| **H351** | Suspected of causing cancer. |
| **H373** | May cause damage to organs through prolonged or repeated exposure. |
| **H410** | Very toxic to aquatic life with long lasting effects. |

**Precautionary statement(s) Prevention**

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| **P260** | Do not breathe dust/fume. |
| **P280** | Wear protective gloves, protective clothing, eye protection and face protection. |
| **P264** | Wash all exposed external body areas thoroughly after handling. |
| **P270** | Do not eat, drink or smoke when using this product. |
| **P273** | Avoid release to the environment. |
| **P202** | Do not handle until all safety precautions have been read and understood. |

**Precautionary statement(s) Response**

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| **P308+P313** | IF exposed or concerned: Get medical advice/ attention. |
| **P305+P351+P338** | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| **P314** | Get medical advice/attention if you feel unwell. |
| **P337+P313** | If eye irritation persists: Get medical advice/attention. |
| **P391** | Collect spillage. |
| **P301+P312** | IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell. |
| **P330** | Rinse mouth. |

**Precautionary statement(s) Storage**

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| **P405** | Store locked up. |

**Precautionary statement(s) Disposal**

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| **P501** | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |

No further product hazard information.

## SECTION 3 Composition / information on ingredients

**Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No | %[weight] | Name |
|---|---|---|
| 330-54-1 | 90 | diuron |
| Not Available | balance | Ingredients determined not to be hazardous |
| ***Legend:*** | ***1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available*** | |

## SECTION 4 First aid measures

**Description of first aid measures**

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| **Eye Contact** | If this product comes in contact with the eyes:<br>▸ Immediately hold eyelids apart and flush the eye continuously with running water.<br>▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.<br>▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.<br>▸ Transport to hospital or doctor without delay.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Immediately flush body and clothes with large amounts of water, using safety shower if available.<br>▸ Quickly remove all contaminated clothing, including footwear.<br>▸ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.<br>▸ Transport to hospital, or doctor. |
| **Inhalation** | ▸ If fumes or combustion products are inhaled remove from contaminated area.<br>▸ Lay patient down. Keep warm and rested.<br>▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.<br>▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.<br>▸ Transport to hospital, or doctor, without delay. |
| **Ingestion** | ▸ **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.**<br>▸ For advice, contact a Poisons Information Centre or a doctor.<br>▸ Urgent hospital treatment is likely to be needed.<br>▸ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. |

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- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.

**Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:**

- **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

**NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

### Indication of any immediate medical attention and special treatment needed

Treatment following urea herbicide intoxication, is supportive and symptomatic. Methylthioninium chloride (methylene blue) 1-2 mg (the dose depending on the severity of features) should be administered intravenously over 5-10 minutes if there are symptoms consistent with methaemoglobinaemia and/or a methaemoglobin concentration >30%.
for diuron:

- Symptomatic and supportive action is indicated.
- Methaemoglobinaemia is possible
- if compound is hydrolysed in vivo to aniline.
- Methaemoglobinaemia causes cyanosis. Reversion of methaemoglobin to haemoglobin is spontaneous after removal from exposure, so moderate degrees of cyanosis need be treated only by supportive measures such as bed rest and oxygen inhalation.
- Thorough cleansing of the entire contaminated area of the body, including the scalp and nails is of the utmost importance.

The material may induce methaemoglobinaemia following exposure.

- Initial attention should be directed at oxygen delivery and assisted ventilation if necessary. Hyperbaric oxygen has not demonstrated substantial benefits.
- Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.
- Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue. (Cyanosis, alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 50 minutes; repeat, using the same dose, if symptoms of hypoxia fail to subside within 1 hour.
- Thorough cleansing of the entire contaminated area of the body, including the scalp and nails, is of utmost importance.

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

| Determinant | Index | Sampling Time | Comment |
|---|---|---|---|
| 1. Methaemoglobin in blood | 1.5% of haemoglobin | During or end of shift | B, NS, SQ |

B: Background levels occur in specimens collected from subjects **NOT** exposed
NS: Non-specific determinant; also observed after exposure to other materials
SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

## SECTION 5 Firefighting measures

### Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

### Special hazards arising from the substance or mixture

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| **Fire Incompatibility** | ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

### Advice for firefighters

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| **Fire Fighting** | ▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear breathing apparatus plus protective gloves.<br>▸ Prevent, by any means available, spillage from entering drains or water courses.<br>▸ Use water delivered as a fine spray to control fire and cool adjacent area.<br>▸ **DO NOT** approach containers suspected to be hot.<br>▸ Cool fire exposed containers with water spray from a protected location.<br>▸ If safe to do so, remove containers from path of fire.<br>▸ Equipment should be thoroughly decontaminated after use. |
| **Fire/Explosion Hazard** | ▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>▸ In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC).<br>▸ When processed with flammable liquids/vapors/mists,ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapour/dust mixture will be lower than the individual LELs for the vapors/mists or dusts.<br>▸ A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.<br>▸ Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type.<br>▸ Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.<br>▸ Build-up of electrostatic charge may be prevented by bonding and grounding. |

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| | ▸ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.<br>▸ All movable parts coming in contact with this material should have a speed of less than 1-meter/sec.<br>▸ A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source.<br>▸ One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending of how the powder was manufactured and handled; this means that it is virtually impossible to use flammability data published in the literature for dusts (in contrast to that published for gases and vapours).<br>▸ Autoignition temperatures are often quoted for dust clouds (minimum ignition temperature (MIT)) and dust layers (layer ignition temperature (LIT)); LIT generally falls as the thickness of the layer increases.<br>Combustion products include:<br>▸ carbon monoxide (CO)<br>▸ carbon dioxide (CO2)<br>hydrogen chloride<br>phosgene<br>nitrogen oxides (NOx)<br>▸ other pyrolysis products typical of burning organic material. |
| **HAZCHEM** | 2Z |

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

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| **Minor Spills** | ▸ Clean up waste regularly and abnormal spills immediately.<br>▸ Avoid breathing dust and contact with skin and eyes.<br>▸ Wear protective clothing, gloves, safety glasses and dust respirator.<br>▸ Use dry clean up procedures and avoid generating dust.<br>▸ Vacuum up or sweep up. **NOTE:** Vacuum cleaner must be fitted with an exhaust micro filter (H-Class HEPA type) (consider explosion-proof machines designed to be grounded during storage and use). H-Class HEPA filtered industrial vacuum cleaners should NOT be used on wet materials or surfaces.<br>▸ Dampen with water to prevent dusting before sweeping.<br>▸ Place in suitable containers for disposal.<br>Environmental hazard - contain spillage. |
| **Major Spills** | ▸ Clear area of personnel and move upwind.<br>▸ Alert Fire Brigade and tell them location and nature of hazard.<br>▸ Wear full body protective clothing with breathing apparatus.<br>▸ Prevent, by all means available, spillage from entering drains or water courses.<br>▸ Consider evacuation (or protect in place).<br>▸ No smoking, naked lights or ignition sources.<br>▸ Increase ventilation.<br>▸ Stop leak if safe to do so.<br>▸ Water spray or fog may be used to disperse / absorb vapour.<br>▸ Contain or absorb spill with sand, earth or vermiculite.<br>▸ Collect recoverable product into labelled containers for recycling.<br>▸ Collect solid residues and seal in labelled drums for disposal.<br>▸ Wash area and prevent runoff into drains.<br>▸ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.<br>▸ If contamination of drains or waterways occurs, advise emergency services.<br>Environmental hazard - contain spillage. |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

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| **Safe handling** | ▸ Avoid skin contact, including inhalation.<br>▸ Wear protective clothing when risk of exposure occurs.<br>▸ Use in a well-ventilated area.<br>▸ Prevent concentration in hollows and sumps.<br>▸ **DO NOT** enter confined spaces until atmosphere has been checked.<br>▸ **DO NOT** allow material to come in direct contact with human skin or eyes.<br>▸ **DO NOT** allow material to come in contact with exposed food or food contact surfaces.<br>▸ Suitable PPE must be worn at all times.<br>▸ Avoid contact with incompatible materials.<br>▸ When handling, **DO NOT** eat, drink or smoke.<br>▸ Keep containers securely sealed when not in use.<br>▸ Avoid physical damage to containers.<br>▸ Always wash hands with soap and water after handling.<br>▸ Work clothes should be laundered separately. Launder contaminated clothing before re-use.<br>▸ Use good occupational work practice.<br>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.<br>▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.<br>▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>▸ Establish good housekeeping practices.<br>▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.<br>▸ Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area. |

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| | ▸ Do not use air hoses for cleaning.<br>▸ Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used.<br>▸ Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.<br>▸ Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance.<br>▸ Do not empty directly into flammable solvents or in the presence of flammable vapors.<br>▸ The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.<br>Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.<br>▸ Do NOT cut, drill, grind or weld such containers.<br>▸ In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry area protected from environmental extremes.<br>▸ Store away from incompatible materials and foodstuff containers.<br>▸ Protect containers against physical damage and check regularly for leaks.<br>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.<br>For major quantities:<br>▸ Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams}.<br>▸ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities. |

### Conditions for safe storage, including any incompatibilities

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| **Suitable container** | ▸ Polyethylene or polypropylene container.<br>▸ Check all containers are clearly labelled and free from leaks. |
| **Storage incompatibility** | ▸ Segregate from alcohol, water.<br>▸ Avoid reaction with oxidising agents |

## SECTION 8 Exposure controls / personal protection

### Control parameters

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|---|---|---|---|---|---|---|
| Australia Exposure Standards | diuron | Diuron | 10 mg/m3 | Not Available | Not Available | Not Available |
| Australia Workplace exposure limits for airborne contaminants (WEL list) - Appendix A - Workplace Exposure Limits | diuron | Diuron | 10 mg/m3 | Not Available | Not Available | Not Available |

**MATERIAL DATA**

for diuron:
Exposures at or below the recommended TLV-TWA is thought to protect the worker from the significant risk of anaemia and methaemoglobinaemia associated with use of the product.

### Exposure controls

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| **Appropriate engineering controls** | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.<br>The basic types of engineering controls are:<br>Process controls which involve changing the way a job activity or process is done to reduce the risk.<br>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.<br>Employers may need to use multiple types of controls to prevent employee overexposure.<br><br>▸ Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.<br>▸ Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.<br>▸ Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.<br>▸ Open-vessel systems are prohibited.<br>▸ Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.<br>▸ Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.<br>▸ For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.<br>▸ Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).<br>▸ Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.<br>▸ Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed. |

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| **Individual protection measures, such as personal protective equipment** |  |
| **Eye and face protection** | ‣ Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure.<br>‣ Chemical goggles. Whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.[AS/NZS 1337.1, EN166 or national equivalent]<br>‣ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.<br>‣ Alternatively a gas mask may replace splash goggles and face shields.<br>‣ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]. |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | ‣ Elbow length PVC gloves<br>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.<br>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:<br>· frequency and duration of contact,<br>· chemical resistance of glove material,<br>· glove thickness and<br>· dexterity<br>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).<br>· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.<br>· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.<br>· Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.<br>· Contaminated gloves should be replaced.<br>As defined in ASTM F-739-96 in any application, gloves are rated as:<br>· Excellent when breakthrough time > 480 min<br>· Good when breakthrough time > 20 min<br>· Fair when breakthrough time < 20 min<br>· Poor when glove material degrades<br>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.<br>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.<br>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.<br>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:<br>· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.<br>· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential<br>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.<br>‣ polychloroprene.<br>‣ nitrile rubber.<br>‣ butyl rubber.<br>‣ fluorocaoutchouc.<br>‣ polyvinyl chloride.<br>Gloves should be examined for wear and/ or degradation constantly. |
| **Body protection** | See Other protection below |
| **Other protection** | ‣ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent]<br>‣ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent]<br>‣ Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.<br>‣ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.<br>‣ Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.<br>‣ Overalls.<br>‣ P.V.C apron.<br>‣ Barrier cream. |

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| | ‣ Skin cleansing cream.<br>‣ Eye wash unit. |

**Respiratory protection**

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

· Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
· The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
· Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
· Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
· Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
· Use approved positive flow mask if significant quantities of dust becomes airborne.
· Try to avoid creating dust conditions.
Where significant concentrations of the material are likely to enter the breathing zone, a Class P3 respirator may be required.
Class P3 particulate filters are used for protection against highly toxic or highly irritant particulates.
Filtration rate: Filters at least 99.95% of airborne particles
Suitable for:
· Relatively small particles generated by mechanical processes eg. grinding, cutting, sanding, drilling, sawing.
· Sub-micron thermally generated particles e.g. welding fumes, fertilizer and bushfire smoke.
· Biologically active airborne particles under specified infection control applications e.g. viruses, bacteria, COVID-19, SARS
· Highly toxic particles e.g. Organophosphate Insecticides, Radionuclides, Asbestos
Note: P3 Rating can only be achieved when used with a Full Face Respirator or Powered Air-Purifying Respirator (PAPR). If used with any other respirator, it will only provide filtration protection up to a P2 rating.

## SECTION 9 Physical and chemical properties

**Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Granulated solid. |

| | | | |
|---|---|---|---|
| **Physical state** | Divided Solid | **Relative density (Water = 1)** | Not Available |
| **Odour** | Not Available | **Partition coefficient n-octanol / water** | Not Available |
| **Odour threshold** | Not Available | **Auto-ignition temperature (°C)** | Not Available |
| **pH (as supplied)** | Not Available | **Decomposition temperature (°C)** | Not Available |
| **Melting point / freezing point (°C)** | Not Available | **Viscosity (mm2/s)** | Not Available |
| **Initial boiling point and boiling range (°C)** | Not Available | **Molecular weight (g/mol)** | Not Applicable |
| **Flash point (°C)** | Not Available | **Taste** | Not Available |
| **Evaporation rate** | Not Available | **Explosive properties** | Not Available |
| **Flammability** | Not Applicable | **Oxidising properties** | Not Available |
| **Upper Explosive Limit (%)** | Not Available | **Surface Tension (dyn/cm or mN/m)** | Not Applicable |
| **Lower Explosive Limit (%)** | Not Available | **Volatile Component (%vol)** | Not Available |
| **Vapour pressure (kPa)** | Not Available | **Gas group** | Not Available |
| **Solubility in water** | Partly miscible | **pH as a solution (1%)** | Not Available |
| **Vapour density (Air = 1)** | Not Available | **VOC g/L** | Not Available |
| **Heat of Combustion (kJ/g)** | Not Available | **Ignition Distance (cm)** | Not Available |
| **Flame Height (cm)** | Not Available | **Flame Duration (s)** | Not Available |
| **Enclosed Space Ignition Time Equivalent (s/m3)** | Not Available | **Enclosed Space Ignition Deflagration Density (g/m3)** | Not Available |

## SECTION 10 Stability and reactivity

| | |
|---|---|
| **Reactivity** | See section 7 |
| **Chemical stability** | ‣ Unstable in the presence of incompatible materials. |

**Continued...**

| | |
|---|---|
| | ‣ Product is considered stable.<br>‣ Hazardous polymerisation will not occur. |
| **Possibility of hazardous reactions** | See section 7 |
| **Conditions to avoid** | See section 7 |
| **Incompatible materials** | See section 7 |
| **Hazardous decomposition products** | See section 5 |

## SECTION 11 Toxicological information

**Information on toxicological effects**

| | |
|---|---|
| **a) Acute Toxicity** | There is sufficient evidence to classify this material as acutely toxic. |
| **b) Skin Irritation/Corrosion** | Based on available data, the classification criteria are not met. |
| **c) Serious Eye Damage/Irritation** | There is sufficient evidence to classify this material as eye damaging or irritating |
| **d) Respiratory or Skin sensitisation** | Based on available data, the classification criteria are not met. |
| **e) Mutagenicity** | Based on available data, the classification criteria are not met. |
| **f) Carcinogenicity** | There is sufficient evidence to classify this material as carcinogenic |
| **g) Reproductivity** | Based on available data, the classification criteria are not met. |
| **h) STOT - Single Exposure** | Based on available data, the classification criteria are not met. |
| **i) STOT - Repeated Exposure** | There is sufficient evidence to classify this material as toxic to specific organs through repeated exposure |
| **j) Aspiration Hazard** | Based on available data, the classification criteria are not met. |

| | |
|---|---|
| **Inhaled** | Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs.<br>Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.<br>Inhalation of dusts, generated by the material during the course of normal handling, may produce severe damage to the health of the individual. Relatively small amounts absorbed from the lungs may prove fatal.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.<br><br>Strong evidence exists that exposure to the material may produce very serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by inhalation. |
| **Ingestion** | Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.<br>Urea herbicides are generally of low acute toxicity and severe poisoning is only likely following ingestion when nausea, vomiting, diarrhoea and abdominal pain may occur. As urea herbicides are metabolised to aniline derivatives, which are potent oxidants of haemoglobin, methaemoglobinaemia (18–80%) has been documented, as well as haemolysis.<br>The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen. This condition, known as "methaemoglobinemia", is a form of oxygen starvation (anoxia).<br>Symptoms include cyanosis (a bluish discolouration skin and mucous membranes) and breathing difficulties. Symptoms may not be evident until several hours after exposure.<br>At about 15% concentration of blood methaemoglobin there is observable cyanosis of the lips, nose and earlobes. Symptoms may be absent although euphoria, flushed face and headache are commonly experienced. At 25-40%, cyanosis is marked but little disability occurs other than that produced on physical exertion. At 40-60%, symptoms include weakness, dizziness, lightheadedness, increasingly severe headache, ataxia, rapid shallow respiration, drowsiness, nausea, vomiting, confusion, lethargy and stupor. Above 60% symptoms include dyspnea, respiratory depression, tachycardia or bradycardia, and convulsions. Levels exceeding 70% may be fatal. |
| **Skin Contact** | The material is not classified as a skin irritant under Regulation (EC) No 1272/2008 (CLP), as amended. However, abrasive damage may result from prolonged exposure. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.<br><br>Skin contact with the material may produce severe damage to the health of the individual; systemic effects may result following absorption and these may be fatal.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.<br><br>Strong evidence exists that exposure to the material may produce very serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by skin contact. |
| **Eye** | This material causes serious eye irritation. |
| **Chronic** | Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.<br>On the basis, primarily, of animal experiments, the material may be regarded as carcinogenic to humans. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in cancer on the basis of:<br>- appropriate long-term animal studies<br>- other relevant information<br>Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.<br>Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests.<br>Exposure to the material may cause concerns for human fertility, generally on the basis that results in animal studies provide sufficient evidence to cause a strong suspicion of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects. |

**Continued...**

| | |
|---|---|
| | Exposure to the material may cause concerns for humans owing to possible developmental toxic effects, generally on the basis that results in appropriate animal studies provide strong suspicion of developmental toxicity in the absence of signs of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not a secondary non-specific consequence of other toxic effects.<br>The developmental toxicity of the ureas is related to the increasing number of methyl groups attached.<br>1,1,3,3-tetramethylurea , but not 1,3-dimethylurea, is teratogenic in rats. 1,1,3,3-Tetrametylurea is a strong teratogen toward the mouse foetus, whereas 1,3-dimethylurea is a weak teratogen. Methylated urea malformations are detected in the palate, tail, and extremities. Furthermore, the effect observed with the ureas decreases with the increasing alkyl moiety.<br><br>Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.<br>Chronic effects of exposure to diuron may initially include skin irritation, or blurring of vision, liver enlargement; spleen and thyroid effects; red blood cell destruction; or reduction of the blood's oxygen carrying capacity with cyanosis (bluish discolourisation), weakness or shortness of breath by formation of methemoglobin. Significant skin permeation after contact appears unlikely. There are no reports of human sensitisation to diuron.<br>At 2500 ppm diuron in the diet for 2 years, rats and dogs showed growth retardation, slight anaemia, presence of abnormal pigmentation, increased erythropoiesis and splenic haemosiderosis.<br>Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems. |

| | | |
|---|---|---|
| **Apparent Diuron 900 WG Herbicide** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **diuron** | **TOXICITY** | **IRRITATION** |
| | dermal (rat) LD50: >2000 mg/kg[1] | Eye: no adverse effect observed (not irritating)[1] |
| | Inhalation (Rat) LC50: >5.05 mg/l4h[1] | Skin: no adverse effect observed (not irritating)[1] |
| | Oral (Rat) LD50: 1017 mg/kg[2] | |

| | |
|---|---|
| ***Legend:*** | ***1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*** |

| | |
|---|---|
| **Apparent Diuron 900 WG Herbicide** | Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. |
| **DIURON** | Note: Equivocal animal tumorigenic agent by RTECS criteria. NOTE: This substance may contain impurities (tetrachlorazobenzene and tetrachloroazoxybenzene). Maximum impurity levels are proscribed under various jurisdictions ADI: 0.006 mg/kg/day NOEL: 0.625 mg/kg/day |
| **Apparent Diuron 900 WG Herbicide & DIURON** | No significant acute toxicological data identified in literature search.<br>Diuron is absorbed readily through the gut and lungs while uptake through the skin is more limited. It is slightly toxic to mammals but juveniles are more susceptible than adults(18). The oral LD50 in rats is 3-4 g/kg and the dermal LD50 is > 2 g/kg(19). An early study indicated that animals fed protein-deficient diets were considerably more vulnerable to diuron toxicity; rats fed a diet of 3% protein were five times more sensitive to diuron.<br>Exposure to sub-lethal doses of diuron causes formation of methaemoglobin, an abnormal form of the protein haemoglobin which carries oxygen in the blood. Diuron can decrease the number of red blood cells (RBCs), increase the number of abnormally shaped RBCs, and increase the number of white blood cells. Diuron may cause the spleen to become congested due to the increased demand to remove damaged RBCs. Increases in liver size are also observed and are indicative of the extra load placed on this organ, the body s major site of detoxification. Diuron can also cause eye and skin irritation.<br>Diuron contains two significant impurities from the manufacturing process 3,3',4,4'-tetrachloroazobenzene (TCAB) and 3,3',4,4'-tetrachloroazoxybenzene (TCAOB), both potent 'dioxin-like substances. TCAB levels between 0.15 and 28 ppm have been found in diuron samples tested. TCAOB is present at lower levels. Both TCAB and TCAOB cause chloracne a serious skin disease<br>**Carcinogenicity:** The US Environmental Protection Agency (EPA) has classified diuron as a 'known/likely' carcinogen since 1997 based on the results of two studies. One study on rats indicated that both males and females fed diuron had a higher incidence of bladder cancer than control animals. The male rats in this study also had a higher incidence of kidney cancer than the control animals. In a study of mice animals with higher exposures had more breast cancer<br>**Mutagenicity:** There is conflicting evidence on whether diuron can cause mutations<br>**Developmental Toxicity:** Rats fed relatively high levels (125 mg/kg/day) of diuron produced offspring with delayed bone formation(26) and other studies indicate that similar levels of diuron reduce birth weight. The US Toxics Release Inventory list diuron as a developmental toxin<br>In mammals, metabolism principally occurs through hydroxylation and dealkylation.<br>**Metabolites**. Breakdown of this compound is similar in animals, plants and soil. The first step is N-demethylation followed by ring cleavage. The main breakdown product of diuron is 3,4-dichloroaniline( 3,4-DCA). The oral LD50 of 3,4-DCA in rats is around 60 mg/kg and by the inhalation route the LC50 ranges from 2.8 to 4.7 mg/l/4hrs indicating that 3,4-DCA is considerably more toxic than diuron itself. Dermal and inhalation absorption is rapid leading to formation of methaemoglobin. A marked species difference is dermal toxicity is noted with rabbit considerably more sensitive than rats. No human data is available but by extrapolating from other aromatic amines humans could be considerably more sensitive to methaemoglobin formation than rats. 3,4-DCA should be regarded as a potential respiratory sensitiser. The carcinogenic potential of 3,4-DCA remains uncertain. |

| | | | |
|---|---|---|---|
| **Acute Toxicity** | ✔ | **Carcinogenicity** | ✔ |
| **Skin Irritation/Corrosion** | ✘ | **Reproductivity** | ✘ |
| **Serious Eye Damage/Irritation** | ✔ | **STOT - Single Exposure** | ✘ |
| **Respiratory or Skin sensitisation** | ✘ | **STOT - Repeated Exposure** | ✔ |
| **Mutagenicity** | ✘ | **Aspiration Hazard** | ✘ |

***Legend:*** ✘ **–**

**Continued...**

***Data either not available or does not fill the criteria for classification***
***– Data available to make classification***

## SECTION 12 Ecological information

### Toxicity

**Apparent Diuron 900 WG Herbicide**

| Endpoint | Test Duration (hr) | Species | Value | Source |
|---|---|---|---|---|
| Not Available | Not Available | Not Available | Not Available | Not Available |

**diuron**

| Endpoint | Test Duration (hr) | Species | Value | Source |
|---|---|---|---|---|
| EC50 | 72h | Algae or other aquatic plants | 0.001mg/L | 4 |
| BCF | 1008h | Fish | <2.9-14 | 7 |
| EC50 | 48h | Crustacea | >0.677mg/L | 4 |
| EC50 | 96h | Algae or other aquatic plants | 0.001mg/l | 4 |
| EC10(ECx) | 1h | Algae or other aquatic plants | <0.001mg/L | 4 |
| LC50 | 96h | Fish | 0.5mg/L | 4 |

***Legend:*** ***Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. US EPA, Ecotox database - Aquatic Toxicity Data 4. ECETOC Aquatic Hazard Assessment Data 5. NITE (Japan) - Bioconcentration Data 6. METI (Japan) - Bioconcentration Data 7. Vendor Data 8. User defined data***

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
For urea herbicides
Persistence of substituted urea herbicides in soils is influenced by rainfall, soil properties, soil environment, microbiological activity and the characteristics of the herbicides such as solubility, leachability and adsorption to soil colloids. Soil microorganisms that metabolise certain urea herbicides have been isolated and identified. Photochemical decomposition, volatilisation, and absorption and metabolism by plants are also probable pathways of dissipation form soils. Urea herbicides may persist under some environmental and edaphic conditions, in arid and humid climates, and injure sensitive plants seeded 6 to 12 months after herbicide application. However accumulation of residues from annual application to the same soils does not appear to be a problem.
Urea herbicides are readily desorbed by water from low to medium organic matter content sandy loam and heavy clay soils, but not from a loam with very high organic matter content.
Diuron is a systemic substituted phenylurea herbicide. Diuron is easily taken up from soil solution by the root system of plants and rapidly translocated into stems and leaves by the transpiration system, moving primarily via the xylem. Diuron primarily functions by inhibiting the Hill reaction in photosynthesis, limiting the production of high-energy compounds such as adenosine triphosphate (ATP) used for various metabolic processes.
**Air:** Diuron is non-volatile, as indicated by its low vapor pressure of 6.90 x10-8 mm Hg (25 C), and a low Henry's law constant of 5.10 x 10-10 atm m3 mol-1. Its low vapor pressure and low Henry's law constant indicate that diuron is unlikely to be dispersed in air over a large area and has a low tendency to volatilise from water or moist soils. Volatilisation is insignificant except when diuron is exposed on the soil surface for several days or weeks under hot, dry conditions.
**Water:** Diuron's relatively low KOC indicates a relatively low tendency to sorb to soils and sediments, while its hydrolysis and aqueous photolysis half-lives are relatively long. Consequently diuron is both mobile and relatively persistent, and is therefore prone to off-site movement in surface runoff, and migration to ground water.
Microbes are the primary agents in the degradation of diuron in aquatic environments. The aerobic biodegradation pathway for diuron is well established (Figure 1), proceeding by successive demethylation steps to form DCPMU, DCPU [1-(3,4-dichlorophenyl)urea] and DCA (3,4-dichloroaniline). Reductive dechlorination has been observed in anaerobic pond sediments and leads to the formation of the dechlorinated product, 3-(3-chlorophenyl)-1,1-dimethylurea.
3,3',4,4'-Tetrachloroazobenzene (TCAB) and 3,3',4,4'-tetrachloroazoxybenzene (TCAOB) are contaminants derived during the synthesis of 3,4-dichloroaniline and dichloroaniline derivatives pesticides. TCAB and TCAOB are formed by photolysis of 3,4-DCA which is followed by dimerisation of DCA to TCAB. TCAB and TCAOB sorb very strongly to soils and are not likely to leach .
TCAB and TCAOB are isosteric to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), a potent mutagen, teratogen, hepatotoxin, and chloracnegen. TCAB and TCAOB have been shown to bind to TCDD receptors with high affinity and to have similar, but less potent, toxic potential.
The major photoproducts observed in the photolysis of diuron [3-(3,4-dichlorophenyl)-1,1-dimethylurea] in aqueous solution resulted from a heterolytic substitution of chlorine by OH. A wavelength effect was observed: at 254 nm the formation of 3-(4-chloro-3-hydroxyphenyl)-1,1-dimethylurea accounted for more than 90% of the conversion, whereas when the solution was irradiated in 'black light' (85% of photons emitted at 365 nm, about 7% at 344 nm), the major photoproduct was 3-(3-chloro-4-hydroxyphenyl)-1,1-dimethylurea. However photolysis is not generally a principal route of diuron degradation in aqueous systems.
**Soil:** Diuron is moderately to highly persistent in soils. The commonly reported average field dissipation half-life is 90 days, although such half-lives are typically highly variable. Phytotoxic residues generally dissipate within a season when applied at low selective rates. At higher application rates, residues may persist for more than one year. Microbial degradation is the primary means of diuron dissipation from soil. Photodegradation is not considered a primary dissipation route, but losses can be significant if diuron remains on the soil surface for several days or weeks.
Diuron is mobile in soil. Similar to many other pesticides, diuron sorption is highly correlated with organic matter . Consequently leaching is greatest in low organic matter soils. Other soil conditions that favor diuron leaching include high soil permeability to water, such as in coarse soils.
**Biota:**
Ecotoxicity:
Mallard Duck LD50 >2000mg/kg
Mallard Duck 8 day LC50 >5000 ppm
Bobwhite Quail 8 day LC50 1730 ppm
Bluegill Sunfish LC50 (96 hrs) 5.9 ppm
Rainbow Trout LC50 (96 hrs) 190 ppm
Sheepshead Minnow LC50 (96 hrs) 6.7 ppm
Daphnia Magna LC50 (48 hrs) 8 ppm
Honeybee LD50 (48 hrs) 145 ug/bee
Oyster Shell EC50 (96 hrs) 4.8 ppm
**Plants:** Diuron is readily absorbed through the root system of plants and less readily through the leaves and stems. Diuron is translocated rapidly from roots to shoots via the xylem. Little to no diuron moves from the apex downward toward the base of a treated leaf via the phloem. Diuron symptoms of disease are foliar chlorosis concentrated around veins or sometimes interveinal followed by necrosis.
In plants, diuron is metabolized via N-demethylation of the nitrogen atom and hydroxylation at position 2 of the benzene ring. Differential metabolism via N-demethylation may be the basis for diuron selectivity. For example, demethylation is catalysed in cotton by an enzyme called N-demethylase. Diuron was metabolized to conjugates of monomethyldiuron in ***Torilis arvenis*** and to N-dealkylated derivatives in ***Lolium rigidum.***
**Mammals.** Once diuron is ingested, it is excreted through feces and urine of test animals. In a study, cows fed very low doses of diuron in their diets had small amounts of residues in whole milk. Cattle fed small amounts, accumulated low levels of diuron in fat, muscle, liver, and kidney. Little tissue storage under field conditions is anticipated
***Fish and Aquatic Invertebrates.*** Diuron is toxic to fish and aquatic invertebrates. The LC50 (48 hr) values for diuron range from 4.3 to 42 mg/L in fish, and range from 1 to 2.5 mg/L for aquatic invertebrates. The LC50 (96hr) is 3.5 mg/L for rainbow trout. Therefore diuron is moderately toxic to fish and to aquatic invertebrates
**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

**Continued...**

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---|---|---|
| diuron | HIGH | HIGH |

**Bioaccumulative potential**

| Ingredient | Bioaccumulation |
|---|---|
| diuron | LOW (BCF = 14) |

**Mobility in soil**

| Ingredient | Mobility |
|---|---|
| diuron | LOW (Log KOC = 136) |

## SECTION 13 Disposal considerations

**Waste treatment methods**

| | |
|---|---|
| **Product / Packaging disposal** | ▸ Containers may still present a chemical hazard/ danger when empty.<br>▸ Return to supplier for reuse/ recycling if possible.<br>Otherwise:<br>▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.<br>▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product.<br>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>▸ Reduction<br>▸ Reuse<br>▸ Recycling<br>▸ Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.<br>▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains.<br>▸ It may be necessary to collect all wash water for treatment before disposal.<br>▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.<br>▸ Where in doubt contact the responsible authority. |

## SECTION 14 Transport information

**Labels Required**

| | |
|---|---|
| |  |
| **Marine Pollutant** |  |
| **HAZCHEM** | 2Z |

**Land transport (ADG)**

| | |
|---|---|
| 14.1. **UN number or ID number** | 3077 |
| 14.2. **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains diuron) |
| 14.3. **Transport hazard class(es)** | Class: 9<br>Subsidiary Hazard: Not Applicable |
| 14.4. **Packing group** | III |
| 14.5. **Environmental hazard** | Environmentally hazardous |
| 14.6. **Special precautions for user** | Special provisions: 274 331 335 375 AU01<br>Limited quantity: 5 kg |

Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082
are not subject to this Code when transported by road or rail in;
(a) packagings;
(b) IBCs; or
(c) any other receptacle not exceeding 500 kg(L).
- Australian Special Provisions (SP AU01) - ADG Code 7th Ed.

**Air transport (ICAO-IATA / DGR)**

| | |
|---|---|
| 14.1. **UN number** | 3077 |
| | Environmentally hazardous substance, solid, n.o.s. (contains diuron) |

**Continued...**

| | |
|---|---|
| 14.2. **UN proper shipping name** | |
| 14.3. **Transport hazard class(es)** | ICAO/IATA Class: 9<br>ICAO / IATA Subsidiary Hazard: Not Applicable<br>ERG Code: 9L |
| 14.4. **Packing group** | III |
| 14.5. **Environmental hazard** | Environmentally hazardous |
| 14.6. **Special precautions for user** | Special provisions: A97 A158 A179 A197 A215<br>Cargo Only Packing Instructions: 956<br>Cargo Only Maximum Qty / Pack: 400 kg<br>Passenger and Cargo Packing Instructions: 956<br>Passenger and Cargo Maximum Qty / Pack: 400 kg<br>Passenger and Cargo Limited Quantity Packing Instructions: Y956<br>Passenger and Cargo Limited Maximum Qty / Pack: 30 kg G |

**Sea transport (IMDG-Code / GGVSee)**

| | |
|---|---|
| 14.1. **UN number** | 3077 |
| 14.2. **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains diuron) |
| 14.3. **Transport hazard class(es)** | IMDG Class: 9<br>IMDG Subsidiary Hazard: Not Applicable |
| 14.4. **Packing group** | III |
| 14.5 **Environmental hazard** | Marine Pollutant |
| 14.6. **Special precautions for user** | EMS Number: F-A, S-F<br>Special provisions: 274 335 375 966 967 969<br>Limited Quantities: 5 kg |

### 14.7. Maritime transport in bulk according to IMO instruments

#### 14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

#### 14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

| Product name | Group |
|---|---|
| diuron | Not Applicable |

#### 14.7.3. Transport in bulk in accordance with the IGC Code

| Product name | Ship Type |
|---|---|
| diuron | Not Applicable |

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

**diuron is found on the following regulatory lists**

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

### Additional Regulatory Information

Not Applicable

### National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC / Australia Non-Industrial Use | Yes |
| Canada - DSL | Yes |
| Canada - NDSL | No (diuron) |
| China - IECSC | Yes |
| Colombia - Colombia National Industrial Chemicals Inventory | No (diuron) |

**Continued...**

| National Inventory | Status |
|---|---|
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | All chemical substances in this product have been designated as TSCA Inventory 'Active' |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - FBEPH | Yes |
| UAE - Control List (Banned/Restricted Substances) | Yes |
| ***Legend:*** | ***Yes = All CAS declared ingredients are on the inventory***<br>***No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*** |

## SECTION 16 Other information

| | |
|---|---|
| **Revision Date** | 27/10/2026 |
| **Initial Date** | 27/10/2026 |

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

- PC—TWA: Permissible Concentration-Time Weighted Average
- PC—STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit。
- IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
- MARPOL: International Convention for the Prevention of Pollution from Ships
- IMSBC: International Maritime Solid Bulk Cargoes Code
- IGC: International Gas Carrier Code
- IBC: International Bulk Chemical Code

- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act
- TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory
- FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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**end of SDS**