Forward Pesticide Application Program
North East Sydney
Period of coverage to:
31 January 2019
# Contents

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General Information

Pesticide use is used for weed and vegetation control.

The pesticides used is a standard mixture of

- Lynx WG
- Round-up Bioactive Herbicide
- Garlon 600 Herbicide

All pesticide spraying is programmed between:

- Sunday to Friday
- 8pm – 5am

Works will be rescheduled if rain is forecasted within 24hours or the wind speed is above 15kmph.

Information Line: 1300 776 069

Warnings:

Round-up Bioactive Herbicide

Do not contaminate dams, rivers or streams with the product or used container. When controlling weeds in aquatic situations refer to label directions to minimise the entry of spray into the water.

Lynx WG

DO NOT use chlorine bleach with ammonia. All traces of liquid fertilizer containing ammonia, ammonium nitrate or ammonium sulphate must be rinsed with water from the mixing and application equipment before adding chlorine bleach solution. Failure to do so will release a gas with a musty chlorine odour which can cause eye, nose, throat and lung irritation. Do not clean equipment in an enclosed area.

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

A nil withholding period is applicable for LYNX WG Herbicide. It is recommended, however, not to graze treated areas for 3 days to ensure product efficacy.
MSDS

MSDS Lynx WG
Round-up Bioactive Herbicide
Garlon Herbicide
Section 1 - Identification of The Material and Supplier

Adama Australia Pty Ltd,
Suite 1, Level 4, Building B
207 Pacific Highway St Leonards, NSW 2065
ACN 050 328 973

Telephone (02)9431 7800 (office hours)
Emergency 1800 024 973 (24 hours)
Fax (02)9431 7700

Section 2 - Hazards Identification

Statement of Hazardous Nature
This product is classified as: Not classified as hazardous according to the criteria of SWA Australia.
Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

SUSMP Classification: None allocated.
ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.
UN Number: None allocated

GHS Signal word: NONE. Not hazardous.

PREVENTION
P102: Keep out of reach of children.
P262: Do not get in eyes, on skin, or on clothing.
P281: Use personal protective equipment as required.

RESPONSE
P337: If eye irritation persists: seek medical attention.
P352: Wash with plenty of soap and water.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P370+P378: Not combustible. Use extinguishing media suited to burning materials.

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

DISPOSAL
P501: Dispose of contents and containers as specified on the registered label.

Emergency Overview

Physical Description & colour: Off-white granulated solid.
Odour: No odour.
Major Health Hazards: Systemic poisoning by sulfonylurea based compounds is unlikely, unless large quantities have been ingested. No accounts of poisoning by Metsulfuron-methyl are currently available. No significant risk factors have been found for this product.

Section 3 - Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Conc,%</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metsulfuron methyl</td>
<td>74223-64-6</td>
<td>60</td>
<td>not set</td>
<td>not set</td>
</tr>
<tr>
<td>Other non hazardous ingredients</td>
<td>secret</td>
<td>to 100</td>
<td>not set</td>
<td>not set</td>
</tr>
</tbody>
</table>

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 SDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Skin Contact: Gently brush away excess solids. Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.

Eye Contact: Quickly and gently brush particles from eyes. No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.

Ingestion: If product is swallowed or gets in mouth, wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

Section 5 - Fire Fighting Measures

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

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade.

Flash point: Not flammable.

Upper Flammability Limit: No data.

Lower Flammability Limit: No data.

Autoignition temperature: No data.

Flammability Class: No data.

Section 6 - Accidental Release Measures

Accidental release: Minor spills do not normally need any special cleanup measures. In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective glasses and, preferably, goggles. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask.

Stop leak if safe to do so, and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

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

Storage: Keep containers dry and away from water. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

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


SWA Exposure Limits TWA (mg/m^3) STEL (mg/m^3)

Exposure limits have not been established by SWA for any of the significant ingredients in this product.
The ADI for Metsulfuron methyl is set at 0.01mg/kg/day. The corresponding NOEL is set at 1mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, June 2014.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems. **Ventilation:** No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that dusts are minimised.

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

**Skin Protection:** The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.

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

**Respirator:** If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask.

### Section 9 - Physical and Chemical Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Description &amp; colour</td>
<td>Off-white granulated solid.</td>
</tr>
<tr>
<td>Odour</td>
<td>No odour</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No specific data. Expected to decompose before boiling.</td>
</tr>
<tr>
<td>Freezing/Melting Point</td>
<td>No specific data. Solid at normal temperatures.</td>
</tr>
<tr>
<td>Volatiles</td>
<td>No specific data. Expected to be low at 100°C.</td>
</tr>
<tr>
<td>Vapour Pressure</td>
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</tr>
<tr>
<td>Vapour Density</td>
<td>No data</td>
</tr>
<tr>
<td>Specific Gravity</td>
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</tr>
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<td>Water Solubility</td>
<td>Wettable</td>
</tr>
<tr>
<td>pH</td>
<td>No data</td>
</tr>
<tr>
<td>Volatility</td>
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</tr>
<tr>
<td>Odour Threshold</td>
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</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data</td>
</tr>
<tr>
<td>CoeffOil/water distribution</td>
<td>No data</td>
</tr>
<tr>
<td>Autoignition temp</td>
<td>No data</td>
</tr>
</tbody>
</table>

### Section 10 - Stability and Reactivity

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

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

**Incompatibilities:** strong oxidising agents.

**Fire Decomposition:** Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.

**Polymerisation:** This product will not undergo polymerisation reactions.

### Section 11 - Toxicological Information

**Toxicity:** **Acute Toxicity:** Metsulfuron methyl has very low toxicity in mammals. LD$_{50}$ is > 5,000 mg/kg in rats. It has low dermal toxicity in tests with rabbits, with an LD$_{50}$ > 2,000 mg/kg, and low inhalation toxicity in rats, with a median lethal concentration in air of greater than 5 mg/L air. Moderate but reversible eye irritation has been seen in rabbits, and mild skin irritation has been observed in guinea pigs. No skin sensitization has been observed in guinea pigs.

**Chronic Toxicity:** A 2-year feeding study in rats resulted in a NOEL of 25.0 mg/kg/day (or 500 ppm in feed), based on decreased body weights seen at 250 mg/kg/day (5,000 ppm) which was the highest dose tested. EPA has based its reference dose (0.25 mg/kg/day) on this study.

**Reproductive Effects:** Multigenerational studies in rats did not result in any reproductive effects at the highest doses tested of 250 mg/kg/day.
Teratogenic Effects: Metsulfuron-methyl did not cause developmental abnormalities to offspring of rats and rabbits fed 1000 mg/kg/day and 700 mg/kg/day respectively during gestation. These doses represent the highest dose tested for each experiment.

Mutagenic Effects: The weight of evidence presented by a battery of tests to measure mutagenicity and other adverse effects on DNA indicates that Metsulfuron-methyl is neither mutagenic nor genotoxic.

Carcinogenic Effects: Negative for rats and mice in laboratory tests, but studies may not have been at maximum tolerated dose.

Organ Toxicity: Metsulfuron-methyl is a moderate eye irritant.

Fate in Humans and Other Animals: The chemical is broken down quickly and eliminated from the body. In tests with radio labelled Metsulfuron-methyl in rats, the excretion half-lives ranged from 9 to 16 hours and 23 to 29 hours for rats administered low and high doses, respectively. It did not bioaccumulate in fish.

**Potential Health Effects**

**Inhalation**

Short term exposure: Significant inhalation exposure is considered to be unlikely. Long term inhalation of high amounts of any nuisance dust may overload lung clearance mechanism. Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.

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

Skin Contact:

Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.

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

Eye Contact:

Short term exposure: Exposure via eyes is considered to be unlikely. This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.

Long Term exposure: No data for health effects associated with long term eye exposure.

Ingestion:

Short term exposure: Significant oral exposure is considered to be unlikely. However, this product may be mildly irritating to mucous membranes but is unlikely to cause anything more than mild transient discomfort.

Long Term exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

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

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

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

**Section 12 - Ecological Information**

Breakdown of Chemical in Soil and Groundwater: The breakdown of Metsulfuron-methyl in soils is largely dependant on soil temperature, moisture content, and pH. The chemical will degrade faster under acidic conditions, and in soils with higher moisture content and higher temperature. The chemical has a higher mobility potential in alkaline soils than in acidic soils, as it is more soluble under alkaline conditions. Metsulfuron-methyl is stable to photolysis, but will break down in ultraviolet light. Half-life estimates for Metsulfuron-methyl in soil are wide ranging from 14 - 180 days, with an overall average of reported values of 30 days. Reported half-life values (in days) for soil include: clay - 178 ; sandy loam - 102 ; clay loam - 70 , 14-28 , 14-105 ; silty loam - 120-180.

Breakdown of Chemical in Surface Water: The dissipation time for Metsulfuron-methyl in soil are wide ranging from 14 - 180 days, with an overall average of reported values of 30 days. Reported half-life values (in days) for soil include: clay - 178 ; sandy loam - 102 ; clay loam - 70 , 14-28 , 14-105 ; silty loam - 120-180.

Breakdown of Chemical in Vegetation: Metsulfuron-methyl is rapidly taken up by plants at the roots and on foliage. The chemical is translocated throughout the plant, but is not persistent. It is broken down to non-herbicidal products in tolerant plants.

**Section 13 - Disposal Considerations**

Disposal: Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 http://www.chemclear.com.au/ and for help with the disposal of empty drums, contact DrumMuster http://www.drummuster.com.au/ where you will find contact details for your area.

SAFETY DATA SHEET

Issued by: Adama Australia Pty Ltd

Poisons Information Centre: 13 1126 from anywhere in Australia, (0800 764 766 in New Zealand)
Section 14 - Transport Information

UN Number: This product is not classified as a Dangerous Good by ADG, IATA or IMDG/IMSBC criteria. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this product are compliant with NICNAS regulations.

Section 16 - Other Information

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

Acronyms:

AICS: Australian Inventory of Chemical Substances
CAS number: Chemical Abstracts Service Registry Number
Hazchem Code: Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC: International Agency for Research on Cancer
SWA: Safe Work Australia, formerly ASCC and NOHSC
NOS: Not otherwise specified
NTP: National Toxicology Program (USA)
R-Phrase: Risk Phrase
SUSMP: Standard for the Uniform Scheduling of Medicines & Poisons
UN Number: United Nations Number

Contact Points:

Call Adama on (02)9431 7800 and ask for the technical manager. Fax: (02)9431 7700

Police and Fire Brigade: Dial 000
Emergency contact: 1800 024 973 (24 hours)

If ineffective: Dial Poisons Information Centre (13 1126 from anywhere in Australia)

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

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

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

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document “Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice” (December 2011)
Copyright © Kilford & Kilford Pty Ltd, July, 2016.
http://www.kilford.com.au/ Phone (02)9251 4532
Material Safety Data Sheet

Product Name: ROUNDUP BIACTIVE HERBICIDE

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: ROUNDUP BIACTIVE HERBICIDE
Product Type: Group M Herbicide
Company Name: SINOCHEN INTERNATIONAL AUSTRALIA PTY LTD (ABN 74 160 164 616)
Address: Level 8 / 606 St Kilda Road Melbourne
Vic 3004 Australia
Emergency Tel.: Australia: 1800 033 111 or +61 3 9663 2130
Tel.: +61 3 9520 8888
Number:
Recommended Use: Water soluble herbicide for non selective control of many annual and perennial weeds in certain situations.

2. HAZARDS IDENTIFICATION

Hazard Classification: Classified as hazardous
HAZARDOUS SUBSTANCE.
NON-DANGEROUS GOODS.
Hazard classification according to the criteria of NOHSC.
Dangerous goods classification according to the Australia Dangerous Goods Code.
Risk Phrase(s): Classified as hazardous
R41 Risk of serious damage to eyes.
Safety Phrase(s):
S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S39 Wear eye/face protection.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients | Name | CAS | Proportion | Hazard Symbol | Risk Phrase |
--- | --- | --- | --- | --- | --- |
 | Glyphosate (present as the isopropylamine salt) | 1071-83-6 | 360 g/L | | |
 | Alkyl polyglycoside | | 5-15 %w/v | | |
 | surface active agent | WATER | Balance | | |

4. FIRST AID MEASURES

Inhalation: If inhaled, remove affected person from contaminated area. Keep at rest until recovered. If symptoms persist seek medical attention.
Ingestion: Do not induce vomiting. Wash out mouth thoroughly with water. If symptoms develop seek medical attention.
Skin: Wash affected area thoroughly with soap and water. If symptoms develop seek medical attention.
Eye: If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek immediate medical attention.
First Aid Facilities: Eyewash and normal washroom facilities.
Advice to Doctor: Treat symptomatically.
Other Information: For advice in an emergency, contact a Poisons Information Centre (Phone Australia 13 1126) or a doctor at once.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing media that are suitable for the surrounding combustible materials.
Extinguishing Media: Keep upwind.
Hazards from Combustion Products: This product, or spray solutions of this product, react with galvanised steel or unlined steel (except stainless steel) containers and tanks, to produce hydrogen gas which may form a highly flammable or explosive gas mixture. If involved in a major fire, could evolve oxides of nitrogen or phosphorus.
Material Safety Data Sheet

Infosafe NoSM: LQ29D Issue Date: April 2013 ISSUED by SINOCHEM

Product Name: ROUNDUP BIACTIVE HERBICIDE

Classified as hazardous

**Specific Hazards**

This product is non-combustible. However, following evaporation of aqueous component under fire conditions, the non-aqueous component may decompose and/or burn. As a water based product, if spilt on electrical equipment the product will cause short-circuits.

**Precautions in connection with Fire**

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to cool down heat-exposed containers.

**6. ACCIDENTAL RELEASE MEASURES**

**Emergency Procedures**

Wear appropriate personal protective equipment and clothing to minimise exposure. Increase ventilation. If possible contain the spill. Place inert absorbent material onto spillage. Collect the material and place into a suitable labelled container. Do not dilute material but contain. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

**7. HANDLING AND STORAGE**

**Precautions for Safe Handling**

Use only in a well ventilated area. Keep containers sealed when not in use. Prevent the build up of mists or vapours in the work atmosphere. Avoid inhalation of vapours and mists, and skin or eye contact. Maintain high standards of personal hygiene i.e. Washing hands prior to eating, drinking, smoking or using toilet facilities.

**Conditions for Safe Storage**

Store in a cool, dry, well-ventilated area, out of direct sunlight. Store in suitable, labelled containers. Keep containers closed when not in use. Ensure that storage conditions comply with applicable local and national regulations.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**National Exposure Standards**

No exposure standards have been established for this material by Safe Work Australia. However, over-exposure to some chemicals may result in enhancement of pre-existing adverse medical conditions and/or allergic reactions and should be kept to the least possible levels.

**Biological Limit Values**

As with all chemicals, exposure should be kept to the lowest possible levels.

**No biological limits allocated.**

**Engineering Controls**

Provide sufficient ventilation to keep airborne levels as low as possible. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a local exhaust ventilation system is required.

**Respiratory Protection**

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable organic vapour filter should be used. Reference should be made to Australian/New Zealand Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

**Eye Protection**

Safety glasses with side shields, goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 – Eye Protectors for Industrial Applications.

**Hand Protection**

Wear gloves of impervious material. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves – Selection, use and maintenance.

**Personal Protective Equipment**

Suitable protective work wear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**

Liquid
Material Safety Data Sheet

Product Name: ROUNDUP BIACTIVE HERBICIDE

Classified as hazardous

Odour: Not available
Melting Point: -10°C
Boiling Point: >100°C (water only)
Solubility in Water: Soluble in water.
Specific Gravity: 1.17
pH Value: Not available
Vapour Pressure: Not available
Vapour Density: Not available (Air=1)
Colour: Green
Volatile Component: ~50% (water only)
Flash Point: Not available
Flammability: Non combustible material.
Auto-Ignition Temperature: Not available
Flammable Limits - Lower: Not available
Flammable Limits - Upper: Not available

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of storage and handling.
Conditions to Avoid: Extremes of temperature and direct sunlight.
Incompatible Materials: Corrosive to mild steel, galvanized and zinc.
Incompatible Materials: Non corrosive to stainless steel, polyethylene and plastics.
Hazardous Decomposition Products: Do not mix, store or apply the product or spray solutions of the product in
Hazardous Decomposition Products: galvanized steel or unlined steel (except stainless steel) containers or spray
Hazardous Decomposition Products: tanks.
Hazardous Decomposition Products: Thermal decomposition may result in the release of toxic and/or irritating
Hazardous Decomposition Products: fumes and gases including carbon monoxide, carbon dioxide, oxides of nitrogen
Hazardous Decomposition Products: and oxides of phosphorus.
Hazardous Decomposition Products: Avoid contact of the concentrate with strong alkalies and alkaline materials
Hazardous Decomposition Products: such as lime.
Hazardous Decomposition Products: Such contact may release isopropylamine vapour with a strong fish like
Hazardous Decomposition Products: odour, which is an irritant to eyes.
Hazardous Decomposition Products: Will not occur

11. TOXICOLOGICAL INFORMATION

Toxicity Information
Inhalation: Inhalation of product vapours may cause irritation of the nose, throat and respiratory system.
Ingestion: Ingestion of this product may irritate the gastric tract causing nausea and vomiting.
Skin: May be irritating to skin. The symptoms may include redness, itching and swelling.
Eye: Risk of serious damage to eyes. Eye contact will cause stinging, blurring, tearing, severe pain and possible permanent corneal damage.
Chronic Effects: Prolonged or repeated skin contact may cause defatting leading to dermatitis.
Acute Toxicity - Oral: LD50 (rat) >5000 mg/kg for a similar product
Acute Toxicity - Dermal: LD50 (rabbit) >5000 mg/kg for a similar product

Print Date: 03/04/2013
Material Safety Data Sheet

Product Name: ROUNDUP BIACTIVE HERBICIDE

12. ECOLOGICAL INFORMATION

Ecotoxicity: Ecological data is given below.
Persistence / Degradability: Average field half life of glyphosate is 47 days.
Mobility: Adsorption studies indicate that glyphosate has very low mobility.
Bioaccumulative Potential: Not available
Environ. Protection: Prevent this material entering waterways, drains and sewers.
Acute Toxicity - Fish: LC50 (96 hr) for rainbow trout is >989 mg/l.
LC50 (96 hr) for carp is >895 mg/l.
The above data is for the formulated product.
Acute Toxicity - Daphnia: EC50 (48 hr) for daphnia is 675 mg/l for the formulated product.
Acute Toxicity - Algae: BC50 (72hr) for algae 150 mg/l.
Acute Toxicity - Other Organisms: Birds: Not toxic to birds. LD50 for mallard ducks and bobwhite quail (diet) is >5620 mg/kg
Bees: Not toxic to bees. LC50 >100 µg/bee.
LC50 (96hr) for leopard frog tadpole is >1040 mg/l

13. DISPOSAL CONSIDERATIONS

Disposal Considerations: The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations.

14. TRANSPORT INFORMATION

Transport Information: Road and Rail Transport (ADG Code):
Marine Transport (IMO/IMDG):
Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.
Air Transport (ICAO/IATA):
Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.
IMDG Marine Pollutant (MP): No

15. REGULATORY INFORMATION

Regulatory Information: Classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.
Classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Poisons Schedule: S5
Hazard Category: Irritant
AICS (Australia): The listed chemicals are included in Australian Inventory of Chemical Substances (AICS) or otherwise notified under NICNAS.
Other Information: This product is registered with the Australian Pesticides and Veterinary Medicines Authority. APVMA Product Number: 48518.

16. OTHER INFORMATION

Date of preparation or last revision of MSDS: MSDS Reviewed: April 2013
MSDS Supersedes: February 2012

Print Date: 30/04/2013

411
Material Safety Data Sheet

Infosafe No™ LQ29D Issue Date: April 2013 ISSUED by SINOCHEM

Product Name ROUNDUP BIACTIVE HERBICIDE

Classified as hazardous

Literature References

Standard for the Uniform Scheduling of Medicines and Poisons.

Approved criteria for classifying hazardous substances [NOHSC:1008(2004)].


Australian Code for the Transport of Dangerous Goods by Road & Rail.

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants, Safe work Australia.

American Conference of Industrial Hygienists (ACGIH).

...End Of MSDS...
DOW AGROSCIENCES AUSTRALIA LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product name: GARLON™ 600 Herbicide

Recommended use of the chemical and restrictions on use
Identified uses: End use herbicide product

COMPANY IDENTIFICATION
DOW AGROSCIENCES AUSTRALIA LIMITED
LVL 5  20 RODBOROUGH RD
FRENCHS FOREST NSW 2086
AUSTRALIA

Customer Information Number: 1800-700-096
auscustomerservice@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 613-9663-2130
Local Emergency Contact: 1800-033-882
For advice, contact a doctor (at once) or the Australian Poisons Information Centre: 131 126
Transport Emergency Only Dial 000

SECTION 2: HAZARD(S) IDENTIFICATION

GHS Classification
Skin sensitisation - Category 1
Specific target organ toxicity - repeated exposure - Category 2
Acute aquatic toxicity - Category 1
Chronic aquatic toxicity - Category 1

GHS label elements
Hazard pictograms
Signal word: **WARNING!**

**Hazard statements**
May cause an allergic skin reaction.
May cause damage to organs (Kidney) through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention**
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
Wear protective gloves.

**Response**
IF ON SKIN: Wash with plenty of soap and water.
Get medical advice/ attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/ attention.
Wash contaminated clothing before reuse.
Collect spillage.

**Disposal**
Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**
No data available

---

**SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8**

This product is a mixture.

<table>
<thead>
<tr>
<th>Component</th>
<th>CASRN</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triclopyr-2-butoxyethyl ester</td>
<td>64700-56-7</td>
<td>69.02%</td>
</tr>
<tr>
<td>Oxirane, polymer with methylloxirane, mono(nonylphenyl)ether</td>
<td>37251-69-7</td>
<td>&lt; 10.0 %</td>
</tr>
<tr>
<td>TCP: 3,5,6-Trichloro-2-pyridinol</td>
<td>6515-38-4</td>
<td>&lt; 1.0 %</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION 5: FIREFIGHTING MEASURES

Hazchem Code

2X

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion
products may include and are not limited to: Sulfur oxides. Nitrogen oxides. Hydrogen fluoride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Container may vent and/or rupture due to fire. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Advice for firefighters**
**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the “Accidental Release Measures” and the “Ecological Information” sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

---

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

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**SECTION 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED**

**Precautions for safe handling:** Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.
SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value/Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triclopyr-2-butoxyethyl ester</td>
<td>Dow IHG</td>
<td>TWA</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td>TCP: 3,5,6-Trichloro-2-pyridinol</td>
<td>Dow IHG</td>
<td>TWA</td>
<td>7 mg/m³</td>
</tr>
</tbody>
</table>

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls
Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Individual protection measures
Eye/face protection: Use safety glasses (with side shields).

Skin protection
   Hand protection: Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Ethyl vinyl alcohol laminate (“EVAL”). Examples of acceptable glove barrier materials include: Natural rubber (“latex”). Neoprene. Nitrile/butadiene rubber (“nitrile” or “NBR”). Polyvinyl chloride (“PVC” or “vinyl”). Viton. 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 AS/NZS 2161.10) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

   Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.
Other Information: Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:

- AS/NZS 1336: Eye and face protection – Guidelines.
- AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.
- AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.
- AS/NZS 2161: Occupational protective gloves.
- AS/NZS 2210: Occupational protective footwear.
- AS/NZS 4501: Occupational protective clothing Set

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
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<tr>
<td>Physical state</td>
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<tr>
<td>Color</td>
<td>Brown</td>
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<tr>
<td>Odor</td>
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<tr>
<td>Odor Threshold</td>
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<tr>
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<td>Freezing point</td>
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<td>Boiling point (760 mmHg)</td>
<td>No data available</td>
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<td>Flash point</td>
<td>closed cup 95 °C Closed Cup</td>
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<td>Evaporation Rate (Butyl Acetate = 1)</td>
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<tr>
<td>Flammability (solid, gas)</td>
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<tr>
<td>Lower explosion limit</td>
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<tr>
<td>Upper explosion limit</td>
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<td>Vapor Pressure</td>
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<tr>
<td>Relative Density (water = 1)</td>
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<tr>
<td>Water solubility</td>
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<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
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<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
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<tr>
<td>Kinematic Viscosity</td>
<td>No data available</td>
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<tr>
<td>Explosive properties</td>
<td>No data available</td>
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<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
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<tr>
<td>Liquid Density</td>
<td>1.2 g/cm3 at 20 °C ANZ-01</td>
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<tr>
<td>Molecular weight</td>
<td>No data available</td>
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</tbody>
</table>

NOTE: The physical data presented above are typical values and should not be construed as a specification.
SECTION 10: STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen fluoride. Nitrogen oxides. Sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product:
LD50, Rat, male, > 2,000 mg/kg No deaths occurred at this concentration.

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:
LD50, Rabbit, female, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity
Prolonged exposure is not expected to cause adverse effects. Based on the available data, respiratory irritation was not observed.
As product: The LC50 has not been determined.

Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight eye irritation. Corneal injury is unlikely.

Sensitization
Has caused allergic skin reactions when tested in guinea pigs.
For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
For the active ingredient(s):
In animals, effects have been reported on the following organs:
Kidney.
Liver.

**Carcinogenicity**
For similar active ingredient(s). Triclopyr. For the solvent(s): Did not cause cancer in laboratory animals.

**Teratogenicity**
For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the solvent(s): Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**
For similar active ingredient(s). Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

For the solvent(s): Studies in laboratory animals indicate that diethylene glycol monoethyl ether (DEGEE) is not a reproductive toxicant even when given in large amounts (a few percent in the drinking water). However, at the highest doses, it caused some toxic effects in offspring of treated animals: increased liver weight, decreased brain weight, reduced sperm motility.

**Mutagenicity**
For the active ingredient(s): For the solvent(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**
Based on physical properties, not likely to be an aspiration hazard.

**COMPONENTS INFLUENCING TOXICOLOGY:**

**Triclopyr-2-butoxyethyl ester**
*Acute inhalation toxicity*
Prolonged exposure is not expected to cause adverse effects. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

LC50, Rat, 4 Hour, dust/mist, > 4.8 mg/l The LC50 value is greater than the Maximum Attainable Concentration.

**Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether**
*Acute inhalation toxicity*
The LC50 has not been determined.

**TCP: 3,5,6-Trichloro-2-pyridinol**
Acute inhalation toxicity
The LC50 has not been determined.

Balance
Acute inhalation toxicity
The LC50 has not been determined.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity

Triclopyr-2-butoxyethyl ester

Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Lepomis macrochirus (Bluegill sunfish), flow-through test, 96 Hour, 0.36 mg/l
LC50, Fish, 96 Hour, 0.310 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 2.9 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, >3.00 mg/l, OECD Test Guideline 201
ErC50, Myriophyllum spicatum, 14 d, 0.0473 mg/l
NOEC, Myriophyllum spicatum, 14 d, 0.00722 mg/l

Chronic toxicity to fish
NOEC, Rainbow trout (Oncorhynchus mykiss), 0.0263 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 1.6 mg/l
LOEC, Daphnia magna (Water flea), 21 d, number of offspring, 5.1 mg/l
MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), 21 d, number of offspring, 2.9 mg/l

Toxicity to Above Ground Organisms
Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).
Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).
oral LD50, Colinus virginianus (Bobwhite quail), 21 d, 735 mg/kg bodyweight.
dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, 1890 mg/kg diet.
oral LD50, Apis mellifera (bees), 48 Hour, mortality, >110µg/bee
contact LD50, Apis mellifera (bees), 48 Hour, mortality, >100µg/bee

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 14 d, >1,042 mg/kg

Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether
Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 86 mg/l

TCP: 3,5,6-Trichloro-2-pyridinol

Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.75 mg/l
LC50, Pimephales promelas (fathead minnow), 72 Hour, 14.3 mg/l
LC50, Lepomis macrochirus (Bluegill sunfish), 96 Hour, 4.9 - 12.5 mg/l

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), 48 Hour, 3.1 - 10.4 mg/l
EC50, eastern oyster (Crassostrea virginica), 96 Hour, 9.3 mg/l
LC50, grass shrimp (Palaemonetes pugio), 96 Hour, 83.0 mg/l

Acute toxicity to algae/aquatic plants
ErC50, diatom Navicula sp., 72 Hour, Growth rate inhibition, 2.0 mg/l
Ebc50, diatom Navicula sp., 72 Hour, Biomass, 1.1 mg/l
EyC50, diatom Navicula sp., 96 Hour, Growth inhibition (cell density reduction), 1.2 mg/l
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 0.67 - 0.76 mg/l
EC50, blue-green alga Anabaena flos-aquae, 120 Hour, Biomass, 1.49 mg/l
ErC50, Lemna minor (duckweed), 336 Hour, Biomass, 8.75 mg/l

Chronic toxicity to fish
NOEC, Oncorhynchus mykiss (rainbow trout), flow-through test, 91 d, growth, 0.178 mg/l
LOEC, Oncorhynchus mykiss (rainbow trout), flow-through test, 91 d, growth, 0.278 mg/l
MATC (Maximum Acceptable Toxicant Level), Oncorhynchus mykiss (rainbow trout), flow-through test, 91 d, growth, 0.222 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.058 mg/l

Toxicity to Above Ground Organisms
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
dietary LC50, Anas platyrhynchos (Mallard duck), > 5,620 ppm
oral LD50, Colinus virginianus (Bobwhite quail), > 2,000 mg/kg

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 14 d, 9.8 mg/kg
EC50, Eisenia fetida (earthworms), 56 d, 6.89 mg/kg

Balance
Acute toxicity to fish
No relevant data found.

Persistence and degradability

Triclopyr-2-butoxyethyl ester
**Biodegradability:** Chemical degradation (hydrolysis) is expected in the environment. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

- **Biodegradation:** 18 %
- **Exposure time:** 28 d
- **Method:** OECD Test Guideline 301B or Equivalent

**Theoretical Oxygen Demand:** 1.39 mg/mg

**Stability in Water (1/2-life)**
Hydrolysis, half-life, 8.7 d, pH 7, Half-life Temperature 25 °C

**Photodegradation**
- **Atmospheric half-life:** 5.6 Hour
- **Method:** Estimated.

**Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether**
- **Biodegradability:** No relevant information found.

**TCP: 3,5,6-Trichloro-2-pyridinol**
- **Biodegradability:** Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).

**Theoretical Oxygen Demand:** 0.89 mg/mg

**Balance**
- **Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Triclopyr-2-butoxyethyl ester**
- **Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
- **Partition coefficient:** n-octanol/water(log Pow): 4.62
- **Bioconcentration factor (BCF):** 110 Fish

**Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether**
- **Bioaccumulation:** No relevant data found.

**TCP: 3,5,6-Trichloro-2-pyridinol**
- **Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
- **Partition coefficient:** n-octanol/water(log Pow): 3.21 Measured
- **Bioconcentration factor (BCF):** 16 Fish Measured

**Balance**
- **Bioaccumulation:** No relevant data found.

**Mobility in Soil**

**Triclopyr-2-butoxyethyl ester**
- Calculation of meaningful sorption data was not possible due to very rapid degradation in the soil.
For the degradation product:
Triclopyr.
Potential for mobility in soil is very high (Koc between 0 and 50).

**Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether**
No relevant data found.

**TCP: 3,5,6-Trichloro-2-pyridinol**
Potential for mobility in soil is high (Koc between 50 and 150).
**Partition coefficient (Koc):** 130 Measured

**Balance**
No relevant data found.

**Results of PBT and vPvB assessment**

**Triclopyr-2-butoxyethyl ester**
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

**Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether**
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

**TCP: 3,5,6-Trichloro-2-pyridinol**
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Balance**
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Other adverse effects**

**Triclopyr-2-butoxyethyl ester**
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Oxirane, polymer with methyloxirane, mono(nonylphenyl)ether**
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**TCP: 3,5,6-Trichloro-2-pyridinol**
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Balance**
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

### SECTION 13: DISPOSAL CONSIDERATIONS

**Disposal methods:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal.
methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

**SECTION 14: TRANSPORT INFORMATION**

**ADG**

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Triclopyr-2-butoxyethyl ester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN 3082</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Triclopyr-2-butoxyethyl ester</td>
</tr>
</tbody>
</table>

**Classification for SEA transport (IMO-IMDG):**

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Triclopyr-2-butoxyethyl ester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN 3082</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Triclopyr-2-butoxyethyl ester</td>
</tr>
<tr>
<td>Transport in bulk</td>
<td>Consult IMO regulations before transporting ocean bulk</td>
</tr>
<tr>
<td>according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</td>
<td></td>
</tr>
</tbody>
</table>

**Classification for AIR transport (IATA/ICAO):**

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>Environmentally hazardous substance, liquid, n.o.s. (Triclopyr-2-butoxyethyl ester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN 3082</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
</tbody>
</table>

**Hazchem Code**

2X

**Further information:**

Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to the Australian Code for the Transport of Dangerous Goods (ADG). This applies when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs per ADG Special Provision AU01.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.
SECTION 15: REGULATORY INFORMATION

Poison Schedule
S6

APVMA Approval Number: 31898

Australia Inventory of Chemical Substances (AICS)
The product is used in a biocide/pesticide application and is subject to the applicable regulation. It contains a component exempt from inventory listing requirements. Because an intentional component of the product is not on the inventory, the product may only be used in the exempt application.

SECTION 16: ANY OTHER RELEVANT INFORMATION

Revision
Identification Number: 101200350 / A143 / Issue Date: 17.10.2016 / Version: 6.6
DAS Code: IWD-3483
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend
<table>
<thead>
<tr>
<th>Dow IHG</th>
<th>Dow Industrial Hygiene Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKIN, DSEN, BEI</td>
<td>Absorbed via Skin, Skin Sensitizer, Biological Exposure Indice</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
</tr>
</tbody>
</table>

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