

Otatara Landcare Group Health and Safety Plan

September 2026

1. Purpose

1.1. Otatara Landcare Group (OLG) is a voluntary community organisation established in 1999 to:

- 1.1.1. Focus the attention of Otatara residents and others on the natural features and ecological values of the Otatara environment, especially native forest and wetland flora and fauna.
- 1.1.2. Promote and, where possible, facilitate the protection, restoration and creation of such features in the interests of scientific appreciation and intrinsic worth and to encourage community appreciation of these values.

OLG engages with DOC and Environment Southland (ES). These organisations are Persons Conducting a Business or Undertaking (PCBUs) under the Health and Safety at Work Act 2015 (HSWA). As such they have a legal obligation and duty of due diligence to ensure that any work (voluntary or otherwise) undertaken on their behalf or in association with any area for which they are responsible is performed safely and carefully with full regard for the health and wellbeing of the individuals performing the work.

Volunteers and volunteer groups such as OLG engaging with PCBUs in voluntary work also have a duty of due diligence under HSWA to:

- ensure their actions do not negatively affect the safety, health or wellbeing of any person, including themselves
- follow the health and safety procedures of the PCBU that relate to the work being performed.

DOC will initiate reviews of OLG's Health and Safety Plan when appropriate to ensure it is still fit for purpose and that the controls for the identified hazards and hazardous substances are in place and working appropriately at Bushy Point and other DOC land.

2. Nature of Work

This document covers various projects undertaken by OLG on DOC land, including:

- restoration planting, weed control, track maintenance and education on a 14 ha block of land at Bushy Point in Otatara leased from DOC
- pest control carried out at Bushy Point and other locations around Otatara such as the Otatara South Scenic Reserve.

This document does not cover the activities of Otatara Pestbusters, an affiliated group which carries out work on Invercargill City Council (ICC) reserves and other ICC-managed land in accordance with

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our joint Memorandum of Understanding and provides support to private property owners for control of pests on their own land. Otatara Pestbusters has its own health and safety plan.

For the purposes of this plan, people carrying out activities 'in the field' on behalf of OLG fall into three categories: Volunteers, Contractors and Members of the Public.

All are responsible for the health and safety of themselves and the general public when carrying out activities. Volunteers and contractors should be familiar with and act in accordance with the parts of this document relevant to the work they (and the people they are supervising) are doing.

Communication with members/volunteers

OLG communicates with its members and volunteers through email, the OLG website, Facebook pages, and also the magazine Pigeon Post distributed free multiple times each year to Otatara residents. For group field work an on-site briefing is held.

Records are kept of all members of the Society and of volunteer hours worked.

3. Induction

- 3.1.1 Each new member of the OLG is welcomed with the provision of information on the website containing background to the Bushy Point project and Pestbusters, booklets about Otatara and the H&S Plan and Briefing documents for work in the field. They are also directed to the Pigeon Post magazine, the main vehicle for communication for the OLG.

4. Briefings

If members of the public are taking part in a group activity, it will be led by a volunteer or contractor who will give a suitable health and safety briefing to all present at the start of the activity.

Examples of topics that may be covered by a briefing are:

- review of hazards of the work being done and the environment in which it is being done
- review of the Incident Reporting procedure and the importance of reporting near misses and any observed environmental changes to the area they monitor
- Children under the age of 15 must be supervised by their accompanying responsible adult at all times in accordance with OLG's Child Protection policy
- informing all volunteers and existing members of the dangers of handling and using tools, machinery, toxins, or pest control supplies when under the influence of drugs or alcohol and that they are prohibited from engaging in volunteer work for OLG when under the influence.

Sample briefing sheets are at APPENDIX B and are available on the OLG website.

5. Storage, Handling and Use of Hazardous Substances

OLG works with plant toxins such as sprays and pastes (e.g. Roundup spray and Cut N Paste gel) and rat bait (Pindone).

Changes to the HSNO Act require hazardous substances to be:

- labelled and stored correctly at a secure location with its Safety Data Sheet (SDS) – refer to Appendix C for copies of these SDSs
- the location to be tracked each time the substance is taken from the secure location, stating to where and by whom
- appropriately identified with signage that shows it is toxic and therefore a hazardous substance – refer to section 2.6 of Worksafe's New rules for hazardous substances, Nov 2017.

Storage, handling and use

All hazardous substances are contained in a locked up facility at Rances Education Centre 185 Grant Road, Otatara and in the locked shed at Bushy Point. All substances when issued to volunteers shall be contained in a sealed bag as it is not practical to do it any other way when doing pest lines at Bushy Point.

All pied piper bait stations have a poison sign embossed on the lid for use in public places and reserves

When checking and resetting pied piper bait stations need to watch out for old bait that may fall to the ground. It is recommended that a bait station be cleared over an empty bucket, or receptacle of some kind that will prevent the bait making contact with the ground. Old and/or mouldy bait should be collected and returned to a bucket in the poison shed for collection and disposal by ES at an appropriate facility.

Safety Data Sheets (SDS) for the products in use by OLG are documented in Appendix C for printing, and posting in key sites and should be referred to for recommended handling instructions.

<i>Hazardous Substance</i>	<i>Storage</i>	<i>Used for</i>	<i>Control</i>
Weed spray: Glyphosate, Tordon, Gallant spray, FIL Been There tracer dye, Pulse penetrant	Secured in a locked up facility	Spraying pest plants, grass areas in preparation for planting	Use of appropriate PPE when preparing the spray.
Plant Toxin Paste: CUT'N'PASTE Picloram Weed Gel - 450ml Bottle Vigilant Herbicide Gel	Secured in locked shed when not in use	Pasting cut stems of pest plants such as blackberry, gorse etc	Use of appropriate gloves for safe handling. When cutting and pasting pest plants care must be taken to ensure that only the cut ends are pasted and that the removed vegetation is appropriately disposed of so as not to cause a hazard to members of the public walking through the area.
Pindone rat poison	Secured in a locked up facility	Poisoning rodents on DoC land contained in pied piper bait stations	Use of gloves for safe handling.

Signage

OLG will ensure appropriate signage informs the public that poison spray has been used or that bait has been laid in the area and to caution the public that dogs must be on a lead.

Procedure 1: Keeping Safe and Protected At Work

1. Purpose

- 1.1. This procedure outlines the requirements for volunteers of Otatarā Landcare Group (OLG) to help keep them safe and protected while engaged on behalf of OLG and by extension DoC and ES in the restoration, pest and weed control work they do within Bushy Point, on public land and within the Reserves of Otatarā.
- 1.2. Conversations will be held with all volunteers at the commencement of every work day, or when individual volunteers replenish their supplies, or carry out independent work to review this procedure and the others that make up this Plan.

2. Scope

- 2.1 This procedure applies to all members or volunteers of the OLG and their sub-groups who work on public land or in the Reserves of Otatarā on behalf of the Otatarā Landcare Group.

3. Procedure

- 3.1 All volunteers are advised to wear appropriate protective clothing (see Clothing Checklist Procedure 3) and have readily available appropriate equipment (see Equipment Checklist Procedure 3) in line with the nature of the work they are performing for the time of year.
- 3.2 All volunteers are required to check the weather forecast and temperature expectations for the period of time they will be out working in Bushy Point or Reserves.
- 3.3 It is expected that all volunteers will act responsibly to ensure they have the appropriate gear with them whenever they embark on volunteer work for OLG.
- 3.4 Volunteers working alone must inform a relative, friend or a member of the OLG committee where and when they will be working and their expected time of return.
- 3.5 All volunteers are required to keep a records of their work, This information is used to calculate the volunteer hours worked and the trends with pest numbers, or plant health or issues needing addressed, but also will help OLG in the event of an emergency.
- 3.6 In the event of a volunteer not returning within a reasonable time of the timeframes expected, OLG recommends that the volunteer either calls someone and informs them of the delay, or has arrangements in place where someone calls them to check that all is well.

CLOTHING and Equipment checklists at Procedure 3 and Appendix B

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Procedure 2: In the Event of an Incident or Emergency...

1. Purpose

- 1.1 This procedure outlines the requirements for volunteers of Otatarā Landcare Group with regard to the reporting and recording health and safety incidents, including injuries, near misses and notifiable events / incidents.
- 1.2 The flow chart below summarises the procedure to be followed in event of an incident or emergency.
- 1.3 When an incident or emergency occurs, the prime responsibility of those carrying out an activity on behalf of OLG is to ensure the health and safety of everyone involved.
- 1.4 There is also a requirement to report and record health and safety incidents, including injuries, near misses and notifiable events / incidents.

Note that:

- some parts of Otatarā such as Bushy Point have excellent cell phone coverage, but others may not
- Bushy Point is only 10 minutes drive from a major hospital Emergency Department, but other places may be less accessible.

2. Scope

- 2.1 This procedure applies to all members or volunteers who work on public land, at Bushy Point or in the Reserves of Otatarā on behalf of the Otatarā Landcare Group.

3. Procedure

The following arrangements when in place will assist OLG in protecting the health and safety of its members and volunteers and meeting the relevant health and safety legislation.

The following arrangements when in place will assist OLG in protecting the health and safety of its members and volunteers and meeting the relevant health and safety legislation.

3.1 Notifiable Events / Incidents

- 3.1.1 A notifiable event is a fatality, or a serious injury or illness (requiring hospitalisation) including but not limited to an amputation, a head injury, a spinal injury, a serious burn, serious lacerations such as deep cuts not responding to first aid, or loss of a bodily function such as unconsciousness, function of internal organs, loss of breath, chest pains or stroke symptoms – act FAST: Face Arm Speech Time
- 3.1.2 In any such event secure and make safe the scene so no-one else can be harmed
- 3.1.3 Provide immediate emergency treatment if you are able to
- 3.1.4 Report the event to a member of the OLG committee, who will report to OLG chair and notify Worksafe: **0800 030 040 (24/7)**

3.2 Reporting

- 3.2.1 All volunteers working on behalf of OLG are asked to report any incident (including near misses) that takes place on any of the public land or reserves where they perform work by completing a copy of the OLG Incident Report.

3.3 Recording

- 3.3.1 All incidents, no matter how small, are to be recorded using the OLG Incident Report Form (available on the OLG website) within 48 hours of the incident occurring.
- 3.3.2 The form is to be forwarded to the chair of OLG.
- 3.3.3 Details will then be entering into the master register which will enable OLG to prepare an analytical report if need be for DOC in the case of a notifiable event.

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- 3.3.4 Copies of any correspondence with external regulatory bodies relating to any notifiable incident will also be retained with this register.

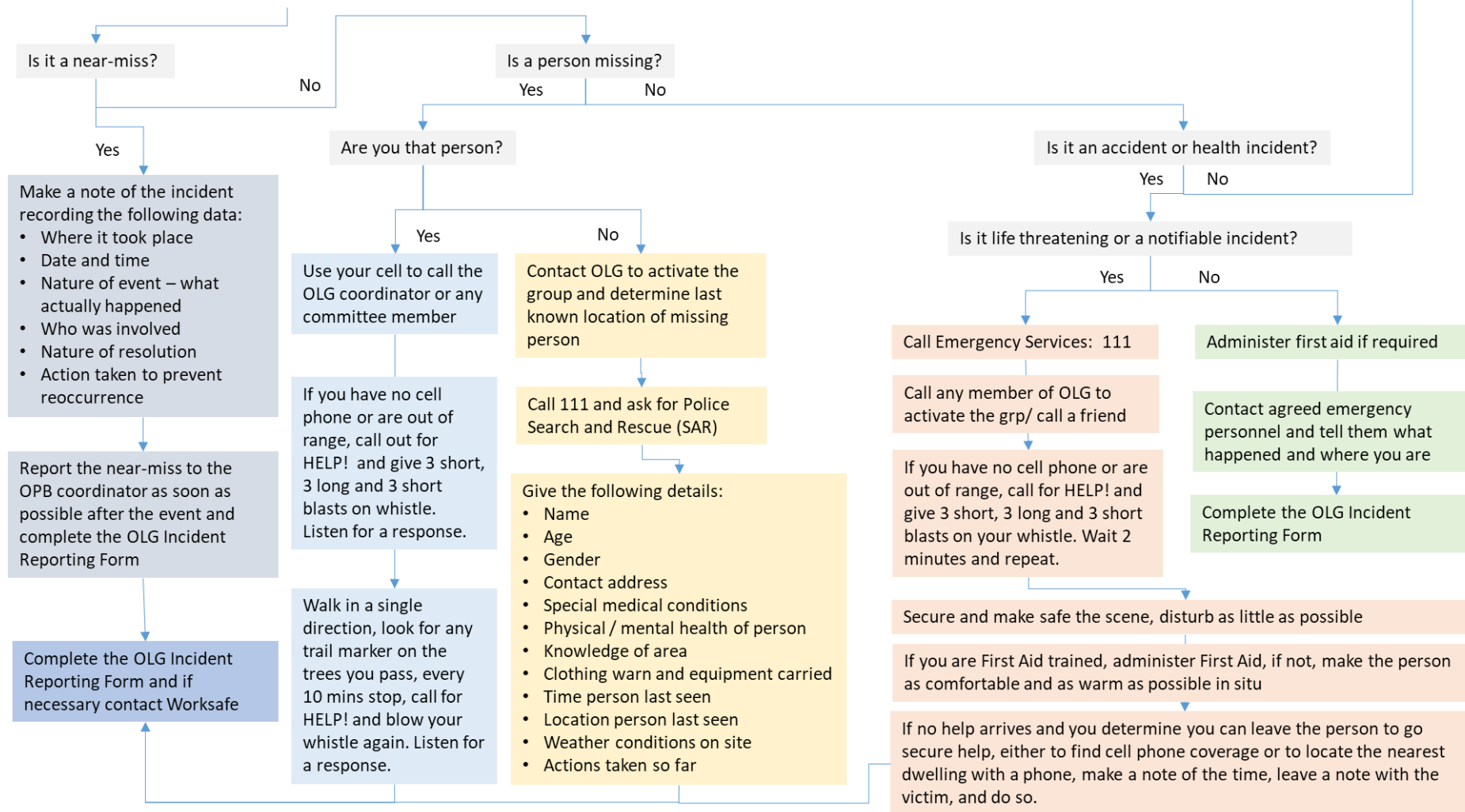
3.4 Investigation

- 3.4.1 Should any incident be notifiable, OLG is to inform DOC at the same time that they notify Worksafe. A copy of the Incident Report is to be forwarded to DOC as soon as possible and they will conduct an investigation of the incident in accordance with their Health and Safety Management System.

3.5 Responsibilities

- 3.5.1 It is the responsibility of all volunteers and contractors the to be familiar with the procedures in place for the recording and reporting of any incident or event that occurs while performing work on behalf of the Otatara Landcare Group.

In the event of a health or safety incident, consider the following...



Procedure 3: Risk Management in the Field

Preparation for work

All volunteers should:

- check the weather forecast and temperature expectations for the period of time they will be out working in Bushy Point or Reserves; wherever possible wet weather should be avoided
- wear appropriate protective clothing in line with the nature of the work they are performing for the time of year
- ensure they have the appropriate equipment with them.

The following checklists may be useful in deciding what to bring.

Clothing checklist

No.	Item
1.	High visibility vest or other hi-vis apparel wherever practicable in line with the nature of the work being undertaken.
2.	Protective gloves - to prevent any permeation of the toxin through to the skin
3.	Closed toe footwear appropriate to the conditions (boots, gumboots etc)
4.	Water-proof parka
5.	Hat – beanie or sunhat depending on the conditions
6.	Clothing specifically warm layers for changeable conditions

Equipment checklist

No.	Item
1.	Food / drink / snack – dependent on the place, time of year and time taken to complete the work, food / drink reserve of some sort should be in your kit
2.	Appropriate First Aid supplies e.g. band aids
3.	Personal Medication – relevant to the time of year and nature of the work e.g. antihistamines, inhaler, epi-pen etc
4.	Sunscreen
5.	Insect Repellent (depending on time of year)
6.	Cell phone or whistle – to raise the alarm in the event of an accident
7.	Torch (optional)
8.	Notepad and pencil or other device (cell phone) – to record any incident details that occur
9.	Tools relevant to the work being done such as spades, secateurs, grass cutters, etc
10.	Weed Toxin or Bait supplies in a closed Hazard-labelled container
11.	Sack or container of some sort for collecting pest remains, if required

Volunteers working alone should inform a relative, friend or a member of the OLG committee where and when they will be working and their expected time of return. In the event of a volunteer not returning within a reasonable time of the timeframes expected, OLG recommends that the volunteer either calls someone and informs them of the delay, or has arrangements in place where someone calls them to check that all is well.

Hazards

OLG asks all its volunteers and contractors to be observant of the environment in which they work so as to manage the risks of hazards they may encounter.

Appendix A contains a table listing the most common hazards, a description of the risk, and the controls put in place to remove, minimise or manage the risk. This information is useful for carrying out induction of new volunteers and contractors and when giving on-site briefings, particularly to members of the public.

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The table has been compiled in accordance with the I.A.C. (Identify, Assess, Control) approach.

- **Identify** the hazard
- **Assess** the level of risk using the following formula: risk = probability*severity.
- Ask the following questions:
 1. What is the *probability* that this hazard will cause serious injury or harm?
 2. What would the *severity* of that injury be should it occur?
 3. And under what *conditions* does this hazard pose the greatest risk?
- Use the following table to assist with this assessment.

<i>Probability</i>			
High			
Medium			
Low			
	Low	Medium	High
<i>Severity</i>			

- Apply **controls** to remove, minimise or manage the risk.

APPENDIX A: List of Common Hazards at Bushy Point

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
General					
Adverse weather conditions	Wind, cold, glare, intense sunshine, sun stroke, rain (flooding) lightning, storm , hail, hypothermia, frostbite	High	Medium	Management Controls: Prepare for adverse weather and have a system to monitor volunteers Minimum competencies: Person is competent to work in a range of extreme weather conditions. Ensure leaders are educated and briefed on symptoms of hypothermia and sun stroke Work Instructions: Check weather conditions prior to starting out; carry extra suitable clothing; always carry sunscreen and water; seek shade/shelter if possible; postpone work activity if needed especially in high wind and/or rain, as conditions can deteriorate quickly. Share the work load and monitor staff. PPE: As directed by Team Leader for task	Ensure all volunteers are well equipped for the weather conditions/ If weather shifts quickly, notify volunteers of nearest shelter.
Falling objects (rocks, trees,) blunt force trauma	Being hit by an object falling from height (e.g, rocks, trees, branches, pinecones) particularly after a storm or when tree pruning.	Low	High	Management Controls: Identify areas of potential falling areas, eg high wind zones. Minimum Competencies: Competent in this terrain and can observe hazardous situations Work Instructions: Undertake job safety analysis. Review immediate vicinity for obviously weakened trees / windfall. As much as possible avoid work at the bottom of rocky slopes or cliffs. Avoid working in the forest when wind is high, during or directly after heavy snowfall or frost when the branches or trees are likely to come down or during a high westerly wind. PPE: Hard hats to be worn when falling hazards exist.	Advise volunteers to be mindful, aware of surroundings. Point out any unsafe areas that are prone to slips. Ensure volunteers are not working in isolation in these areas. Avoid working above another person if on a slope.
Food Preparation	Use of barbecues for public events such as planting days. Correct fitting of regulator to gas bottle. Fat splashes hot areas especially when children are present. Hygienic handling of food.	Low	High	Management Controls: Barbecue correctly maintained. Minimum Competencies: Ensure bbq operator has adequate knowledge of fitting or regulator. Work Instructions: Use of automatic lighter. Restrict child access to hot area and supervise when present. PPE: As directed by lead volunteer.	Ensure high hygiene standards are maintained in the preparation and serving of food, including use of gloves, appropriate food storage and hand sanitiser availability in the absence of soap and water.

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
Manual handling	Strains, sprains, crushing, slips, twisting, compression, etc that occur when: lifting and/or carrying plants, supplies, tools, traps, weed bags, bundles of bamboo sticks etc.	Low	Medium	Management Controls: Seek alternatives to manual lifting/carrying/ handling. Make sure volunteers are suited to the tasks and do not have serious disabilities. Be familiar with principles of the Code of Practice for Manual Handling. Minimum Competencies: Manual handling training recommended. Work Instructions: Minimise the need for lifting heavy loads by choice of equipment, position of equipment. Seek assistance when lifting heavy or awkward loads. Do not twist while lifting and use your legs to provide lift rather than your back. Ensure items are stored securely and will not fall. PPE: As directed by team leader or overseer	Bend knees and keep back straight so your legs do the lifting; split the load into manageable weights; take more trips if necessary; take a helper; use a backpack, bucket, trolley or wheelbarrow if possible; ensure you are clearly able to see where you are going while carrying a load
Slips, trips and falls	When walking on uneven ground or where there are roots or fallen trees and branches; walking off track through bush and scrub; navigating fallen debris in bush; walking on unstable ground after heavy rains, or where there has been flooding or storm debris; walking along banks; poor fitting footwear, or loose shoelaces. Injuries could include scrapes, grazes, cuts, bruises, fractures, and head injury.	Medium	Medium	Management Controls: Ensure all volunteers have adequate and well maintained equipment, and have no underlying health issues that might make them more susceptible to falls Minimum Competencies: Ability to be able to assess the area and conditions where work is being undertaken for likely hazards. Work Instructions: Briefing on the nature of the terrain and likely hazards in the area. Avoid working at dusk or in severe weather when visibility is compromised. PPE: Wear appropriate footwear for the terrain	Be aware of where you are; walk slowly, look up, mark hazardous roots or branches; wear sturdy and supportive footwear suitable for the work being undertaken Choose route carefully, report any changes or dangers discovered; flag, mark or remove hazardous debris; avoid steep slopes
Rubbish or waste material handling	Sharp objects; heavy bags; toxin disposal; weed waste such as blackberry, nettles, gorse, vines; possibility of cuts / scratches / infections:	Medium	High	Management Controls: Net or tarpaulin to be used to contain rubbish on a vehicle or trailer when transporting; suitable bags/buckets to be used for collecting of old mouldy bait Minimum Competencies: Competent person Work Instructions: Identify object before grasping. Handle bags of rubbish with caution. Cut back weed waste with secateurs, loppers, saw or other appropriate tool; paste stem if appropriate, remove all cuttings to prevent regrowth. Treat any cuts/scratches with antiseptic however minor immediately. Use good lifting techniques. Wash hands with soap and water after handling rubbish of any sort. PPE: Use gloves if necessary.	All rubbish will be properly disposed of and removed from Bushy Point.

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
Vehicular use in and around cycle or pedestrian traffic; people on paths & tracks; Traffic on adjoining roadways	Walking to and from planting, trapping or maintenance sites; parking vehicles on roadsides, or using pedestrian walkways for vehicular access particularly ride-on mowers	Low	High	Management Controls: Use of signage to inform the public that work is being undertaken in this area. Use of traffic cones to cordon off area of work if adjacent to busy roadway or intersection. Minimum Competencies: Road safety awareness. Work Instructions: Wear a high visibility vest; be aware of sun strike conditions for traffic; park vehicle well off road; only access vehicle from passenger side. PPE: Hi vis vest, ear protection	If the need to park a vehicle with trailer on the road side, use appropriate safety precautions for the area.
Visitor / Public management	Risks to safety of visitors in the workplace – falls, tool injury, other bodily injury, etc. Dealing with emotional people.	Low	High	Management Controls: Volunteer awareness of how to behave in difficult public situations. Appropriate signs displayed and barriers to warn visitors of serious hazards and controlled access areas. Minimum Competencies: Competent in the use of cell phone and dealing with people. Work Instructions: Volunteers manning barriers, gates, to take appropriate action in the event of visitors entering controlled access sites. Use cell phone contact between volunteers at barriers if necessary. Visitors will be held at the barriers until site supervisor declares it is safe to proceed. If encountering angry or disturbed people in isolated situations avoid aggravating the person. Remove yourself from the situation as soon as possible and make cell phone contact for backup support if necessary. PPE: Hi vis vests may be necessary in some situations as advised by Team Leader	Ensure all volunteers engaged with the annual planting day are familiar with the management controls and work instructions for dealing with visitors. If spraying or conducting maintenance work in Busy Point, there needs to be a visitor management plan in place.
Wasp, bee, insect stings	Allergic reaction, anaphylactic shock, etc	Low	High	Management Controls: Identify areas of possible wasp activity. Identify allergies within volunteer group. Minimum Competencies: Competent team members and team leader who either inform or check with other volunteers. Work Instructions: Specific prescribed anti-histamines to be carried by any individuals with a known history of allergic reaction. Identify at risk volunteers at briefing – allergies, likely reactions, appropriate medication and treatment prior to the commencement of any work activity. Use caution near beehives, if on foot stay away from hives. Where possible avoid areas or times of year when wasp activity is high. PPE: N/A.	Advise volunteers the location of any known nests and inform the local DoC office of their location.

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
Working alone	Injury, lack of assistance and/or treatment, disorientation, lost	Low	Medium	Management Controls: Decide whether individual should be accompanied by a second person. Maintain scheduled check in times and always leave intended locations / routes and ETA with a responsible person. Minimum Competencies: Training in tasks being undertaken and competent to work alone. Work Instructions: At all times carry a cell phone. Check weather. Carry a first aid kit. PPE: As appropriate for the conditions and the task.	IF working alone, volunteers should log their location and ETA with the Volunteer manager or other designated contact person, and check in on their return.
Workshop appliances / hand held power tools	Cutting, electrocution, entanglement, hearing damage, eye injuries, dust inhalation	Medium	Medium	Management Controls: Annual check of all appliances' cords and RCDs. All equipment safety features are to be in place and used. Use all equipment in accordance with manufacturers' specifications. Minimum Competencies: Trained to relevant standard and assessed as competent. Mentor inexperienced personnel. Work Instructions: All machinery to be well maintained and checked prior to use and tagged. All equipment safety features are to be in place and used. Use all equipment in accordance with manufacturers' specifications. Workshop well ventilated. PPE: PPE to be worn including hearing and eye protection where appropriate.	
Pond	Risk of Drowning	Low	High	Management Controls: Inform participants, particularly where children are involved of the dangers of water. Minimum competencies: Inform to supervise children Work Instruction: Inform of risk of ponds	

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
Animal Pest Control					
Animal Contact or Handling – dead or alive animals	Bites, scratched and lacerations from handling dead or alive animals or birds. Specifically predators such as possums, feral cats, mustelids, hedgehogs and rodents, and injured birds. Also infectious diseases and exposure to harmful pathogens	High	Medium	Management Controls: Appropriate vaccinations. Regular health checks for volunteers who may come in contact with TB Minimum Competencies: Volunteers to be appropriately briefed and familiar with the animal and habitat, in house training where required, At least one person in the group to have a current first aid certificate. Work instructions: Practice a high standard of hygiene. Cover broken skin before, and clean hands thoroughly with antibacterial wipes / lotion after handling animals or wash well with soap and water. Seek medical advice if feeling unwell after contact with or handling of animals. Carry first aid kit. PPE: Wear appropriate PPE, particularly gloves.	Contact DOC office and/or Bush Haven Wild Bird Hospital if dead or injured native birds are discovered.
Pest / predator control – manual setting traps e.g. Victor rat & stoat traps, D-Rat traps, Possum Master or Sentinel traps, Mustelid traps (e.g. DOC 200s)	Crushing, stabs, amputations: trap closing on operator; breakage to trap causing injury; bites, scratches etc from trapped animals	Medium	High	Management Controls: Keep traps well maintained. Minimum Competencies: training of all volunteers operating traps showing them how to hold and set to minimise accidental triggering and use safety catches. Work Instructions: Use in accordance with trap SOP &/or best practice guidelines. Use setting tool if appropriate and keep body parts well clear of closing mechanism. Be aware of sharp edges on mesh at ends of tunnels. Ensure animal is dead before removing from trap. Carry cell phone and first aid kit. Carry soap and water and wash hands before eating or after handling traps. PPE: Wear gloves when handling dead or trapped animals.	Show volunteers how to use the equipment correctly; all pest operations must follow DOC’s pest operations Standard operating procedures.

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
Pest / predator control – self re-setting traps Good nature A24s for rats, and A12s for possums	Self-resetting traps can fire on operator is inappropriately handled causing injury.	Medium	High	Management Controls: Self resetting traps are to be handled and operated as per the manufacturer's guidelines. Damaged traps are to be repaired or discarded. Minimum Competencies: Training for all people installing, setting or operating traps showing them have to hold, arm, and disarm self-resetting traps safely Work Instructions: Always treat the trap as live and only install CO2 canister when the trap is installed and set correctly and ready to use. Do not place hands inside entrance to the trap or intentionally place objects in front of the striker. Be cautious of the low temperature the CO2 canister can achieve, when in use or being removed. Carry cell phone and personal first aid kit and ensure any wounds sustained are cleaned and treated appropriately. Operators should understand and comply with any conditions on trapping permits. PPE: As directed by team leader or overseer.	Show volunteers how to use the equipment correctly; all pest operations must follow DOC's pest operations Standard operating procedures.
Planting/weeding					
Hand tool use	<i>Bruising / crushing:</i> use of variety of tools including manual/ electric screwdrivers, hammer, spade, grubber, saws, etc. <i>Blunt force trauma:</i> Heavy objects. Flying objects. Extended use (loss of control). <i>Cuts:</i> Sharp blades / objects such as garden shears, flax knives, grass cutters, slashers, scythes etc. <i>Vibration, impacts, entanglement, public access</i>	Medium	Medium	Management Controls: Correct sharpening procedures applied, tools maintained and regularly checked for loose heads of axes, grubbers, slashers, etc. Where necessary, warning signs in area of operations where public access is heavy. Keep sharp tools closed or covered when not in use. Ensure best practice guidelines are followed. Minimum Competencies: Competent in use i.e. completed the required training for the task or use of equipment, and/ or assessed as competent by overseer. Work Instructions: Do not carry tools over the shoulder or leave tools lying around where people have access. Be aware of the location of others and work at least 3 metres apart. When transporting tools, handle them appropriately or in containers with safety catches on. Return tool to be stored appropriately in a secure work area. PPE: Recommended relevant PPE includes gloves, safety boots, overalls, leg protection, protective glasses if considered necessary by overseer. First aid kit.	Volunteer manager or overseer will give extensive safety briefing to all volunteers in the use of hand tools. Ensure proper PPE is distributed and used. Ensure all volunteers have been adequately trained in the use of these tools before allowing them independent use.

Hazard	Description	Risk		Master Controls	Local Controls
		Prob:	Severity		
Herbicide and Penetrant use	Absorption and/or inhalation and/or ingestion	Low	High	Management Controls: Maintain equipment and ensure that standard operating procedures are followed. Minimum Competencies: Approved handler, or under the supervision of one. For knapsack spraying, all users must be given a safety briefing and training by an approved handler prior to use Work Instructions: Maintain equipment and ensure standard operating procedures are followed. Read the Safety Data Sheet (SDS) for the toxin in use. Avoid skin and eye contact, and breathing the vapour. Use with adequate ventilation. Avoid use in high wind conditions. Wash hands well with soap and water before eating, drinking, using the toilet, etc. Always check container lids are secure. Appoint a team leader. PPE: PPE appropriate to the task such as suitable eye wear, overalls, rubber gloves, and respirator as recommended by the manufacturer on the SDS.	All volunteers using herbicide must be familiar with the SDS cautions and best practice – see appendix B. Current weed control methods and best practice to be discussed with contractor and lead volunteer on an annual basis.
Scrub bar / brush cutter / weedeater use	Flying debris – cuts / impacts/ eye damage. Occupation overuse syndrome (OOS) – back strain / vibration / circulation. Noise. Fire – machine. Fuel use. Falling over. Public in vicinity. Blade use (circular/star). Often an interchangeable attachment can be used (flexible bar and/or flail/whip cord (nylon) on a scrub bar/brush cutter motor (turning item into a weedeater) for clearing grass and small vegetation p to 5mm.	High	High	Management Controls: Consider alternative safer methods such as mowing or spraying. Otherwise ensure communication available at all times. Ensure blade is maintained. Discuss risks, including hand/arm vibration syndrome. Read and understand scrub-bar guidelines. Appoint team leader. Minimum Competencies: Scrub-bar / brush cutters: New users are trained to NZQA unit standard 24540 and assessed as competent in local use. Experienced users complete a self-assessment and are assessed by competent person in local site. Weedeater attachment: Trained and assessed by competent person in local area. Work Instructions: Guard is attached. Check area prior to commencing work for obstacles, place warning signs in public areas and minimum of two workers on site where cutter is fitted with a star blade. Check fuel lines and components before and during work. Minimum operating distance of 15 m from maximum reach of machine between workers. Carefully consider use in high/extreme fire conditions. Use correct fuel mixture. Undertake Job Safety Analysis for the task. Take regular breaks. PPE: Steel cap boots, helmet with visor or goggles, gloves, hi-vis vest or t-shirt, suitable clothing to protect all exposed areas of body, (i.e. chainsaw chaps (scrub-bar) or light chaps (flail cord)); first aid kit containing eye wash; hearing protection – grade 3-5	All volunteers using scrub-bars, brush cutters or weedeaters are required to demonstrate competence and discuss safety issues with work supervisor, or competent person in charge.

<i>Hazard</i>	<i>Description</i>	<i>Risk</i>		<i>Master Controls</i>	<i>Local Controls</i>
		<i>Prob:</i>	<i>Severity</i>		
Stakes, grasses or other cut vegetation when bending to work on tree	There are often hidden elements in amongst the long grass that could pose a hazard if overlooked	High	Low	Work Instructions: inspect area from a side view to identify hazards not easily visible from directly above and remove them if possible PPE: Protective gloves, safety glasses, knee pad / kneeling mat	Ensure volunteers are aware of what might be found hidden in grasses and caution against kneeling without checking first

APPENDIX B: Checklists for Volunteer Briefings at Bushy Point

Checklists for H&S OLG			
Activity	Planting	Weed Control	Animal Control
Recommended Personal Equipment			
Outdoor clothing (inc wet weather gear)	✓	✓	✓
Boots	✓	✓	✓
Cellphone	✓	✓	✓
Gloves	✓	✓	✓
First Aid Kit	✓	✓	✓
Waterbottle	✓	✓	✓
Hand sanitiser	✓	✓	✓
Sunscreen	✓	✓	✓
Personal medication	✓	✓	✓
Hi Viz vest	✓	✓	✓
Tools Supplied			
Gloves	✓	✓	✓
spade	✓		
combi-guards	✓		
Bamboo stakes	✓		
Secateurs		✓	
loppers		✓	
cut&paste		✓	
safety glasses		✓	
poison rat bait			✓
rat lure for traps			✓
stoat lure			✓
Possum lure			✓
screwdriver for traps			✓
Bucket for old bait			✓
Map			✓
Specific Hazards			
Trips and slips	✓	✓	✓
Adverse Weather	✓	✓	✓
Carrying tools	✓	✓	✓
Eye Pokes	✓	✓	✓
Using tools	✓	✓	✓
Setting trap boxes			✓
Getting lost			✓

Reporting incidents	Chair OLG or committee member	Chair OLG or committee member	Chair OLG or committee member

APPENDIX C: Safety Data Sheets for Hazardous Substances

Pesticide

- Pindone Pellets (Key Industries)

Herbicide

- Cut'n'Paste Picloram Gel (LandMan Limited)
- Glyphosate 360 (Ravensdown)
- FIL Been There (GEA)
- Gallant Ultra Herbicide (Dow)
- Pulse Penetrant (Nufarm)
- Tordon Brushkiller XT (Dow)
- Vigilant Herbicide Gel

Document Name and Number:	OLG Health and Safety Plan:		
Document Owner:	Richard Johnson, Chair of Otatara Landcare Group		
Document Approvers:	Dept of Conservation		
Original Creation Date:	August 2018	Date Issued:	September 2026
Version No.	5	Review Date:	September 2028



PO Box 65 070 Mairangi Bay, Auckland 0754, New Zealand
T: +64 9 917 1790 | F: +64 9 917 1793 |
www.keyindustries.co.nz

Safety Data Sheet: Pindone Pellets

1. IDENTIFICATION

Product Name: Pindone Pellets
Other Names: Pindone Pellets for control of possums and rats.
Recommended Use: Vertebrate Toxic Agent (VTA) for the control of possums and rabbits.
Distributor: Key Industries Ltd
Address: P.O. Box 65070, Mairangi Bay, Auckland 0754
Telephone: 09 917 1791
Emergency Phone: 0800 CHEMCALL (0800 243 622) 24 hours
National Poisons Centre: 0800 POISON (0800 764 766)

2. HAZARDS IDENTIFICATION

Hazardous substance according to the HSNO Act 1996 Hazardous Substances (Hazard Classification) Notice 2020.

Approval: HSR001604; Bait containing 0.25 – 0.5 g/kg pindone.
Hazard Classifications: Specific target organ toxicity (repeated exposure) Category 2, Designed for biocidal action.

Pictograms:



Signal word: WARNING
Hazard statements: May cause damage to organs through prolonged or repeated exposure.
 Hazardous to terrestrial vertebrates.
Precautionary statements:
Prevention: Read label before use.
 Do not breathe dust.
 Avoid release to the environment (unless used as per label).
Response: Get medical advice/attention if you feel unwell.
 Collect spillage.
Storage: -
Disposal: Dispose of product and container in accordance with local regulations.

Other information:

Hazardous Substance (Labelling) Notice 2020

A person who uses this substance must take all reasonable steps to ensure that the substance does not adversely affect non-target terrestrial vertebrates.

NZS5433 Transportation of Dangerous Goods on Land
 Classified as non-DG for transport.

EMERGENCY PHONE: 0800 CHEMCALL (0800 243 622) 24 hours
 Date of Issue: 20th June, 2022
 Date of Revision: June, 2027



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Safety Data Sheet: Pindone Pellets

3. COMPOSITION: INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (%w/w)
Pindone	83-26-1	0.05
Other ingredients (bulking agents, flavor, colorant, preservative)*	Trade secret	Balance

* Do not affect hazardous classification of the substance

4. FIRST AID MEASURES

Consult the National Poisons Information Centre 0800 POISON (0800 764 766) or a doctor in every case of suspected chemical poisoning. Have product label or Safety Data Sheet at hand.

INGESTION: Rinse mouth. Get medical advice if person feels unwell.

If vomiting occurs spontaneously, keep head below hips to prevent vomit entering lungs.

SKIN CONTACT: Wash affected area with soap and water. If irritation persists, obtain medical advice.

EYE CONTACT: Flush with running water for at least 15 minutes. Remove contact lenses if present, and easy to do after 5 minutes before continuing rinsing. If irritation develops, obtain medical assistance.

INHALATION: Remove patient to fresh air and keep at rest until recovered. Get medical advice if person feels unwell.

First Aid facilities:

Provide eye baths and safety showers close to work areas.

Advice to Doctor:

Treat symptomatically. Product may reduce clotting of the blood. If ingested administer Vitamin K1 intramuscularly or orally as indicated by bishydroxycoumarin overdoses, Reaped as necessary based on monitoring of prothrombin times.

5. FIRE FIGHTING MEASURES

Flashpoint: Non-flammable solid.

Suitable extinguishing media: Water fog, fine water spray, carbon dioxide, dry chemical, foam as appropriate to surrounding materials.

Hazards from combustion products: Generates harmful/toxic fumes/smoke.

Precautions for fire fighters and special protective equipment: Self-contained breathing apparatus with full face-piece and protective clothing.

Hazchem Code: Not applicable.

6. ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Read label before use. Do not eat, drink or smoke when using product. Wear appropriate personal protection equipment, e.g. gloves and safety glasses, to prevent exposure.

Environmental Precautions: Contain spillage and prevent from entering drains, sewer or any water course. In event of spillage contaminating a watercourse, notify the Police, local Health Protection Officer and Council.

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Safety Data Sheet: Pindone Pellets

Methods and materials for containment: Sweep or shovel solid material into labelled containers that can be sealed. Avoid generating dust. Clean up and report spills immediately.

7. HANDLING AND STORAGE

Precautions for Safe Handling:

Read label before use and ensure all approvals/notifications/permissions in place as may be applicable. Wear rubber gloves, protective clothing (overalls) and boots. Wear approved safety glasses. Changing out of work clothing and showering recommended at the end of each work shift. Wash work clothes separately from other household clothing. Read and observe all precautions and instructions on the label. Ensure use does not adversely affect non-target vertebrates. Do not contaminate water, feed, or food by storage, handling, or disposal.

Conditions for Safe Storage:

Keep out of reach of children. Store in closed original container in a cool, dry place away from direct sunlight and in well-ventilated area. Store away from animal and human foodstuffs.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Health Exposure Standards: Workplace Exposure Standards (WES), have been set by Worksafe (ed. 13, April 2022) for compounds in this substance:

Pindone WES-TWA 0.1 mg/m³

Biological limit values: None established

Engineering Controls:

Ventilation: Use outdoors or in a well-ventilated area.

Personal Protective Equipment:

Respiratory Protection: Respiratory protection should not be necessary under normal use conditions. However, if bulk loading or dust is generated, wear an approved respirator or disposable face mask according to local standards.

Eye Protection: Wear safety goggles if risk of dust generation/exposure.

Skin/ Body Protection: Wear rubber gloves, protective clothing, e.g. overalls with long sleeves buttoned at neck and wrist, long pants), and boots.

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

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: **AS/NZS 4501**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Green coloured cereal-based pellet
Odour	Slight cereal/grain
Odour threshold	Not determined
pH	Not determined
Melting/Freezing point °C	Not determined

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Boiling Point/Range °C	Not determined
Flash Point °C	Not applicable
Flammability (solid, gas)	Not determined
Upper/lower flammability/explosive limits	Not known
Vapour Pressure mm Hg @ 20°C	Not determined
Vapour Density Pa @ 25°C	Not applicable
Relative density	Not determined
Solubilities	Pindone (active) has limited solubility (18 mg/L)
Partition coefficient: n-octanol/water	Not determined
Autoignition Temperature °C	Not determined
Decomposition Temperature °C	Not determined
Kinematic viscosity	Not applicable
Particle characteristics	Not available

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal storage and use conditions.

Conditions to avoid: Not specified.

Hazardous decomposition products: Not specified.

Hazardous reactions: Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicity classifications determined by assessment of the components in the formulated mixture.

Acute toxicity: Not classified as being acutely toxic by oral, dermal or inhalation exposure.

Aspiration hazard: Not classified as an aspiration hazard.

Respiratory irritation: Not classified as respiratory irritant.

Skin corrosion/irritation: Not classified.

Serious eye damage/irritation: Not classified.

Respiratory or skin sensitization: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: Not classified.

Reproductive toxicity: Not classified.

Specific organ toxicity: Pindone adversely affects nervous system, blood and hematopoietic system, heart and vascular system.

Narcotic effects: Not classified.

Toxicological Information:

Pindone Oral, rat, LD₅₀ 10.3 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity: This product is classified for biocidal action. The EPA requires identification that this product may cause adverse effects to non-target terrestrial vertebrates. Product is approved as a vertebrate toxic agent (VTA).

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Do not contaminate waterways, sewers, or drains when using product, or disposing of product or container.

Persistence and degradability: Not specific information on product is available.

Potential to be bioaccumulative: No specific information available.

Mobility in soil: Pindone has limited solubility in water (18.2 mg/L).

Other adverse effects: No information available

Ecotoxicological Information:

Pindone Oral, rat, LD₅₀ 10.3 mg/kg

Fish, Rainbow trout, LC₅₀ (96 hr) 0.21 mg/L

Environmental Exposure Limits (EEL's): Not set.

13. DISPOSAL CONSIDERATIONS

Disposal Methods: Ensure container is empty before disposal to landfill.

Waste should be disposed of to an approved waste disposal facility or by burying at an approved site. Do not burn product or containers.

Ensure disposal of containers and product is in compliance with requirements of national and local authorities.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN No.		UN No.		UN No.	
Proper Shipping Name		Proper Shipping Name		Proper Shipping Name	
DG Class		DG Class		DG Class	
Sub. Risk		Sub. Risk		Sub. Risk	
Pack Group		Pack Group		Pack Group	
Hazchem		Hazchem			

Marine Pollutant: -

Dangerous Goods Segregation

This product is classified as a non-Dangerous Good Class for Transport.

Please consult the Land Transport Rule: Dangerous Goods 2005, and NZS 5433:2020 Transport of Dangerous Goods on Land for information.

15. REGULATORY INFORMATION

HSNO Act 1996

Approval Code:

HSR001604

Bait containing 0.25 - 0.5 g/kg pindone.

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Classifications: Specific target organ toxicity (repeated exposure) Category 2,
Designed for biocidal action.

Controls: Refer to www.epa.govt.nz for information on Controls and
www.worksafe.govt.nz for further information on compliance.

Additional label statement requirements:

Hazardous Substances (Labelling) Notice 2017: Clauses 19 and 23 apply. Product label to identify as hazardous to the terrestrial environment.

Hazard Substances (Hazardous Property Controls) Notice 2017; Clauses 53, 56 & 57 apply.

A person who uses this substance must take all reasonable steps to ensure that the substance does not adversely affect non-target terrestrial vertebrates.

ACVM Act 1997

Registration Number: V4396; Pindone RS5 Pellets.

Refer to www.foodsafety.govt.nz for Conditions of Registration.

If applying by broadcast or aerial methods, an Approved Use for Pindone Certificate is required.

Aerial application also requires public notification.

16. OTHER INFORMATION

Date of issue: 20th June 2022

Reasons for Issue: Update GHS classification, SDS information, 24 hour Emergency telephone number.

Replaces: SDS dated 19th November 2019.

Abbreviations:

ACVM	Agricultural Compounds and Veterinary Medicines
ECHA	European Chemical Agency
EPA	New Zealand Environmental Protection Authority
GHS	Global Harmonised System
HSIS	Hazardous Substance Information System
HSNO	Hazardous Substances and New Organisms
NZIoC	New Zealand Inventory of Chemicals
STEL	Short Term Exposure Limit (15 minute exposure period)
TWA	Time-Weighted Average (8 hours exposure period)
WES	Workplace Exposure Standard

References:

EPA www.epa.govt.nz

Supplier information and SDS

Worksafe NZ www.worksafe.govt.nz

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the supplier's knowledge. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses, but is in no way an absolute authority. Please

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consult the relevant legislation and regulations governing the use and storage of this type of product. For further information, please contact Key Industries Limited.

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Cut'n'Paste Picloram Gel**LandMan Limited**

Chemwatch: 5513-56

Version No: 4.1

Safety Data Sheet according to the Health and Safety at Work (Hazardous Substances) Regulations 2017

Chemwatch Hazard Alert Code: 2

Issue Date: 28/02/2022

Print Date: 07/03/2022

S.GHS.NZL EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking**Product Identifier**

Product name	Cut'n'Paste Picloram Gel
Synonyms	Not Available
Other means of identification	Not Available

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

Relevant identified uses	As a targeted herbicide on environmental weed species. Not for use on agricultural crops or foodstuffs for humans or animals.
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Details of the supplier of the safety data sheet

Registered company name	LandMan Limited
Address	16 Hobson Terrace Waiheke Island Auckland 1081 New Zealand
Telephone	+64 21 027 11631
Fax	Not Available
Website	http://www.cutnpaste.co.nz
Email	info@cutnpaste.co.nz

Emergency telephone number

Association / Organisation	LandMan Limited
Emergency telephone numbers	0800 764 766
Other emergency telephone numbers	Not Available

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 Hazards identification**Classification of the substance or mixture**

Classification [1]	Sensitisation (Skin) Category 1, Hazardous to Soil Organisms
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
Signal word	Warning

Hazard statement(s)

H317	May cause an allergic skin reaction.
H421	Hazardous to soil organisms.

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.

Precautionary statement(s) Prevention

P280	Wear protective gloves and protective clothing.
P261	Avoid breathing mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.

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Cut'n'Paste Picloram Gel

Precautionary statement(s) Response

P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

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

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
2545-60-0	4.3	picloram, potassium salt
Not Available	balance	Ingredients determined not to be hazardous
Legend: 1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 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

Eye Contact	If this product comes in contact with the eyes: - Wash out immediately with fresh running water. - 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. - Seek medical attention without delay; if pain persists or recurs seek medical attention. - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: - Immediately remove all contaminated clothing, including footwear. - Flush skin and hair with running water (and soap if available). - Seek medical attention in event of irritation.
Inhalation	- If fumes or combustion products are inhaled remove from contaminated area. - Lay patient down. Keep warm and rested. - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. - 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. - Transport to hospital, or doctor, without delay.
Ingestion	- If swallowed do NOT induce vomiting. - If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. - Observe the patient carefully. - Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. - Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. - Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	- Alert Fire Brigade and tell them location and nature of hazard. - Wear breathing apparatus plus protective gloves in the event of a fire. - Prevent, by any means available, spillage from entering drains or water courses.
Fire/Explosion Hazard	- Non combustible. - Not considered a significant fire risk, however containers may burn. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6 Accidental release measures

Continued...

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Cut'n'Paste Picloram Gel

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Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	- Clean up all spills immediately. - Avoid contact with skin and eyes. - Wear impervious gloves and safety goggles.
Major Spills	Minor hazard. - Clear area of personnel. - Alert Fire Brigade and tell them location and nature of hazard.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	- Avoid all personal contact, including inhalation. - Wear protective clothing when risk of exposure occurs. - Use in a well-ventilated area.
Other Information	- Store in original containers. - Keep containers securely sealed. - Store in a cool, dry, well-ventilated area.

Conditions for safe storage, including any incompatibilities

Suitable container	- Polyethylene or polypropylene container. - Packing as recommended by manufacturer. - Check all containers are clearly labelled and free from leaks.
Storage incompatibility	None known

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
Cut'n'Paste Picloram Gel	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
picloram, potassium salt	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
picloram, potassium salt	E	≤ 0.01 mg/m ³

Notes: Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Exposure controls

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. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk.
Personal protection	
Eye and face protection	- Safety glasses with side shields. - Chemical goggles. - Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	- Wear chemical protective gloves, e.g. PVC. - Wear safety footwear or safety gumboots, e.g. Rubber
Body protection	See Other protection below

Continued...

Chemwatch: 5513-56
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Cut'n'Paste Picloram Gel

Other protection	▶ Overallis. ▶ P.V.C apron. ▶ Barrier cream.
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SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Opaque gel with slight chemical odour; mixes with water.		
Physical state	Gel	Relative density (Water = 1)	~1.03
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	8-11	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (Not Available%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and 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

Inhaled	There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
Ingestion	The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. This substance may produce depression, weakness, inco-ordination, tremors and convulsions before death. Repeated exposure to low/moderate doses may cause increased liver and kidney weight and slight reduction in body weight. Lesions may appear on the liver and kidney.
Skin Contact	There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions 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.
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Chronic	Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Repeated exposure to high amounts of picloram may cause liver effects. Animal testing has shown that exposure for long periods may potentially increase tumours of the liver, pituitary gland, adrenal gland and spleen.

Cut'n'Paste Picloram Gel	TOXICITY	IRRITATION
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Continued...

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Cut'n'Paste Picloram Gel

	Not Available	Not Available
picloram, potassium salt	TOXICITY	IRRITATION
	Oral (Rat) LD50: 686 mg/kg ^[2]	Not Available
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	

PICLORAM, POTASSIUM SALT	Picloram is absorbed rapidly after oral ingestion and minimally through the skin. It may cause mild skin irritation. Symptoms of acute exposure are difficult to characterise. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
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Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✗	Reproductive	✗
Serious Eye Damage/Irritation	✗	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ - Data either not available or does not fill the criteria for classification
 ✓ - Data available to make classification

SECTION 12 Ecological information

Toxicity

Cut'n'Paste Picloram Gel	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
picloram, potassium salt	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96h	Fish	10-68mg/l	4
	EC50	48h	Crustacea	63-75mg/L	4
	NOEC(EGx)	720h	Fish	0.6mg/l	4
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	- Recycle wherever possible or consult manufacturer for recycling options. - Consult State Land Waste Management Authority for disposal. - Bury residue in an authorised landfill.
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Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.

Continued...

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Cut'n'Paste Picloram Gel

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SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (UN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

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

Not Applicable

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

Product name	Group
picloram, potassium salt	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
picloram, potassium salt	Not Available

SECTION 15 Regulatory information

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

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR101073	Not Available

Please refer to Section 8 of the SDS for any applicable tolerable exposure limit or Section 12 for environmental exposure limit.

picloram, potassium salt is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantities
Not Applicable	Not Applicable

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Maximum quantities of certain hazardous substances permitted on passenger service vehicles

Subject to Regulation 13.14 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Gas (aggregate water capacity in mL)	Liquid (L)	Solid (kg)	Maximum quantity per package for each classification
6.5A or 6.5B	120	1	3	

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIC / Australia Non-Industrial Use	Yes
Canada - DSL	No (picloram, potassium salt)
Canada - NDSL	No (picloram, potassium salt)
China - IECSC	No (picloram, potassium salt)
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	No (picloram, potassium salt)
New Zealand - NZIoC	Yes

Continued...

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Cut'n'Paste Picloram Gel

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National Inventory	Status
Philippines - PICCS	No (picloram, potassium salt)
USA - TSCA	No (picloram, potassium salt)
Taiwan - TCSI	No (picloram, potassium salt)
Mexico - INSQ	No (picloram, potassium salt)
Vietnam - NCI	No (picloram, potassium salt)
Russia - FBEPH	No (picloram, potassium salt)
Legend:	Yes = All CAS declared ingredients are on the inventory 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	28/02/2022
Initial Date	25/11/2021

SDS Version Summary

Version	Date of Update	Sections Updated
3.1	08/02/2022	Chronic Health, Classification
4.1	28/02/2022	Acute Health (eye), Acute Health (skin), Classification, Environmental

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.

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
 AIC: 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
 KECl: 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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TEL (+61 3) 9572 4700.

Safety Data Sheet



Glyphosate 360

Revised: April 2016

Section 1: SUBSTANCE IDENTIFICATION AND SUPPLIER

Product Name:	GLYPHOSATE 360
Recommended Use:	Non-selective, non-residual, contact herbicide for the control of grasses and broadleaf weeds
Company Identification:	Ravensdown Limited
Address:	292 Main South Road Hornby Christchurch
Customer Centre:	0800 100 123
National Poisons Information Centre:	0800 POISON (0800 764 766)
Emergency Telephone Number:	0800 CHEMCALL (0800 243 622) (24hr) (Emergencies Only)
Transport Emergency:	111

Section 2: HAZARD IDENTIFICATION

Hazard Classifications:	6.1D, 6.4A, 9.1B
Priority Identifiers:	HARMFUL ECOTOXIC
Secondary Identifiers:	6.1D = May be harmful if swallowed, inhaled or absorbed through the skin 6.4A = Irritating to the eye 9.1B = Toxic to aquatic organisms

Section 3: COMPOSITION INFORMATION

INGREDIENT	CAS No.	CONTENT
Glyphosate as the IPA salt	1071-83-6	36%
Tallow Amine Ethoxylate	61791-26-2	10-20%
Water		Too volume

Section 4: FIRST AID MEASURES

First Aid Measures:	Consult the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately in every case of suspected poisoning.
Inhalation:	Remove patient to fresh air. Lay down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance immediately.
Ingestion:	Never give anything by mouth to an unconscious person. If swallowed DO NOT induce vomiting. For advice, contact the National Poisons Centre on 0800 POISON (0800 764 766). Seek medical assistance immediately.
Skin:	Remove contaminated clothing and wash affected area thoroughly with soap and water. If a large area is affected seek medical assistance.
Eye:	Flush with plenty of water holding eyelids open if necessary.
Advice to Doctor:	No specific antidote. Treat symptomatically

Section 5: FIRE FIGHTING MEASURES

Flammability:	If involved in a fire this product will not burn.
Specific Hazards:	This product or solutions of this product, react with galvanised steel or unlined steel containers and tanks, to produce hydrogen gas which may form a highly flammable or explosive gas mixture.

Hazardous Combustion Products:	If involved in a fire, may evolve oxides of nitrogen or phosphorous
Extinguishing Media:	Water fog, foam, carbon dioxide or dry chemical
Protective Equipment:	Full protective clothing and self-contained breathing apparatus
HAZCHEM Code:	3Z
Location Certificate:	Not applicable
Hazardous Atmosphere Zone:	Not applicable
Fire Extinguishers:	Not applicable

Section 6: ACCIDENTAL RELEASE MEASURES

Spills and Disposal:	Wear appropriate protective clothing. Exclude non-essential people from the area. Contain spill and absorb with inert material such as soil, sand or absorbent granules and place in a sealable waste container. Dispose of waste safely in an approved landfill.
Protective Clothing:	For appropriate personal protective equipment see section 8.
Environmental	Prevent from entering drains, waterways or sewers. If spill does enter waterways contact
Precaution:	local authority.

Section 7: HANDLING AND STORAGE

Handling:	Keep out of reach of children. Avoid contact with skin, eyes and inhalation of spray mist.
Approved Handler:	This product must be under the control of an approved handler when applied directly onto or into water.
Tracking:	Not required
Record Keeping:	Records of use must be kept if this product is applied onto or into water.
Storage:	Store in original container tightly closed and in a locked, dry, cool area away from foodstuffs, fertiliser and seed. Store in accordance with NZS 8409 Management of Agrichemicals. This product is subject to emergency response plan, secondary containment and signage when stored in quantities of 1000 litres or more, either alone or in aggregate with substances of the same hazard classification. For full details refer to NZS 8409 Management of Agrichemicals and HSNO Regulations (Emergency Management and Identification Regulations).
Other Information:	Do not mix use or store in galvanised or unlined steel containers. Always read the label before use. See label for further information on handling and storage.

Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Limits:	No exposure limits have been assigned for this product by OSHA
Protective Equipment:	When opening the container, preparing spray and when contact with concentrate or solution is likely, wear safety goggles, waterproof gloves, cotton overalls buttoned to the neck and wrist, and boots.
Engineering Controls:	Handle in well ventilated area. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. Avoid inhalation of spray mist.
Hygiene Precautions:	Do not eat, drink or smoke while using this product. Remove protective clothing and wash hands and face before meals and after work. Wash protective clothing daily after work.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear amber liquid
Odour:	Faint amine odour
Specific Gravity:	1.17
Solubility in Water:	Soluble in water
pH:	4.5 – 5.0
Other Information:	(SL) Soluble concentrate

Section 10: STABILITY AND REACTIVITY

Stability:	When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture.
Hazardous Polymerisation:	Hazardous polymerisation is not possible
Materials to Avoid:	Corrosive to mild steel galvanised steel and zinc. Non-corrosive to stainless steel, polyethylene and plastics Do not mix, store or apply the product or spray solutions in galvanised or unlined steel containers or spray tanks. Avoid contact with strong acids, alkalis and oxidising agents

Section 11: TOXICOLOGICAL INFORMATION

Hazard Classifications:	6.1D, 6.4A
Inhalation:	Acute Inhalation LC ₅₀ (rat) (4hr) >1.3mg/L for Glyphosate (IPA salt) No adverse effects are to be expected. When applying this product avoid inhalation of spray mist. Some temporary irritation may be experienced.
Ingestion:	Acute Toxicity (Oral) LD ₅₀ (rat) 4050mg/kg for Glyphosate (IPA salt) Amounts swallowed incidental to normal handling are unlikely to cause injury. Large amounts swallowed may cause injury. Symptoms include: nausea, vomiting, gastrointestinal discomfort, diarrhoea, hypotension and pulmonary oedema.
Skin:	Acute Toxicity (Dermal) LD ₅₀ (rabbit) >5000mg/kg for Glyphosate (IPA salt) No adverse effects are to be expected. The concentrate may cause skin irritation on prolonged contact. Product is not a skin sensitiser.
Eye:	The concentrate may cause irritation but permanent damage is not anticipated. Prolonged contact may cause damage.
Chronic Effects:	No information available.
Reproductive Toxicity:	Glyphosate is not considered to be a reproductive toxin
Mutagenicity:	No mutagenic or teratogenic effects expected
Carcinogenicity:	Based on the results of animal studies Glyphosate is not considered to be carcinogenic.

Section 12: ECOLOGICAL INFORMATION

Hazard Classifications:	9.1B
Ecotoxicity:	Acute Toxicity (fish) (Glyphosate as IPA salt) LC ₅₀ (bluegill sunfish) (96hr) 5.8-14mg/l LC ₅₀ (rainbow trout) (96hr) 8.2-26mg/l LC ₅₀ (carp) (96hr) 19.7mg/l Acute Toxicity (daphnia) (Glyphosate as IPA salt) LC ₅₀ (48hr) 480mg/l Toxic to fish and other aquatic organisms (mainly due to surfactant) Acute Toxicity (birds) (Glyphosate) LD ₅₀ (bobtail quail) >3850mg/kg Non-toxic to birds Acute Toxicity (bees) (Glyphosate) LD ₅₀ >100ug/bee Non-toxic to bees
Persistence/Mobility:	Low mobility in soil. Glyphosate is strongly adsorbed by the soil. Microbial degradation is the major cause of loss from the soil. Half life average 41days (16-77days)
Bioaccumulation:	Glyphosate does not bioaccumulate

Section 13: DISPOSAL INFORMATION

Product Disposal:	Dispose of product only by using according to label or at an approved landfill
Container Disposal:	Triple rinse container and add rinsate to spray tank. Burn in an appropriate incinerator if circumstance, such as wind direction permit. Otherwise crush and bury in an approved landfill. Do not use container for any other purpose.

Section 14: TRANSPORT INFORMATION

Transport information:	It is good practice to separate this product from food, food related materials, animal feedstuffs, seed or fertilisers during transport.
UN Number:	3082
Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Glyphosate 36%)
DG Class:	9
Subsidiary Class:	None
Packing Group:	III
MTQ (non-commercial):	1000L
Marine Pollutant:	Yes
Hazchem Code:	3Z
IERG number:	47
Other information:	Do not carry more than 1.0L of this product on a passenger service vehicle. Check the latest versions of the Land Transport Dangerous Goods Rule 45001 and associated Transport of Dangerous Goods on Land (NZS 5433) for additional information on maximum allowable transport quantities (MTQ's), placarding and segregation. Sea transport may require further segregation.

Section 15: REGULATORY INFORMATION

ACVM:	Registered pursuant to the ACVM Act 1997, P7129 See www.foodsafety.govt.nz for registration conditions.
EPA:	Approved pursuant to the HSNO Act 1996, Code: HSR000227 See www.epa.govt.nz for approval controls.

Section 16: OTHER INFORMATION

This SDS supersedes all previous versions.

The data in this SDS relates only to the specific material designated herein and does not relate to use in combination with any other material. The information is provided in good faith based on current knowledge and experience. No warranty with regard to the product properties is expressed or implied.



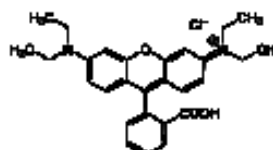
FIL Been There

SAFETY DATA SHEET

Issue Date: 30-Nov-17

1. Product and Company Identification

Product Name: FIL Been There
Proper Shipping Name: Not classed as a Dangerous Good for transport.
Synonyms: Rhodamine B540 Solution
Recommended Use: Herbicide tracer dye
Molecular Formula: C₂₈H₃₁ClN₂O₃



Manufacturer: FIL is a wholly owned subsidiary of GEA Farm Technologies New Zealand Ltd
Address: 72 Portside Drive, Mount Maunganui
Telephone Number: 07 575 2162
Fax Number: 07 575 2161
Website: www.gea.com
Email: info@fil.co.nz
Emergency phone No: 24hr 0508 434 569

2. Hazards Identification

Dangerous Goods: Not applicable

Hazardous Substance (HSNO):

WARNING



HSNO Classification and

Hazard Statements:

- 6.1D Toxic Substance - Oral**
H301 Toxic if swallowed.
- 6.3B Toxic Substance - Skin Irritant (Low Hazard)**
H316 Causes mild skin irritation
- 6.4A Toxic Substance - Eye Irritant (High Hazard)**
H319 Causes serious eye irritation
- 6.9B Toxic Substance - target organs**
H371 May cause liver damage



9.3C Ecotoxic to Terrestrial Vertebrates.

H433 Harmful to terrestrial vertebrates.

Prevention Statements:

- P102 Keep out of reach of children
- P103 Read Label before use.
- P104 Read Safety Data Sheet before use.
- P210 Keep away from heat. No smoking.
- P233 Keep container tightly closed.
- P260 Avoid breathing vapors.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment
- P280 Wear protective gloves and eye/face protection.

Response Statements:

- P101 If medical advice is needed, have product container or label at hand.
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTRE or doctor
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P303+P361+P353 IF ON SKIN (or hair): Remove immediately all contaminated clothing.
Rinse skin with water.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P330 + P321 Rinse Mouth. Do NOT induce vomiting.
- P333+P313 If skin irritation or rash occurs: Get medical attention.
- P337+P313 If eye irritation persists: Get medical attention.
- P362 Take off contaminated clothing and wash before reuse.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.

Storage Statements:

- P403+P235 Store in a well ventilated place. Keep cool.

3. Composition/Information on Ingredients

Appearance:	Red violet liquid	
CAS No:	81-88-8	Rhodamine B/CI, Basic violet 10 (15%)
	111-46-6	Diethylene glycol



4. First Aid Measures

Ingestion:	Rinse mouth then give a glass or two of water or milk. DO NOT cause vomiting unless medical attention is delayed by 30 minutes. (Take care to avoid patient inhaling stomach contents). If breathing stops, start mouth to nose resuscitation. Seek medical attention.
Eye Contact:	Wash eye with gently running water for at least 20 minutes. Do not rub the eye. Lightly cover with a sterile dressing. Seek medical attention if irritation persists.
Skin Contact:	Quickly remove contaminated clothing. Wash skin with large quantities of soap and water. Seek medical attention if irritation persists.
Inhalation:	Remove the casualty from further contamination. If symptoms are severe or persist seek medical attention.
Notes to Physician:	Treat symptomatically.

5. Fire-fighting Measures

Specific Hazards:	Not flammable.
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Suitable Extinguishing Media:

6. Accidental Release Measures

Spill Cleanup Methods:	Contain and recover. Wear eye protection, gloves(neoprene or nitrile) and aprons. Use of an approved filter mask may be necessary. Absorb with sawdust. Avoid contamination of waterways. Switch off electrical equipment until vapour fire hazard removed.
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7. Handling and Storage

Handling:	Skin and eye irritant Wear suitable protective clothing, gloves(neoprene or nitrile) and personal protection equipment for eyes and face when handling concentrates. Wash face and hands thoroughly after use.
Storage:	Store in original container, tightly closed, away from foodstuffs and children.

8. Exposure Control/Personal Protection

Exposure Standards:	Not available
Engineering Controls:	Use with adequate ventilation, product normally used outside
Personal Protection:	Wear suitable protective clothing, gloves and personal protection equipment for eyes and face when handling concentrates.



9. Physical and Chemical Properties

Appearance and Odour:	Red violet liquid
Solubility in Water (g/l):	Completely miscible
Specific Gravity:	1.1
Boiling Point/Melting Point (°C):	BP>240°C
Vapour Pressure: Methanol	1 mm Hg @91.8°C
Vapour Density: Methanol	3.6 X Air
Flashpoint (°C):	138
Flammability Limits (%):	2.1 - 12.3
pH Value:	3 - 3.5
Autoignition temperature (°C):	229

10. Stability and Reactivity

Stability:	Stable under normal temperatures and pressures
Conditions to Avoid:	High temperatures, incompatible materials, ignition sources.
Incompatibilities:	Avoid contact with aluminium, alumin alloys, copper rich alloys and neoprene Avoid contact with strong oxidising agents.
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide,

11. Toxicological Information

General:	May be harmful if swallowed. Causes eye and skin irritation. Avoid skin contact or inhalation. May cause an allergic reaction in sensitive individuals.
Ingestion:	Ingestion may result in nausea, vomiting Rhodamine B: ORAL-RAT LD ₅₀ 500 mg/kg
Eye Contact:	Eye irritant. May cause watering of the eye or blurred vision.
Skin Contact:	Moderate irritation after prolonged contact, can cause sensitisation .
Inhalation:	Potentially toxic, irritant, avoid creating aerosols or mists.

12. Ecotoxicity Information

9.3C	Ecotoxic to Terrestrial Vertebrates (Medium Hazard) Rhodamine B: ORAL-RAT LD ₅₀ 500 mg/kg
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13. Disposal Considerations

Container Disposal:	Dispose of empty containers safely in accordance with local regulations. Avoid contamination of any water supply with product or empty container. Triple rinse containers when empty. Add rinsings to use solutions.
Product Disposal:	Dispose of product safely. Avoid contamination of any water supply with product or empty container.

14. Transport Information

UN No:	NA
Dangerous Goods Class:	NA
Hazchem Code:	NA
Packing Group:	NA
Proper Shipping Name:	NA
Segregation:	Do not store with DG classes 1, 5, food or food containers.
Limited Quantities:	NA

15. NZ Regulatory Information

ERMA Approval Code: HSR002503 Group Standard: Additives, Process Chemicals and Raw Materials

Group standard: Additives, Intermediates, Process Chemicals, Raw Materials (Subsidiary Hazard)

HSNO Classifications:

6.1D	Toxic Substance - Oral
6.3B	Toxic Substance- Skin irritant (Low Hazard)
6.4A	Toxic Substance - Eye Irritant (High Hazard)
6.9B	Toxic Substance - Target organ toxicant
9.3C	Ecotoxic to Terrestrial Vertebrates (Medium Hazard)

HSNO Controls: Trigger quantities for this substance by itself in a Place:

Certified Handler	<i>Not required</i>
Hazardous Substance Location:	<i>Not required</i>
Compliance Location Certificate:	<i>Not required</i>
Hazardous Atmosphere Zone:	<i>Not required</i>
Emergency Plan:	<i>Not required</i>
Tracking:	<i>Not required</i>
Warning Sign:	<i>Not required</i>
Record of application or discharge:	<i>Not required</i>



16. Other Information

Issue Date: 30-Nov-17

Review Date: 30-Nov-22

Definitions:	DG	Dangerous Good	
	LC50	Lethal concentration 50 % kill	
	LD50	Lethal dose 50 % kill	
	LDLO	lowest published lethal dose	
	PEL	Permissible exposure limit	
	STEL	Short term exposure limit	
	TLM24	24 hour median threshold limit	
	TWA	Time weighted average	<i>The 8-hour time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure</i>



SAFETY DATA SHEET

DOW AGROSCIENCES (NZ) LIMITED

Product name: Gallant™ Ultra Herbicide

Issue Date: 16.09.2016

DOW AGROSCIENCES (NZ) 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Gallant™ Ultra Herbicide

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES (NZ) LIMITED
89 PARITUTU ROAD
4342 NEW PLYMOUTH
NEW ZEALAND

Customer Information Number:

0800-803-939

fnpcust@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: +64 6 751 2407

Local Emergency Contact: 0800 844 455

For medical advice, contact the New Zealand Poisons Information Centre:

0800 POISON (0800 764 766)

Transport Emergency Only Dial: 111

This SDS may not provide exhaustive guidance for all the HSNO controls assigned to this substance. The NZ EPA website www.epa.govt.nz should be consulted for a full list of triggered controls and cited regulations

2. HAZARDS IDENTIFICATION

Hazard classification

NEW ZEALAND HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.

HSNO classifications: 3.1D, 6.1D, 6.3B, 6.4A, 6.9B, 9.1A, 9.3B

Hazards

Combustible liquid

Harmful if swallowed

Causes serious eye irritation.

Causes mild skin irritation

May cause damage to organs (Blood. Kidney. Liver. Testes. Thyroid) through prolonged or repeated exposure.

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016**

Very toxic to aquatic life with long lasting effects.
Toxic to terrestrial vertebrates.

Prevention

Keep out of reach of children.
Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Do not breathe fumes/mist/vapours/spray
Wear protective gloves/protective clothing/ eye and face protection.
Do not eat, drink or smoke when using this product.
Wash skin thoroughly after handling.

Response

In case of fire: Use foam, water fog, dry chemical or carbon dioxide extinguishers. See section 5 for more information.
If medical advice is needed, have product container or label at hand.
IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell. Rinse mouth.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
If skin irritation occurs: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
Collect spillage.

Storage

Store in a well ventilated place. Keep cool.
Store locked up.

Disposal

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Haloxypop-P methyl ester	72619-32-0	46.9 %
Diethylene glycol monoethyl ether	111-90-0	40 – 45%
Haloxypop	69806-34-4	0.5%
Balance	Not available	7.6 - 12.6 %

Product name: Gallant™ Ultra Herbicide**Issue Date:** 16.09.2016

4. FIRST AID MEASURES

Consult the National Poisons Information Centre (0800 POISON (0800 764 766)) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

Description of first aid measures

General advice: 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. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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.

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: No data available

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: Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016**

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. 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. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. 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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep personnel out of low areas. 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.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapour or mist. Wash thoroughly after handling. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. 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.

Product name: Gallant™ Ultra Herbicide

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This substance is subject to a requirement for an emergency management plan, secondary containment and signage, whenever it is held in quantities of 100 L or more, either alone or in aggregate with other hazardous substances. See Hazardous Substances Emergency Management and Identification Regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist:

Component	Regulation	Type of listing	Value/Notation
Diethylene glycol monoethyl ether	US WEEL	TWA	140 mg/m ³ 25 ppm
Haloxypop	Dow IHG	TWA	2 mg/m ³

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. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

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

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. 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. Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). 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 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: Wear clean, body-covering clothing.

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.

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016**

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance - Physical state	Liquid.
- Color	Brown
Odour	Solvent
Odour Threshold	No data available
pH	5.4 <i>CIPAC MT 75.2</i>
Melting point/range	Not applicable to liquids
Freezing point	No test data available
Boiling point (760 mmHg)	202 ⁰ c <i>Literature</i> (solvent)
Flash point - closed cup	97.5 ⁰ c
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	1.2 % vol <i>Literature</i> (solvent)
Upper explosion limit	8.5 % vol <i>Literature</i> (solvent)
Vapor Pressure	14 mmHg at 20 °C <i>Literature</i>
Relative Vapor Density (air = 1)	1.148
Relative Density (water = 1)	116 at 20 °C <i>Literature</i>
Water solubility	Emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	34.4 mPa.s at 20 °C; 14.1 mPa.s at 40 °C
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No significant increase (>5°C) in temperature
Liquid Density	1.151 g/ml <i>Calculated.</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.**Chemical stability:** Unstable at elevated temperatures.**Possibility of hazardous reactions:** Polymerization will not occur.

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Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

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 chloride. Hydrogen fluoride. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral toxicity

Moderate 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, even death.

As product: LD50, Rat, female, 500 mg/kg

Acute dermal toxicity

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

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

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

As product: LC50, Rat, male and female, 4 Hour, dust/mist > 5.41 mg/l. No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact is essentially non-irritating to skin.

Serious eye damage/eye irritation

May cause slight eye irritation. Corneal injury is unlikely. May cause pain disproportionate to the level of irritation to eye tissues.

Sensitization

As product: Did not demonstrate the potential for contact allergy in mice.
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 similar active ingredient(s): In animals, effects have been reported on the following organs: Blood. Kidney. Liver. Testes. Thyroid. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

For the solvent(s): Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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Carcinogenicity

For similar active ingredient(s). Haloxypop did not cause cancer in laboratory rats; however, there was a slightly increased incidence of malignant liver tumors in female mice in a lifetime dietary feeding study.

For the solvent(s): Did not cause cancer in laboratory animals.

Teratogenicity

For similar active ingredient(s). Has been toxic to the foetus 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 foetal effects in laboratory animals.

Reproductive toxicity

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.

For similar active ingredient(s). In animal studies, did not interfere with reproduction.

Mutagenicity

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.

12. ECOLOGICAL INFORMATION

Ecotoxicity**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), flow-through test, 96 Hour, 0.92 mg/l. OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), static test, 48 Hour, 38 mg/l. OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, Growth rate inhibition > 31 mg/l. OECD Test Guideline 201 or Equivalent

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2,000 mg/kg). oral LD50, *Colinus virginianus* (Bobwhite quail), mortality, 1,517mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 Hour, mortality > 210.0 micrograms/bee

contact LD50, *Apis mellifera* (bees), 48 Hour, mortality > 200.0 micrograms/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, mortality, 671.05 mg/kg

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016****Persistence and degradability****Haloxypop-P methyl ester**

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 8 - 11 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Stability in Water: Hydrolysis, half-life, pH 9 < 24 Hour

Diethylene glycol monoethyl ether

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 90 %

Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

10-day Window: Not applicable

Biodegradation: > 90 %

Exposure time: 5.5 d

Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 1.91 mg/mg

Chemical Oxygen Demand: 1.84 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	5 - 17 %
10 d	31 - 71 %
20 d	49 - 87 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 4.093 Hour. *Estimated*

Haloxypop

Biodegradability: Chemical degradation (hydrolysis) is expected in the environment within months to years.

Stability in Water (1/2-life): > 45 d

Balance

Biodegradability: No relevant data found.

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016****Bioaccumulative potential****Haloxypop-P methyl ester**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water (log Pow): 0.63 - 4.6 *Measured*

Bioconcentration factor (BCF): 262 *Estimated.*

Diethylene glycol monoethyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water (log Pow): -0.54 *Measured*

Haloxypop

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water (log Pow): 4.316 *Estimated.*

Bioconcentration factor (BCF): 9 Fish *Measured*

Balance

Bioaccumulation: No relevant data found.

Mobility in Soil**Haloxypop-P methyl ester**

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 17,800 *Estimated.*

Diethylene glycol monoethyl ether

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 20 *Estimated.*

Haloxypop

Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient (Koc): 76 *Measured*

Balance

No relevant data found.

Results of PBT and vPvB assessment**Haloxypop-P methyl ester**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Diethylene glycol monoethyl ether

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Haloxypop

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Balance

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

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016**

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.

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

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

14. TRANSPORT INFORMATION

PUBLIC PASSENGER VEHICLE TRANSPORT: To be transported ONLY in sealed original container. Maximum volume permitted to be transported: 1L

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Haloxypop methyl ester)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Haloxypop methyl ester

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Haloxypop methyl ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Haloxypop methyl ester
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Haloxypop methyl ester)
UN number	UN 3082
Class	9
Packing group	III

Product name: Gallant™ Ultra Herbicide**Issue Date: 16.09.2016****Hazchem code: •2X**

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.

Compliance with the above land, rail, marine and air requirements is deemed to comply with the applicable requirements of the Hazardous substances Identification and Emergency Management Regulations.

15. REGULATORY INFORMATION

ACVMG APPROVAL NUMBER: P8111**HSNO Approval Code: HSR0100054**

ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer to Environment Protection Authority publication; User Guide to the HSNO Controls Regulations. <http://www.epa.govt.nz>

16. OTHER INFORMATION

Revision

Identification Number: 101203289 / A157 / Issue Date: 16.09.2016 / Version: Replaces 10.02.2014
DAS Code: GF-142

Sections amended: 11**Legend**

Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hr Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

DOW AGROSCIENCES (NZ) LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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Safety Data Sheet

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Infosafe No™ 3NUDK Issue Date : December 2016 ISSUED by NUFARMNZ

Product Name **PULSE® PENETRANT**

1. Identification

GHS Product Identifier	PULSE® PENETRANT
Product Code	01777
Product Type	Adjuvant
Company Name	Nufarm NZ
Address	6 Manu Street, Otahuhu Auckland 2024 New Zealand
Telephone/Fax Number	Tel: 0-9-270 4150 Fax: 0-9-270-4159
Emergency phone number	0800 651 911
Email	info@nz.nufarm.com
Recommended use of the chemical and restrictions on use	An organosilicone penetrant for improved penetration and faster uptake of Roundup®, WeedMaster® and other herbicides.
Other Information	This SDS describes, to the best of our knowledge, the properties of the concentrated product. The physical properties and some of the assessments do not apply to the properties of the product once it has been diluted for application. Acute health effects of the diluted product are likely to be much less severe.

2. Hazard Identification

Other Information	6.1D acute toxicant, 6.4A eye irritant, 6.9B target organ toxicant, 9.1B aquatic toxicant, TOXICITY Harmful - may be harmful if swallowed, inhaled or absorbed through the skin. May cause eye irritation. May cause organ damage from repeated oral exposure at high doses. ECOTOXIC Toxic to aquatic organisms with long-lasting effects.
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3. Composition/information on ingredients

Chemical Characterization	Liquid		
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>
	Organomodified polydimethylsiloxane	Proprietary	>800g/L

4. First-aid measures

First Aid Measures	For advice contact the National Poisons Centre 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth-to-nose rather than mouth-to-mouth. Obtain medical attention.
Inhalation	Remove patient to fresh air. Lay down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance immediately.
Ingestion	Never give anything by mouth to an unconscious person. If swallowed do NOT induce vomiting. For advice, contact the National Poisons Centre (0800 764 766). Seek medical assistance immediately.
Skin	Immediately flush body and clothes with large amounts of water. Remove contaminated clothing and footwear. Wash affected areas with soap and water. If a large area is affected seek medical assistance.
Eye contact	Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Seek medical assistance. Remove contact lenses, if present and easy to do.
First Aid Facilities	Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.
Advice to Doctor	Treat symptomatically.

5. Fire-fighting measures



Safety Data Sheet

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Infosafe No™ 3NUDK Issue Date : December 2016 ISSUED by NUFARMNZ

Product Name **PULSE® PENETRANT**

Suitable extinguishing media	Water fog, foam, carbon dioxide or dry chemical.
Unsuitable Extinguishing Media	No water jets or foam as these can cause frothing and increase fire intensity.
Hazards from Combustion	If involved in a major fire, could evolve oxides of carbon and silicon.
Products	
Specific Methods	Keep up wind. Do not allow washings to reach sewage or effluent systems.
Specific hazards arising from the chemical	Do not direct a solid stream of water into hot, burning pools; this may cause frothing and increase fire intensity.
Hazchem Code	2X
Other Information	Location Certificate: Not applicable Hazardous Atmosphere Zone: Not applicable Number of Fire Extinguishers: Not applicable

6. Accidental release measures

Spills & Disposal	Wear protective clothing. Clear area of unprotected personnel. Contain spill and absorb with sand, soil or absorbent granules. If spill does enter waterways contact the local authority. Collect in an appropriate sealable container for disposal in an approved landfill.
Personal Protection	For appropriate personal protective equipment (PPE), refer Section 8.
Environmental Precautions	Prevent product or washings from entering drains, waterways or sewers.

7. Handling and storage

Precautions for Safe Handling	Avoid skin and eye contact and inhalation of spray mist.
Conditions for safe storage, including any incompatibilities	Keep out of reach of children. Store in the closed, original container in a cool, well ventilated area. Do not store for prolonged periods in direct sunlight. Stores containing 1,000L of PULSE PENETRANT require secondary containment and are subject to signage, and more than 1,000L require emergency response plans.

8. Exposure controls/personal protection

Occupational exposure limit values	No exposure standard has been established for this product.
Appropriate engineering controls	Handle in well ventilated areas, generally natural ventilation is adequate.
Personal Protective Equipment	When opening the container and preparing the spray wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves and face shield or goggles. When mixed with other products, follow the safety precautions for that product.
Hygiene Measures	After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash contaminated clothing and safety equipment.

9. Physical and chemical properties

Form	Liquid
Appearance	Clear straw coloured liquid
Odour	Moderate polyether odour
Melting Point	-50°C (pour point)
Boiling Point	>150°C at 100kPa
Solubility in Water	Disperses in water.
Specific Gravity	1.002 @ 25°C
Vapour Pressure	<1.33 hPa @ 20°C



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Product Name **PULSE® PENETRANT**

Vapour Density (Air=1) Heavier than air
Evaporation Rate <1
Flash Point 143°C (pmcc)
Flammability Non combustible material.

10. Stability and reactivity

Reactivity No significant decomposition products. Measurements at >150°C in presence of air have shown that small amounts of formaldehyde are formed due to oxidative degradation.

Chemical Stability Stable under normal conditions of handling and storage.

Conditions to Avoid Keep away from heat, flames, sparks and ignition sources.

Hazardous Decomposition Products Combustion forms carbon dioxide and if incomplete, carbon monoxide and smoke. Water is also formed. Silica and other silicon compounds. Carbon monoxide poisoning produces headaches, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgement and unconsciousness followed by coma and death.

Possibility of hazardous reactions No hazardous reactions known.

Hazardous Polymerization Hazardous polymerisation will not occur.

11. Toxicological Information

Acute Toxicity - Oral LD50 (rat) >2000 mg/kg for the formulated product

Acute Toxicity - Dermal LD50 (rat) >2000 mg/kg for the formulated product

Acute Toxicity - Inhalation LC50 Inhalation, 5% diluted aqueous solution: Rat = >11.78mg/L/4hr for a similar product

Ingestion Mildly irritating to mucous membranes but is unlikely to cause anything more than mild transient discomfort. Swallowing large amounts of concentrate may cause nausea and vomiting. Repeated ingestion may cause damage to the liver, kidneys, thyroid, male and female reproductive system and blood forming system.

Inhalation May cause eye injury or irritation to the respiratory tract if high concentrations are inhaled.

Skin Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis.

Eye Mildly irritating to eyes, but is unlikely to cause anything more than mild transient discomfort. Vapour may cause blurring of vision.

Skin Sensitisation Negative to guinea pigs.

Health Hazard Medical conditions aggravated by over exposure - existing dermatitis.

Chronic Effects This material was not mutagenic in an Ames bacterial assay or in three mammalian test systems including the Chinese hamster ovary (CHO)/HGPRT gene mutation assay, a micronucleus cytogenetic assay in mice, and an in vitro mammalian cytogenetic test. In a repeated skin application study with rats, this material caused moderate skin irritation which resolved during a post-application recovery period. There was no evidence for percutaneous cumulative or specific organ toxicity. Findings from a 14-day dietary feeding study with rats show that the high dosage repeated ingestion of this material causes adverse effects on the male and female reproductive tracts. Additional effects seen in this dietary study were increased liver weight, altered blood cytology/chemistry, and thyroid enlargement (primarily hypertrophy, with some hyperplasia). Evidence of partial or complete recovery was found over a 28-day recovery period. Findings from a repeat 9-day aerosol inhalation toxicity study with rats show a no-observable effect level (NOEL) of less than 0.025mg/l. Symptoms of toxicity included rales, gasping, ocular opacity, prostration, hypothermia, reduced body weight gain and food consumption, changes in clinical pathology, decreased thymus weight, and microscopic lesions in the nasal cavity. It is not anticipated that the use of aqueous dilutions of this product would result



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Product Name **PULSE® PENETRANT**

Serious eye damage/irritation	in this type of aerosol exposure. Mild eye irritant. Moderate redness of conjunctivae, iridal inflammation and tear production. Injury to the cornea is not expected.
Skin corrosion/irritation	Mild skin irritant. Prolonged contact may result in minor irritation, transient local redness and swelling.
Subchronic/Chronic Toxicity	Oral Rat (14d) NOEL 300mg/kg

12. Ecological information

Persistence and degradability	Not readily biodegradable.
Known Harmful Effects on the Environment	No data available.
Other Precautions	Do not contaminate dams, waterways or sewers with this product or the containers which have held this product.
Basis for Assessment	EPA New Zealand have determined this product to be HSNO classification 9.1B - Toxic to aquatic organisms with long-lasting effects.
Acute Toxicity - Fish	LC50 (96h) rainbow trout 2.1mg/L

13. Disposal considerations

Product Disposal	Dispose of product only by using according to the label, or at an approved landfill.
Container Disposal	Triple rinse empty container and add rinsate to spray tank. Recycle empty container. Otherwise crush and bury in a suitable landfill.

14. Transport information

U.N. Number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. - (organomodified polydimethylsiloxane, >80%)
Transport hazard class(es)	9
Hazchem Code	2X
Packaging Method	-
Packing Group	III
EPG Number	-
IERG Number	47
IMO Marine Pollutant	Yes. Environmentally Hazardous Substance mark required.
IMDG EMS	F-A, S-F
Other Information	Do not carry more than 1L of Pulse Penetrant on a passenger service vehicle. Segregation: Check the latest Land Transport Rule Dangerous Goods Rule 45001 for additional information. Sea transport may require additional segregation. Refer NZS5433 sea segregation for details.

15. Regulatory information

National and or International Regulatory Information	Approved pursuant to the HSNO Act 1996, Approval Code HSR002503 See www.epa.govt.nz for approval controls.
Packaging & Labelling	This product is not required to be registered under the ACVM act. HARMFUL - keep out of reach of children
Hazard Rating Systems	NFPA/HMIS: 2-1-0
Hazard Category	HARMFUL * ECOTOXIC - Keep out of reach of children

16. Other Information



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Infosafe No™ 3NUDK	Issue Date : December 2016	ISSUED by NUFARMNZ
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Product Name **PULSE® PENETRANT**

**Date of preparation
or last revision of
SDS**

November 2012

Contact Person/Point

IN AN EMERGENCY, DIAL 111 - FIRE OR POLICE

24Hr Tollfree Emergency No: 0800 651 911

24Hr Emergency No: National Poisons Centre Phone: 0800 764 766

Revisions

The brand name WeedMaster is added to section 1 under Product use.

Highlighted

...End Of MSDS...

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SAFETY DATA SHEET

DOW AGROSCIENCES* (NZ) LIMITED

Product name: Tordon™ Brushkiller XT

Issue Date: 31.10.2019

Dow AgroSciences* (NZ) Ltd encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product containers.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Tordon™ Brushkiller XT

Identified uses: End use herbicide

COMPANY IDENTIFICATION

DOW AGROSCIENCES* (NZ) LIMITED

89 PARITUTU ROAD

4342 NEW PLYMOUTH

NEW ZEALAND

Customer Information Number:

0800-803-939

NZCustomerservice@corteva.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: +64 6 751 2407

Local Emergency Contact: 0800 844 455

For medical advice, contact the New Zealand Poisons Information Centre:

0800 POISON (0800 764 766)

Transport Emergency Only Dial: 111

This SDS may not provide exhaustive guidance for all the HSNO controls assigned to this substance. The NZ EPA website www.epa.govt.nz should be consulted for a full list of triggered controls and cited regulations

2. HAZARDS IDENTIFICATION

Hazard classification

NEW ZEALAND HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.

HSNO classifications: 3.1D, 6.1D, 6.3B, 6.4A, 6.5B, 6.9B, 9.1A, 9.2A, 9.3C

Signal word: **WARNING!**

Hazards

Combustible liquid

Harmful if swallowed

Harmful if inhaled

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

Causes mild skin irritation.
 May cause an allergic skin reaction
 Causes serious eye irritation.
 May cause damage to organs (Kidney, Liver, Gastrointestinal tract) through prolonged or repeated exposure.
 Very toxic to aquatic life
 Very toxic to the soil environment
 Harmful to terrestrial vertebrates

Prevention

Keep away from open flames / hot surfaces
 Read label before use.
 Do not breathe fumes/vapours/spray
 Use only outdoors or in a well-ventilated area.
 Do not eat, drink or smoke when using this product
 Wear protective gloves/ protective clothing/ eye and face protection
 Wash skin thoroughly after handling
 Contaminated clothing should not be allowed out of the workplace.

Response

In case of fire: Use water fog or fine spray, dry chemical or carbon dioxide fire extinguishers, or alcohol resistant foam. See section 5: Firefighting measures for further details.
 IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
 Rinse mouth.
 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
 Specific treatment – Rinse skin with soap and water. See Section 4: First Aid.
 Wash contaminated clothing before re-use.
 IF ON SKIN: Wash with plenty of soap and water.
 If skin irritation occurs: Get medical advice/attention.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical advice/attention.
 If skin irritation or rash occurs: Get medical advice/attention
 Call a POISON CENTER or doctor/physician if you feel unwell.
 Collect spillage.

Storage

Store in a well ventilated place. Keep cool
 Store locked up.

Disposal

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Triclopyr-2-butoxyethyl ester	64700-56-7	36.0 %
Picloram	1918-02-1	8.7 %
Aminopyralid	150114-71-9	0.7%
Diethylene glycol monoethyl ether	111-90-0	30 – 35 %
Balance	Not available	19 - 25 %

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

4. FIRST AID MEASURES

Consult the National Poisons Information Centre (0800 POISON (0800 764 766)) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

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 re-use. 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 after the first 5 minutes, then continue rinsing eyes. Call a poison control centre of doctor for treatment advice. Suitable emergency eye wash facility should be available in the work area.

Ingestion: No emergency medical treatment necessary.

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: Skin contact may aggravate pre-existing dermatitis. 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 centre or doctor, or going for treatment.

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: No data available

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

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent stream 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. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discolouration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. 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). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

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. No smoking in area. 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 Corteva Agriscience for clean-up assistance. See Section 13: Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame. Containers, even those that have been emptied, can contain vapours. Do not cut, drill, grind, weld or perform similar operations on or near empty containers. Keep out of reach of children. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

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.

This substance is subject to a requirement for an emergency management plan, secondary containment and signage, whenever it is held in quantities of 100 L or more, either alone or in aggregate with other hazardous substances. See Hazardous Substances Emergency Management and Identification Regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Triclopyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m ³ Skin, DSEN, BEI
Picloram	Dow IHG	TWA	10 mg/m ³
	NZ OEL	WES-TWA	10 mg/m ³
Aminopyralid	Dow IHG	TWA	10 mg/m ³
Diethylene glycol monoethyl ether	US WEEL	TWS	25ppm

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 engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

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

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. Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). 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, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

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: Recommended practices for occupational eye protection.
 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance - Physical state	Liquid.
- Colour	Brown
Odour	Ester.
Odour Threshold	No data available
pH	No data available
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	200 ⁰ c
Flash point - closed cup	82 ⁰ c
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour Pressure	No data available
Relative Vapour Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Emulsifiable.
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	No data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid density	1.148 g/ml
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Acids. Bases. 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. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

For similar materials: LD50, Rat, male and female > 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.

For similar materials: LD50, Rat, male and female > 4,000 mg/kg. No deaths occurred at this concentration.

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat).

For the product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause moderate eye irritation. May cause slight corneal injury.

Sensitization

For skin sensitization: For the active ingredients: Has cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization: No relevant data found.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019****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 ingredients: In animals, effects have been reported on the following organs: Kidney. Liver. Gastrointestinal tract.

For the solvents: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

For the active ingredient: Picloram. Did not cause cancer in laboratory animals.

For similar active ingredients: Triclopyr. Did not cause cancer in laboratory animals.

For the solvent: Did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient: Triclopyr butoxyethyl ester. Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the active ingredient: Picloram. Did not cause birth defects or other effects in the foetus even at doses which caused toxic effects in the mother.

For the solvent(s): Did not cause birth defects or any other foetal 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 active ingredient: Picloram. In animal studies, did not interfere with reproduction.

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): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

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:**Acute inhalation toxicity****Triclopyr-2-butoxyethyl ester**

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.

Picloram

Vapours are unlikely due to physical properties. Prolonged excessive exposure to dust may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

LC50, Rat, male and female, 4 Hour, dust/mist > 0.035 mg/l. Maximum attainable concentration. No deaths occurred at this concentration.

Aminopyralid

No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

LC50, Rat, male and female, 4 Hour, Dust > 5.5 mg/l

Diethylene glycol monoethyl ether

No adverse effects are anticipated from single exposure to vapor. Based on the available data, respiratory irritation was not observed. Based on the available data, narcotic effects were not observed.

LC0, Rat, 8 Hour, vapour, 0.025 mg/l. No deaths occurred following exposure to a saturated atmosphere.

Balance

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

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. The EC50 value is above the water solubility.

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate inhibition > 3.0 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, *Oncorhynchus mykiss* (Rainbow trout), 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 2,000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), 21 d, 735 mg/kg bodyweight.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

Material is slightly toxic to birds on a dietary basis (LC50 between 1,001 and 5,000 ppm).
dietary LC50, *Colinus virginianus* (Bobwhite quail), 8 d, 1,890 mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 Hour, mortality > 110 µg/bee
contact LD50, *Apis mellifera* (bees), 48 Hour, mortality > 100 µg/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d > 1,042 mg/kg

Picloram**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), static test, 96 Hour, 8.8 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour, 44.2 mg/l

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate inhibition > 78.7 mg/l

EC50, *Lemna gibba*, Growth inhibition, 14 d, 102 mg/l

ErC50, *Myriophyllum spicatum*, 14 d, 0.558 mg/l

NOEC, *Myriophyllum spicatum*, 14 d, 0.0095 mg/l

Toxicity to bacteria

EC50, activated sludge, 3 Hour > 100 mg/l

Chronic toxicity to fish

Oncorhynchus mykiss (Rainbow trout), flow-through test, 70 d, 0.55 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), static test, 21 d, number of offspring, 6.79 mg/l

LOEC, *Daphnia magna* (Water flea), static test, 21 d, number of offspring, 13.5 mg/l

MATC (Maximum Acceptable Toxicant Level), *Daphnia magna* (Water flea), static test, 21 d, number of offspring, 9.57 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2,000 mg/kg).

oral LD50, *Anas platyrhynchos* (Mallard duck), 14 d > 2,510 mg/kg bodyweight.

Material is practically non-toxic to birds on a dietary basis (LC50 > 5,000 ppm).

dietary LC50, *Anas platyrhynchos* (Mallard duck) > 5,000 mg/kg diet.

contact LD50, *Apis mellifera* (bees), 48 Hour > 100 micrograms/bee

oral LD50, *Apis mellifera* (bees), 48 d > 74 micrograms/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, survival > 5,000 mg/kg

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019****Aminopyralid****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 > 100 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour > 100 mg/l. OECD Test Guideline 202 or Equivalent

EC50, *Crassostrea virginica* (eastern oyster), 96 Hour > 89 mg/l

Acute toxicity to algae/aquatic plants

ErC50, diatom *Navicula* sp., 72 Hour, 18 mg/l

EC50, *Lemna gibba*, 14 d > 88 mg/l

ErC50, *Myriophyllum spicatum*, 14 d, 0.363 mg/l

NOEC, *Myriophyllum spicatum*, 14 d, 0.0639 mg/l

Toxicity to bacteria

Bacteria > 1,000 mg/l

Chronic toxicity to fish

NOEC, *Pimephales promelas* (fathead minnow), flow-through test, 36 d, growth, 1.36 mg/l

NOEC, *Cyprinodon variegatus* (sheepshead minnow), 0.1 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (water flea), 100 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2,000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail) > 2,250 mg/kg bodyweight.

Material is practically non-toxic to birds on a dietary basis (LC50 > 5,000 ppm).

dietary LC50, *Colinus virginianus* (Bobwhite quail) > 5,620 mg/kg diet.

oral LD50, *Apis mellifera* (bees), 48 Hour > 120 micrograms/bee

contact LD50, *Apis mellifera* (bees), 48 Hour > 100 micrograms/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d > 1,000 mg/kg

Diethylene glycol monoethyl ether**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 > 100 mg/L in the most sensitive species tested).

LC50, *Ictalurus catus* (catfish), flow-through test, 96 Hour, 6,010 mg/l. OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), static test, 48 Hour, 1,982 mg/l. OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

ErC50, *Desmodesmus subspicatus* (green algae), static test, 96 Hour, Growth rate inhibition > 100 mg/l. OECD Test Guideline 201 or Equivalent

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019****Toxicity to bacteria**

EC10, Bacteria, 16 Hour, 4,000 mg/l

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.

10-day Window: Fail

Biodegradation: 18 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301B or Equivalent**Theoretical Oxygen Demand:** 1.39 mg/mg**Stability in Water:** Hydrolysis, half-life, 8.7 d, pH 7, Half-life Temperature 25 °C**Photodegradation:** Atmospheric half-life: 5.6 Hour. Estimated**Picloram****Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Biodegradation may occur under aerobic conditions (in the presence of oxygen). Surface photodegradation is expected with exposure to sunlight.

10-day Window: Fail

Biodegradation: 1.95 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301**Stability in Water:** Hydrolysis, half-life > 1.8 year, pH 5 - 9, Half-life Temperature 45 °C. Measured**Photodegradation:** Half-life (indirect photolysis), OH radicals, Atmospheric half-life: 12.5 Hour**Aminopyralid****Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 19.5 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301**Stability in Water:** Hydrolysis, pH 5 - 9, Half-life Temperature 20 °C, Stable

Hydrolysis, pH 5 - 9, Half-life Temperature 50 °C, Stable

Photodegradation: Half-life (indirect photolysis), OH radicals, 6.4 d. Estimated

Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019****Diethylene glycol monoethyl ether**

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 90 %

Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

10-day Window: Not applicable

Biodegradation: > 90 %

Exposure time: 5.5 d

Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 1.91 mg/mg

Chemical Oxygen Demand: 1.84 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	5 - 17 %
10 d	31 - 71 %
20 d	49 - 87 %

Photodegradation: Half-life (indirect photolysis), OH radicals, 4.093 Hour, Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential**Triclopyr-2-butoxyethyl ester**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water (log Pow): 4.62

Bioconcentration factor (BCF): 110 Fish

Picloram

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water (log Pow): -1.92

Bioconcentration factor (BCF): 0.54 *Lepomis macrochirus* (Bluegill sunfish)

Aminopyralid

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water (log Pow): -2.87

Diethylene glycol monoethyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water (log Pow): -0.54 Measured

Balance

Bioaccumulation: No relevant data found.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019****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).

Picloram

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 35

Aminopyralid

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 14

Diethylene glycol monoethyl ether

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 20 Estimated.

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) or very persistent and very bioaccumulating (vPvB).

Picloram

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Aminopyralid

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Diethylene glycol monoethyl ether

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Balance

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

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.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

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

14. TRANSPORT INFORMATION

PUBLIC PASSENGER VEHICLE TRANSPORT: To be transported ONLY in the sealed original container.

Maximum amount permitted to be transported in a passenger vehicle: 100 mL

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Triclopyr-2-butoxyethyl ester, Picloram)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Triclopyr-2-butoxyethyl ester, Picloram

Classification for SEA transport (IMO-IMDG):

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

Classification for AIR transport (IATA/ICAO):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Triclopyr-2-butoxyethyl ester, Picloram)
UN number	UN 3082
Class	9
Packing group	III

Hazchem code: •2X

Matters needing attention for transportation

Marine Pollutants in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code and IATA special provision A197. If the product meets these special provisions, it may be shipped in New Zealand as a non-dangerous goods under provisions in NZS 5433 code which accepts IMDG and IATA classification.

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

This information is not intended to convey all specific regulatory or operational requirements/ information relating to this product. 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.

15. REGULATORY INFORMATION

ACVMG APPROVAL NUMBER: P7545**HSNO Approval Code: HSR007630**

ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer to Environment Protection Authority publication; User Guide to the HSNO Controls Regulations. <http://www.epa.govt.nz>

16. OTHER INFORMATION

Revision

Identification Number: 101205028 / A157 / Issue Date: 31.10.2019 Version: Replaces 15.09.2016

Sections amended: 1, 2, 6, 14, 16

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
Dow IHG	Dow Industrial Hygiene Guideline
NZ OEL	New Zealand Workplace Exposure Standards for Atmospheric Contaminants
Skin, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indices
TWA	8-hr Time weighted average
US WEEL	USA. Workplace Environmental Exposure
WES-TWA	Workplace Exposure Standard – Time weighted average

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National

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Product name: Tordon™ Brushkiller XT Herbicide**Issue Date: 31.10.2019**

Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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Label Front Panel**READ SAFETY DIRECTIONS BEFORE OPENING OR USING**

Vigilant[®] Herbicide Gel

Active Constituent: 43 g/kg PICLORAM POTASSIUM SALT

GROUP	I	HERBICIDE
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Weed killer for use by direct application for control of Woody Weeds, Wild Tobacco trees, Rhizomatous plants and Wandering Jew as per Directions For Use table

Contents: 1.8 Kg ☐ 20 Kg ☐ Refill Pack**The Horticulture and Food Research Institute of New Zealand**East Street, Hamilton, New Zealand, Private bag 3123, Hamilton, New Zealand, www.hortresearch.co.nz

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AVPMA Approval No: 58396/1800g/0604 ☐AVPMA Approval No: 58396/20☐/0604**Label Back Panel (Left)****DIRECTIONS FOR USE:**

This pack is a refill pack for decanting into the 240g brushbottle.

RESTRAINT

- Avoid use over or near desirable plants, or in areas where their roots may extend or where the chemical may be washed or moved to their roots.
- DO NOT use if rain is likely to fall within 12 hours of application.

SITUATIONS	WEEDS CONTROLLED	RATE, CRITICAL COMMENTS
Native vegetation, conservation areas, gullies, reserves and parks	Woody weeds including Cotoneaster, Gorse, Japanese honeysuckle, Tree privet, Willows	Cut stems horizontally 20mm, and preferably no higher than 100mm, above ground level. Use and squeeze the brushbottle to apply a 3-5mm thick layer (thickness of 1-2 two-dollar coins) of VIGILANT [®] over the cut surface remaining on the plant. On stems of 20mm diameter or greater, use and squeeze the brushbottle to apply at least a 5mm thick layer (thickness of 2 two-dollar coins) of gel. In the case of multi-stem plants treat at least 80 percent of stems including all main stems.
	Wild tobacco tree	For small plants or saplings treat as per Woody weeds section above. For trees cut a series of blazes 15-20mm deep around main trunks of the tree using an axe or pruning saw. Blazes should be evenly spaced with no more than a 20-40mm gap between blazes. Use the brushbottle to apply a 5mm layer (thickness of 2 two-dollar coins) of VIGILANT [®] over the lower cut surface of the blaze.
	Rhizomatous plants including Agapanthus, Canna lily	On Agapanthus prune all shoots horizontally at the rhizome and use and squeeze the brushbottle to apply a 3-5 mm layer (thickness of 2 two-dollar coins) of VIGILANT [®] across the cut surface on the rhizome. On Canna lily prune and treat the same as Agapanthus plus, if there are more than four rhizomes between shoots, drill a 10mm hole into every fourth rhizome from a shoot, 80 percent the depth of the rhizome, and fill the hole with VIGILANT [®] .
	Wandering jew	Apply VIGILANT [®] at 16g/square metre over the foliage using a long-handled paint roller or similar making sure the foliage has been completely flattened during application. When using a paint roller, care should be taken to avoid splatter.

Bar
Code

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.