
Appendix D (Health and Safety)



20th August 2012
DTR12051

**JAPANESE KNOTWEED ERADICATION PROGRAM TO BE CARRIED
OUT AT THE FORMER ROYAL MAIL SORTING OFFICE, TWICKENHAM**

Site Address

The Former Royal Mail Sorting Office
London Road
Twickenham
TW1 1AA

Client Name and Address

St James Urban Living
St James House
26 Bridge Street
Leatherhead
Surrey
KT22 8BZ

Client Contact

Brian Orchard
01372 364 554

Site Contact

Ted Mukabaa
07881 417 967

Sub Contractor --

Dunton Environmental Ltd
Unit 1 Tamebridge Industrial Estate
Aldridge Road
Perry Barr
B42 2TX



committed to
GSCS



Environment
Agency
Contract No. E0001-0-000





Dunton Environmental has been appointed by St James Urban Living to carry out the following works on site.

Scope of works

The 'Eradicate' system is a range of cultural and chemical methods which significantly increases the effectiveness of the herbicidal treatment method, to the extent that complete eradication can usually be achieved within one growing season of the treatment programme commencing allowing Dunton Environmental to provide the Client with a specified a site access date as part of the methodology.

The service that Dunton Environmental offers is based on a sound understanding of the ecology and biology of the plant and the site. The method targets weaknesses in the plants physiology and it is essential that all elements of the treatment programme be carried out strictly in accordance with the treatment protocol. Trained specialists carry out all work and all work is routinely closely monitored to ensure the treatment is on programme and effective. During the eradication process strict control of the site and all activities will be carried out by Dunton Environmental in consultation with the Client.

The actual **ERADICATE** process on site involves the following steps.

- Clearance of surrounding vegetation and setting it aside for disposal off site by the Client.
- Fencing stand with low level bunting and erection of keep out signage
- Application of the herbicide protocol to the active plants rhizome mass within the soil matrix. Normally carried out over 3 separate visits.
- Selected sampling of the treated rhizomes for analysis and validation
- Disposal of residual surface growth off site at a licensed landfill
- 12 month monitoring program
- Final report and guarantees.



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Agency
License No. 14066, 0000



Works Location

A walkover survey of the site was undertaken on the 9th May 2012 to investigate the presence of Japanese knotweed.

Stand	Dimension (x) m	Dimension (y) m	Area m ²
1	2	1	2
2	1	1	1
3	1	1	1
Total			4 m ²



Site Location



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Licence No. 6006-0196

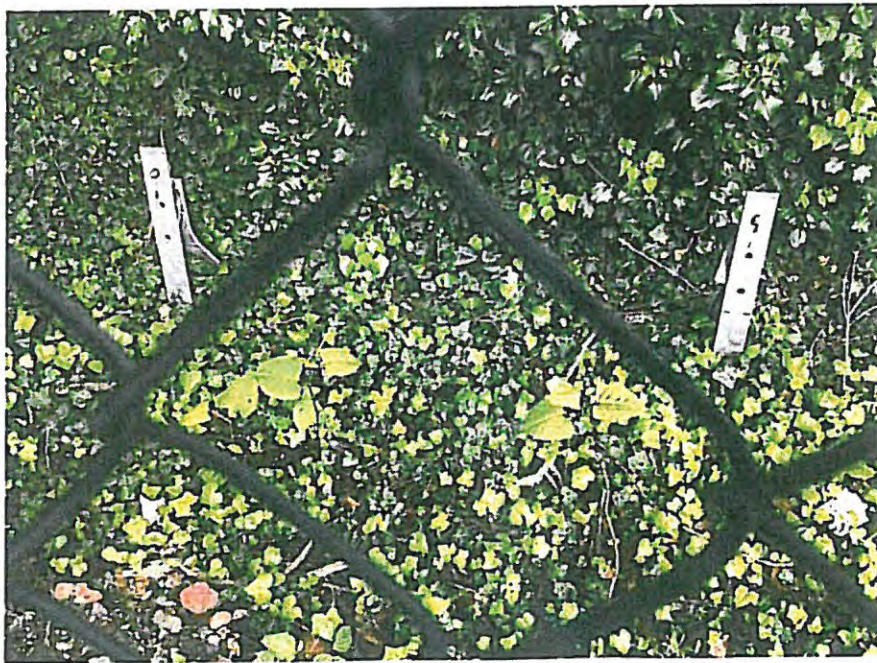




Site Photos



Stand 1



Stand 2



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Stand 3

Resources

Plant

Trimmers, shears
Spraying equipment

Labour

1 Specialist spraying supervisor

Materials

Waste skips for JK disposal

1200g polythene

Selections of herbicides which may be used during the Eradicate process are listed below, with the relevant MAPP numbers:

• Agritox 50	07400
• Asulox	13175
• Blaster	13267
• Depitox	13258
• Roundup Biactive	10320
• Timbrel	05815
• Tordon 101	05816
• Tordon 22K	05083

All of these herbicides are safe for use in areas beyond 10m from any open water course.

Welfare

By the Client

PPE

- Coveralls – prEN13892-1 – light weight disposables
- Rubber apron – For handling concentrates
- Gloves – EN374, nitrile, 300mm long, 0.4mm thick and unlined
- Boots – water and chemical proof with steel toecaps and mid-soles
- FFP3 Face masks
- Face shield – EN166
- Ear Defenders – EN352
- Hi-Vis Clothing – EN471 when working near traffic
- Chemical stores
- Low level bunting fence
- Signage

Program

Spray 1 –August 2012

Spray 2 – September 2012

Spray 3 – November 2012

Final Clearance – March 2013

Validation Report and Warranty – April 2013

Key Personnel

Principal Authorised Sprayer – Malcolm Stubbs 0798 032 6873

Contracts Manager from Dunton – Tony Sadla phone 0781 497 9132

Project Director from Dunton – Neil Roe, phone 0121 356 4360


Site Health and Hazard Risk

A site specific risk assessment has been carried out identifying the risk to be encountered on site.

Operators and certification to be produced for inspection by the Principal Contractor prior to works commencing.

Welfare is to be provided by the Client.

Produced By:
Katherine Anderson


Approved By: –

Eszter Bernhardt
Administration Team Leader

20th August 2012



PROJECT: The Former Royal Mail Sorting Office

CONTRACT No.: DTR12051

Project Risk Assessment

ACTIVITY/LOCATION	Identified Risks	Risk assessment and method statement
Chemical Application of herbicides to Japanese Knotweed	Exposure, spray drift, environmental impact, manual handling, slips and trips, lone working, working near water, public.	Risk assessment for Chemical herbicide application, Method Statement and risk assessment 01 Tordon 22k COSHH Assessment 01, Tordon 22k Environmental Info, Tordon 22k Safety data sheet, Mixture B COSSH Assessment 02
Other monitoring docs		HS02 rev 0PPE register
		HS08 rev0 incident report
		Spray records

Name

Sheet.... of *13222* *BEAULTROT*

Signature

Benhardtt Ester

Date *20/08/2012*

Dunton Environmental Limited

RISK ASSESSMENT

ra-op-01

Application of approved pesticides in amenity areas using hand held equipment not adjacent to watercourses.

Operations: Spot treatment control of target noxious and invasive weeds, in established and amenity grassland not intended for grazing.

Plant/Machinery: Hand held equipment (knapsack, Portable Sprayer), nozzles, nozzle guards, pressure regulators, non-residual herbicide in liquid formation, Roundup Pro Bioactive.

Hazards:

Exposure / contamination with concentrate – skin sensitiser.

- Handling concentrate (exposure of skin or inhalation).
- Moving pesticide containers in and out of store
- Loading /unloading vehicle
- Mixing with spillage and leak

Exposure /contamination with dilute spray solution

- During application operation (may be over long period):
- Sprayer leakage
- Spraying yourself eg. Feet and legs
- Drift from nozzle
- Vapour drift
- Contact with treated weeds
- Drip effect if spraying tall weeds (1.5m +)
- Wearing heavily contaminated PPE
- Cleaning and rinsing equipment
- Loading/ unloading of equipment

Bystander Exposure

- Early re-entry onto treated area
- Contact with treated vegetation
- Spray drift
- Vapor drift

Spray Drift (wind and vapor drift)

- Contaminate non-target areas
- Contaminate on-site workers /public

Environmental Contamination

- Damage to flora and fauna – use outside of statutory label recommendations, spray drift, spills, splashes and leaks.

Dunton Environmental Limited
Prepared by: Lara Roe
Approved by: Neil Roe

Document: DE001
Issue No: 1

- Contamination of watercourses
- Contamination of non-target areas
- Poisoning of grazing animals – early re-entry to treated area to eat treated vegetation that has not yet become unpalatable.

Lifting and Handling

- Upper limb disorders, back strain, simple backache, lower back pain, nerve root pain, possible serious spinal injury and psychosocial beliefs and behaviors
- Carrying containers with concentrate in/out from the store.
- Loading/unloading vehicles (awkward postures, stooping, twisting, bending, stretching)
- Knapsack sprayers (filled/part filled) lifting on and off back, carrying and operating pump handle. Moving over awkward terrain especially slopes and uneven ground

Slip and trip hazards

- Uneven / unstable terrain
- Ground conditions –wet/slippery underfoot
- Working on slopes
- Trip hazards

Lone Working

- Personal injury –fractured limb, unconscious etc.
- Health Problems – heart, diabetes, fits etc.
- Accident – personal contamination or attack by people or animals

Working near water

- Drowning
- Weil's Disease

Dealing with public on or near the site

- Aggressive/violent/threatening behavior
- Physical attack
- Intolerance

Emergencies

- Spillages and leaks from equipment and operations
- Leaking from damaged containers
- Suspected poisoning
- Fire
- Theft of pesticides from vehicle on site
- Road Traffic Accident
- Falling into water

Risk Factor: HIGH

People at Risk:

- Spray operatives
- General Public
- By-standers
- Other Visitors to site
- Emergency services

Controls:

Exposure Controls for Spray Operators Handling Concentrate

1. Hand Protection: synthetic gloves
2. Skin protection: synthetic, protective coveralls
3. Eye/face protection, face shield
4. Foot protection, waterproof and chemical resistant boots.
5. Refer to product label prior to operations
6. Keep alert to surroundings
7. Do not eat, drink, smoke or chew gum when using/handling pesticides
8. Wash hands and face and other exposed areas before eating
9. Remove PPE before getting into vehicle cab and store separately
10. Stop work and wash contaminated areas thoroughly with soap and water
11. Flush eyes with fresh flowing water, with eyes open for 15 minutes
12. Stop work immediately and seek medical advice if you feel unwell.

Dilute spray solution

1. Leaking or damaged spray units must never be used
2. If leak develops, stop and repair immediately
3. Carry spare seals, washers, filters, hoses and nozzles
4. Stop work and wash contaminated areas as soon as possible, if not possible immediately
5. Aim to finish with an empty tank

Treated contaminated surfaces

1. Hand protection, synthetic gloves
2. Skin protection, synthetic, protective coveralls
3. Eye/face protection, rubber boots
4. Wash and change PPE as required
5. Stop work immediately and seek medical advice if you feel unwell

Spray Drift

1. Clean and well maintained equipment
2. Correct choice of nozzle (low drift/low pressure)
3. Method of working on site- take account of wind strength and direction, height of plants and location
4. Nozzle guards when carrying out spot treatment
5. Keep alert of changing weather conditions

Environmental

1. Correct choice of product formulation for the situation
2. Do not spray in unsuitable weather conditions
3. Read and understand product label prior to working
4. Only work adjacent to water with written permission from the Environment Agency
5. Use LERAP 3 star rate nozzles only
6. Accurate calibration of equipment
7. Accurate application practice
8. Do not mix or fill near watercourse or drains
9. Do not rinse equipment near watercourse or drains

Information and Training

1. Staff fully trained, holding relevant certification in pesticide application handling
2. Provided with product label with statutory and essential information
3. COSHH Risk assessment provided
4. Emergency procedures prepared

Personal Protective Equipment (PPE)

You have a duty to wear the PPE provided

1. Check it is clean, not damaged, well fitting and conforms to the relevant standards, is CE marked and the correct type.
 - Coveralls – prEN13892-1 – light weight disposables
 - Rubber apron – For handling concentrates
 - Gloves – EN374, nitrile, 300mm long, 0.4mm thick and unlined
 - Boots – water and chemical proof with steel toecaps and mid-soles
 - Face shield – En166
 - Ear Defenders – EN352
 - Hi –Vis Clothing – EN471 when working near traffic
2. Carry spares in case of damage
3. Store it separately during transit in a leak proof, clean, dry and well ventilated box.

Bystander Exposure

1. Suitable warning signs with a contact number will be posted to comply fully with label recommendations.
2. Do not spray within 5 m of people or animals

Lifting and Handling

1. Keep alert
2. Take things at a comfortable pace
3. Use a preferred lifting/handling technique that includes;
 - Bending at the knees
 - Keep the load close to the body
 - Hold the load at waist height when possible
 - Keep your back as upright as possible at all times
 - Lift by using thigh muscles to take the load
 - Don't continue with activity if it makes your back hurt
 - Take breaks, stretch muscles and limbs
 - Alternate tasks with other activities
 - Avoid getting fatigued
 - Where possible stand a filled knapsack sprayer on a suitable waist high support to lift onto shoulders
 - Adjust shoulder straps so that the shoulders take the weight
 - Carry reduced loads (half fill) on unstable terrain
 - Try alternating pump handle operation

Slips and trips

1. Wear protective footwear with good grip and slip resistant soles
2. Keep alert
3. Assess ground conditions before starting work
4. Take extra care during periods of frost
5. Monitor light conditions whilst working

Lone Working

1. Discuss the situation with the line manager
2. Work in pairs whenever possible
3. Carry out site specific risk assessment
4. Provide mobile phone with good network coverage
5. Maintain contact with an appointed person

Dealing with the public

1. Display a friendly, honest, courteous, fair and efficient attitude
2. Stay calm, speak clearly and try to diffuse any situations that may develop
3. Keep a safe distance

Emergencies

Spills

1. Keep a spill kit, including inert, absorbent materials, brush, shovel, plastic bags and ties
2. Wear correct PPE when cleaning spills
3. Block drains if spill might reach them
4. Dispose of sweepings/contaminated materials via a specialist waste disposal contractor
5. Have a copy of product label or safety data sheet to give to the emergency services/

Leaks

1. Put the entire leaking container into a larger impermeable larger one and label it clearly with the product name
2. Transfer into alternative container that held the same product
3. Use the product at earliest opportunity
4. If not usable dispose of via specialist waste contractor

Personal contamination

1. Clean water is necessary for cleaning hands after removing protective gloves and emergency washing
2. Carefully remove contaminated clothing immediately
3. Wash Contaminated skin and hair thoroughly
4. If eyes are contaminated use provided eye wash
5. Seek medical attention as soon as possible
6. Take the product label and safety data sheets to give to the medical staff

Someone else

1. Call for medical help immediately
2. If the casualty is conscious take them away from work area and keep them warm
3. If casualty is unconscious or not mobile, take suitable precautions to prevent contaminating yourself and then move the casualty to safety. Check for breathing, obstructions in the mouth and place them in the recovery position.
4. Do not attempt to induce vomiting
5. Remove contaminated clothing and keep the casualty warm.
6. Provide medical emergency staff with product label and safety data sheets

Suspected animal poisoning

1. Get the animal away from the contaminated area
2. Keep the animal sheltered and at rest
3. Contact a vet
4. Give product Label and safety data sheets to the vet

Fire

1. Raise the alarm
2. Call the fire brigade telling them that agro chemical are involved
3. Tackle the fire yourself only if it is safe to do so using a dry powder extinguisher
4. Give the fire officer the product label and safety data sheets

Theft

1. Notify your supervisor immediately
2. Contact the police and provide full details of products, active ingredients and quantities stolen

Risk Factor: LOW

References:

The Food and Environment Protection Act, 1985

- The Control of Pesticides Regulations 1986 (as Amended)
- The Plant Protection Products (Amendment) Regulations 1996 and 1997
- The Plant Protection Products (Basic Conditions) Regulations 1995
- The Health and Safety at work Act, 1974
- The Control of Substances Hazardous to Health Regulations 2002
- Management of Health and Safety at Work Regulations, 1999
- Provision and Use of Work Equipment Regulations, 1998
- Manual Handling Regulations, 1992
- Workplace (Health, Safety and Welfare) Regulations 1992
- Personal Protective Equipment at work Regulations 1992
- Safety data sheets for substances and preparations dangerous for supply (guidance on regulations 6 of the CHIP regs)
- The Health and Safety (Safety Signs and Signals) Regulations 1996
- Approved Supply List
- The Reporting of Diseases, Dangerous Occurrences Regulations 1992

Environmental Legislation

- The Clean Air Act, 1993
- The Control of Pollution Act, 1974
- The Poisons Act, 1972
- The Groundwater Regulations, 1998
- The Environmental Protection Act, 1990
- Environmental (Duty of Care) Regulations, 1991
- The Water Act, 1989
- Water Resources Act, 1991
- The Special Waste Regulations, 1996
- The Waste Management Licensing Regulations, 1994

References: COSHH Risk Assessments
Product Labels
Manufacturers Safety Data Sheet

Risk Assessment and Method Statement Procedure 01	
Description of task / activity: Treatment of Japanese Knotweed with the ERADICATE system	Exact location of proposed work activity/task: See site layout plan
Contractor/personnel involved: Dunton Operatives	




PART ONE – RISK ASSESSMENT

Hazards Identified: Spray drift, slips trips and falls, handling chemicals, manual handling

 Danger Chemicals	 Danger Pesticides	 Danger Hazardous Atmosphere	 Danger Respiratory Irritant	 Danger Eye Injury	 Danger Poor Housekeeping	 Danger Skin Irritant	 Danger Poor Lighting
 Danger Splashing	 Danger Spillages	 Danger Broken Glass	 Danger Needle Stick	 Danger Used Needles	 Danger Lone Working	 Danger Tripping Hazard	 Danger Extreme Weather Conditions
 Ultra-violet radiation from the sun	 Danger Skin Burns	 skin damage	 Danger Manual Handling	 Harmful Chemicals  Harmful Vapours  Skin Irritant			

People who may be affected: Operative, Site Agent, Visitors & The Public, nearby environment

Control Measures: FPE will be issued in accordance with Schedule (see Below). Safe Working Area, works to be conducted in accordance with detailed sequence of work. Correct Spray nozzle to be fitted, no spraying in adverse weather conditions (windy). All operatives to be inducted within COSHH Assessment. Specific Manual Handling Assessments to be carried out in accordance with H.S.E. guidelines. Sufficient rest periods, spot treatments next to tree.

 Safe system of work No mixing of herbicides	 Sunscreen (SPF15) to be used on uncovered areas	 Protective hat to have a wide brim and neck flap	 Protective clothing is long sleeved shirt and hat
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Breaks to be taken in shaded areas	Self-awareness program in place to check skin	Authorised Users Only	Competant Person to Operate	Induction Training	Toolbox talks		
							
Provision of Written Safe Systems of Work	No Food or Drink Permitted In Area	Natural Ventilation Provided	Safe Lifting Procedures Followed	Regular Breaks Taken	External Lighting Provided	Broken Glass Containers Provided	Warning Signs Displayed
							
Emergency Eye Wash	First Aid	No Pedestrians	No Smoking				

PART TWO – METHOD STATEMENT

Schedule of plant and equipment to be used:

Backpack Spray Unit
Spill Kit

Measuring Equipment

















































Who will check relevant certification of equipment? Malcolm Stubbs

Schedule of Personal Protective Equipment (P.P.E.)















Head Protection
Hi Vis Vests
Coveralls
Rubber Apron

Safety Boots
Chemical impervious gloves
Chemical impervious goggles

					
Hi Visibility Clothing Must be worn	Head Protection Must be Worn	Protective Clothing Must be Worn	Rubber apron for handling concentrates	Impervious Aprons Worn	Protective Footwear Must be Worn
					
Face shield EN166	Protective Gloves Must be Worn	Protective Mask Must be Worn	Wear goggles	Hygiene Procedure Observed	

Provision of first aid: To be provided by the Client																	
Additional information such as access / egress/ deliveries /removals/ controls etc. Access & Egress to Site:																	
Materials to be used or produced including re-useable and debris: Tordon 22k and Mixure B used with instructions for dilution/application																	
Supervision	Activity Foreman in attendance at all times																
Monitoring Arrangements	Monitored all day by Supervisor, Operations Manager Once every 2 Week																
Detailed sequence of work task or activity:																	
<ol style="list-style-type: none"> 1) Instruct operatives of safe system of work including information from assessments regarding Manual Handling and COSHH. 2) All operatives to be issued with PPE in accordance with company procedure relevant to their task. 3) All operatives to be inducted including the method statement by Supervisor. 4) Fence off Japanese Knotweed infested areas. 5) Spray Unit to be filled with water to check for leaks 6) Mix required herbicides in rear of van following manufacturer's instructions and place in spray unit, using dedicated measuring equipment. 7) Replace concentrate herbicides back in van and lock. 8) Ensure spray unit is not leaking a second time by visual inspection. 9) Walk to areas affected with Japanese Knotweed. 10) Spray affected areas carefully making sure spray drift does not affect the nearby tree 11) Always monitor for public, site personnel and changes in the weather, stop spraying if necessary. 																	
<table border="1"> <tr> <td> Barriers In use to Prevent Access</td> <td> Chemicals/Drugs Stored Safely</td> <td> Must be kept Locked</td> <td> Secure Pesticides & Herbicides Storage</td> <td> Use spill responso kit</td> <td> Spillages Cleared Up Immediately</td> <td> Correct Disposal of Contaminated Material</td> <td> Sutable Spill Containment Provided</td> </tr> <tr> <td> Store away from heat</td> <td> Provision of Whitten Safe Systems of Work</td> <td> PPE to be Used</td> <td> Control amounts used</td> <td> Good Housekeeping Observed</td> <td> Laundry contaminated clothing</td> <td> Containers Suitably Labelled</td> <td> Routine Safety Checks Undertaken</td> </tr> </table>		 Barriers In use to Prevent Access	 Chemicals/Drugs Stored Safely	 Must be kept Locked	 Secure Pesticides & Herbicides Storage	 Use spill responso kit	 Spillages Cleared Up Immediately	 Correct Disposal of Contaminated Material	 Sutable Spill Containment Provided	 Store away from heat	 Provision of Whitten Safe Systems of Work	 PPE to be Used	 Control amounts used	 Good Housekeeping Observed	 Laundry contaminated clothing	 Containers Suitably Labelled	 Routine Safety Checks Undertaken
 Barriers In use to Prevent Access	 Chemicals/Drugs Stored Safely	 Must be kept Locked	 Secure Pesticides & Herbicides Storage	 Use spill responso kit	 Spillages Cleared Up Immediately	 Correct Disposal of Contaminated Material	 Sutable Spill Containment Provided										
 Store away from heat	 Provision of Whitten Safe Systems of Work	 PPE to be Used	 Control amounts used	 Good Housekeeping Observed	 Laundry contaminated clothing	 Containers Suitably Labelled	 Routine Safety Checks Undertaken										
<p>NOTE ALL METHOD STATEMENTS ARE SUBJECT TO CHANGE IF YOU SUSPECT PRACTICAL WORKING METHODS ARE VARYING FROM METHOD STATEMENT CEASE WORKS AND ALERT YOUR SUPERVISOR.</p>																	

COSHH ASSESSMENT RECORD

COSHH Assessment No 1			
Substance: Tordon 22k Herbicide and Eradicate			
How is the substance to be used? (including activity): To be used as a herbicide in the eradication of Japanese Knotweed			
Hazardous Substances used or present: Picloram potassium salt	Hazards: Irritant  	Exposure: Eyes, Inhalation, Skin Contact, Ingestion    	
People at risk: Employees, Visitors, Environment			
Elimination No	Substitution No	Engineering controls: Good general ventilation 	P.P.E. Chemically Impervious Gloves, Chemically Impervious Goggles  
First aid measures: <p>Eye Contact: Irrigate thoroughly with water for at least 5 minutes. Consult a physician if irritation persists</p> <p>Skin Contact: Wash off with soap and water, remove contaminated clothing</p> <p>Ingestion: Do not induce vomiting. Call a physician.</p> <p>Inhalation: Remove to fresh air.</p> <p>In all cases seek immediate medical advice.</p>			
    			









Maintenance controls:

In the Event of Fire

Recommended extinguishing media: water, foam, dry chemical, carbon dioxide.

Handling & Storage.

- When using do not eat, drink or smoke
- Wash hands thoroughly after handling or contact
- Thoroughly clean equipment after use
- Wash contaminated clothing before re-use
- Store in a cool, dry, well ventilated place in the original container.
- Keep out of reach of children

 No Food or Drink Permitted in Area	 Washing facilities	 Thoroughly clean equipment after use	 Laundry contaminated clothing	 Do not empty into drains	 Control amounts used	
 Spillages Cleared Up Immediately	 Prevent Spillages	 Correct storage facilities	 Natural Ventilation Provided	 Containers Suitably Labelled	 Keep in a cool place	 Store dry

Information, instruction & training: Site Manager to give toolbox talks

 Training provided	 Toolbox talks
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Action required:

Monitor and reassess as required

Person responsible:	Signature:	Date of signature:
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1. IDENTIFICATION
Preparation : TORDON 22K

Supplier : Nomix Enviro, A Division of Frontier Agriculture Ltd,
The Grain Silos, Weyhill Road, Andover,
Hampshire, SP10 3NT.
Tel: 01264 388050

Chemical Emergency Agency Service (24 hr): Tel. 01865 407 333

2. COMPOSITION/INFORMATION ON INGREDIENTS
Composition :

Picloram, potassium salt	: 278 g/l	CAS No	002545-60-0
Inert ingredients	: Balance		

3. HAZARDS IDENTIFICATION

May cause sensitisation by skin contact

4. FIRST-AID MEASURES

Inhalation:

Remove to fresh air. Consult a physician.

Skin contact:

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Wash contaminated clothing before reuse.

Eye Contact:

Irrigate immediately with water for at least 5 minutes. Consult medical personnel.

Ingestion:

Do not induce vomiting. Call a physician. The decision of whether to induce vomiting or not should be made by an attending physician.

Further Medical Advice:

Never give fluids or induce vomiting if patient is unconscious or is having convulsions.

Note to Physician:

No specific antidote. Supportive care. Treatment based on judgment of physician in response to symptoms of patient.

5. FIREFIGHTING MEASURES

Extinguishing media:

Water fog or fine spray. Carbon dioxide. Dry chemical. Foam.

Hazardous Combustion Products:

During a fire smoke may contain original material in addition to unidentified toxic and/or irritating compounds.

Protection of Firefighters:

Wear protective clothing and use self-contained breathing apparatus.

Additional Information:

Keep containers cool by spraying with water. Contain runoff to prevent entry into water or drainage systems.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions:**

Wear appropriate safety clothing and eye/face protection (see Section 8).

Methods of cleaning up:

Soak up with sand or other non-combustible absorbent material and place into containers for disposal. For large spills, barricade area and consult manufacturer. If further assistance is required, telephone the emergency contact number.

Environmental precautions:

Do not wash into sewers or into any body of water. Advise water authority if spillage has entered water course or drainage system.

7. HANDLING AND STORAGE**Handling:**

Wear coveralls and protective gloves when handling the concentrate. Use good personal hygiene. Do not consume or store food in the work area. Wash hands and exposed skin before eating, drinking or smoking and after work. Avoid eye contact. Remove contaminated clothing immediately and wash skin area with plenty of water.

Storage:

Product should be stored in compliance with local regulations. Store in a cool, dry, well-ventilated place in the original container. Protect from excessive heat and cold. Do not store near food, drink, animal feeding stuffs, pharmaceuticals, cosmetics or fertilisers. Keep out of reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Guidelines:**

Picloram: Workplace Exposure Limits

Long Term Exposure Limit (8 hour TWA): 10 mg/m³

Short-Term Exposure Limit (15 minute): 20mg/m³.

Engineering Controls:

Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

Respiratory Protection:

When airborne exposure guidelines and/or comfort levels may be exceeded or under emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Hand/Skin Protection:

For brief contact, no precautions other than clean body-covering clothing and chemical resistant gloves should be needed. For emergency conditions use protective clothing impervious to this material.

Eye/Face Protection:

Use safety glasses. Where contact with the liquid is likely, chemical goggles are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

TORDON 22K

Appearance	:	liquid
Colour	:	dark brown
Boiling Point (Deg C)	:	100 °C (approx.)
Flash Point	:	> 100 °C (TCC)
Vapour Pressure (mm Hg)	:	22mm Hg/20 deg.C (approx.)
Density (g/ml)	:	1.14 g/cm ³ (approx.)
Solubility in water	:	miscible
pH	:	9.0 -11.2

10. STABILITY AND REACTIVITY**Chemical Stability:**

Is stable under normal storage conditions.

Conditions to Avoid:

Avoid extremes of temperature.

Materials to Avoid:

Strong basic, acidic or oxidising materials.

Hazardous decomposition products:

None under normal conditions of storage and use.

11. TOXICOLOGICAL INFORMATION**Inhalation:**

No adverse effects anticipated by this route of exposure incidental to proper handling.

Skin Contact:

The dermal LD₅₀ for rabbits is >2000mg/kg. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

Sensitisation:

Sensitising to guinea pig skin

Eye Contact:

May cause eye irritation.

Ingestion:

No adverse effects are anticipated by this route of exposure incidental to proper handling

12. ECOLOGICAL INFORMATION

Assessment largely or completely based on data for active ingredient.

Persistence and Degradability:

The major route of degradation is by photolysis and photodegradation. Microbial degradation leads to formation of parent acid which undergoes further degradation. Half-life of the parent acid in soil is dependent on conditions and is approximately 10 - 278 days.

Aquatic Toxicity:

Based on the acid.

Acute LC₅₀ for daphnids is reported to be 68 mg/l

Algal toxicity EC₅₀ for green algae is 37 mg/l

Based on data for the formulation.

Dietary LC₅₀ for sheepshead minnow (*Cyprinodon variegatus*) is > 100 mg/l.

Avian Toxicity:

Based on data for the formulation.

Dietary LC₅₀ for mallard duck is > 10 mg/kg of diet

Dietary LC₅₀ for bobwhite quail is > 10 mg/kg of diet

Other Information:

Active ingredient: Material is practically non-toxic to bees on an acute basis.

13. DISPOSAL CONSIDERATIONS

Do not contaminate ponds, waterways or ditches with chemical or used container. Wash out thoroughly. Container and washings must be disposed of safely and in accordance with applicable regulations. The preferred options are to send to licensed reclaimer or to permitted incinerators. Do not re-use container for any purpose.

14. TRANSPORT INFORMATION

ADR Class/Conveyance class: 9
 Packing group: III
 UN No: 3082

Environmentally Hazardous Substance

15. REGULATORY INFORMATION

Hazard Symbol: Xi Irritant

Risk Phrases: R43 May cause sensitisation by skin contact

Safety Phrases: S2 Keep out of reach of children
 S24 Avoid contact with skin
 S37 Wear suitable gloves

16. OTHER INFORMATION

The information contained within this Material Safety Data Sheet does not constitute the users own assessment of workplace risk as required by other national health and safety legislation such as the Health and Safety at Work Act (1974) and the Control of Substances Hazardous to Health Regulations (2002 and subsequent revisions).

Date of MSDS Review : 10.01.12

The information in this data sheet is to the best of our knowledge true and accurate, but all instructions, recommendations and suggestions are made without guarantee. Since the conditions of use are beyond its control, Nomix Enviro, A Division of Frontier Agriculture Ltd disclaims any liability for loss or damage suffered from use of this information. Furthermore no liability is accepted if use of any product in accordance with these instructions, recommendations and suggestions infringes any patent.

Tordon™ 22k**DESCRIPTION**

A persistent selective weedkiller in liquid form containing 240 g/l (21.1% w/w) picloram as potassium salt

USES

For the control of a wide range of deep-rooted perennial and herbaceous weeds on land not intended for cropping. Also for the control of woody weeds and scrub

ADVANTAGES

- Kills tough deep-rooted perennial weeds including notoriously resistant species such as Japanese Knotweed and Mugwort.
- Effective against many woody weeds.
- Acts both through the foliage and the roots.
- Residual activity for up to two years.
- Does not kill grasses.

DIRECTIONS AND AREAS FOR USE**Time of spraying**

For industrial weed control, the best treatment time is late winter or early spring. This will prevent development of most broad-leaved species for the rest of the season.

Application rates

Use	Rate / hectare	Water volume / hectare	Equipment
White clover, creeping thistle, hogweed, plantains	2.8 litres	450 litres	Hydraulic boom or knapsack sprayer fitted with suitable nozzle to deliver medium quality spray (as defined in the BCPC system).
Common bird's-foot trefoil, field bindweed, creeping buttercup, burdocks, cat's ear, common chickweed, colt's foot, creeping cinquefoil, dandelion, docks, hawkweed, Japanese knotweed, mugwort, common nettle, silverweed, pansy, cotton thistle, rosebay willowherb, yarrow.	4.2 – 5.6 litres	450 litres	Hydraulic boom or knapsack sprayer fitted with suitable nozzle to deliver medium quality spray (as defined in the BCPC system).
Wild mignonette common ragwort	8.4 litres	450 litres	Hydraulic boom or knapsack sprayer fitted with suitable nozzle to deliver medium quality spray (as defined in the BCPC system).
Bracken, brambles	11.2 litres	450 litres	Hydraulic boom or knapsack sprayer fitted with suitable nozzle to deliver medium quality spray (as defined in the BCPC system).

Note: Bracken should be treated 2-4 weeks before frond emergence. At the above rates Tordon 22K has a negligible effect on grasses - transitory yellowing may occur. Clover species are highly susceptible and will be eliminated from treated areas

For grass areas excellent results can be achieved with treatment coinciding with periods of vigorous growth

Application

Half fill spray tank with water, add the recommended quantity of Tordon 22K and then the remainder of the water.

- For spray boom application, use the recommended rate of Tordon 22K in 450 litres water per hectare.
- For power sprayer application e.g. handlances, use the recommended rate of Tordon 22K in 1000-2000 litres of water and apply as a drenching spray.
- For localised treatment with a knapsack sprayer, use a solution of 150ml Tordon 22K in 18 litres of water. Apply at a pressure of 0.7 bar.

After filling the spray tank, agitate thoroughly to ensure a complete and uniform solution. Use the made-up solution within 24 hours of mixing. Agitate thoroughly throughout spraying. Do not leave to stand overnight.

Notes for Guidance

AVOID SPRAY DRIFT. Do not spray in windy weather. Do not permit spray drift to contaminate crop land or irrigation water or to drift onto or within the root zone of crops, hedges or fruit, ornamental or forest trees or gardens.

WASH EQUIPMENT THOROUGHLY several times after use, with water and/or a liquid detergent. Spray out. Fill with water and spray out several times before storage, disposing of the washings in a safe place. Equipment used for applying Tordon 22K should not be used for applying other materials to valuable crops.

SENSITIVE PLANTS may be harmed by residues of Tordon 22K in soil and treated vegetation. Do not apply Tordon 22K on or adjacent to soil which may be used as garden top-soil, potting soil, etc. or to grass which may be cut and used as mulch or for compost for horticultural or garden crops. Do not use cuttings from treated grass for mulching or composting.

On level ground there is negligible lateral movement but do not apply Tordon 22K around desirable trees or shrubs or where their roots may take up a lethal dose, care should be taken on slopes to prevent leaching into areas where desirable shrubs, etc. are present.

PRECAUTIONS

- WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when handling the concentrate.
- WHEN USING, DO NOT EAT, DRINK OR SMOKE.
- WASH CONCENTRATE from skin or eyes immediately.
- WASH HANDS AND EXPOSED SKIN before meals and after work.
- KEEP OUT OF REACH OF CHILDREN.
- KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.
- KEEP LIVESTOCK out of treated areas for at least 7 days until foliage of any poisonous weeds such as ragwort have died and become unpalatable.
- HARMFUL TO FISH OR OTHER AQUATIC LIFE. Do not contaminate ponds, waterways and ditches.

This product is approved under the UK Control of Pesticides Regulations 1986 for use as directed. The Control of Substances Hazardous to Health (COSHH) Regulations may apply to the use of this product at work.

— ALWAYS READ THE LABEL. USE PESTICIDES SAFELY.

Classification under the Dangerous Preparations Directive

TORDON 22K

Contains 240 g/l (21.1 % w/w) picloram as the potassium salt



IRRITANT

MAY CAUSE SENSITISATION BY SKIN CONTACT

Keep out of reach of children















Avoid contact with skin

Wear suitable gloves

This material and its container must be disposed of in a safe way

To avoid risks to man and the environment, comply with the instructions for use

COSHH ASSESSMENT RECORD

COSHH Assessment No 02			
Substance: Mixture B			
How is the substance to be used? (including activity): To be used as a wetting agent for spray application			
Hazardous Substances used or present: None	Hazards: Irritant 	Exposure: Eyes, Inhalation, Skin Contact, Ingestion    	
People at risk: Employees, Visitors			
Elimination No	Substitution No	Engineering controls Good general ventilation 	P.P.E. CleanBody covering Gloves  
First aid measures: Eye Contact: Irrigate thoroughly with water for at least 15 minutes. Consult a physician if irritation persists Skin Contact: Wash off with soap and water, remove contaminated clothing Ingestion: Do not induce vomiting. Call a physician. Inhalation: Remove to fresh air. In all cases seek immediate medical advice.			
     			

Maintenance controls:

In the Event of Fire

Recommended extinguishing media: water, foam, dry chemical, carbon dioxide.

Handling & Storage.

When using do not eat, drink or smoke










Wash hands thoroughly after handling or contact

Thoroughly clean equipment after use

Wash contaminated clothing before re-use

Store in a cool, dry, well ventilated place in the original container.

Keep out of reach of children

 No Food or Drink Permitted in Area	 Washing facilities	 Thoroughly clean equipment after use	 Launder contaminated clothing	 Do not empty into drains	 Control amounts used	
 Spillages Cleared Up Immediately	 Prevent Spillages	 Correct storage facilities	 Natural Ventilation Provided	 Containers Suitably Labelled	 Keep in a cool place	 Store dry

Information, instruction & training: Site Manager to give toolbox talks

 Training provided	 Toolbox talks
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Action required:

Monitor and reassess as required

Person responsible:

Signature:

Date of signature:



5.4 Incident Report Form

A copy of this form must be returned to the Company Health and Safety Manager after completion. A copy will be included in the Monthly Health and Safety Managers Report and the original kept in the Construction Phase Health and Safety Plan.

Detail of Person Completing This Form

Name in Block Capitals..... Date.....
Position in Company/Contractor.....
Company Name/Site Address.....
Your Contact Telephone Number.....

General Details of Incident or Potential Hazard

Describe what happened or what could possibly happen.

.....
.....
.....

Where Did The Incident Happen?

.....
.....
.....

What Can We Do To Make Sure This Is Correctly Managed?

Please tell us how you think we can control this in the future.

.....
.....
.....
.....

Calibration of a Hand Held Applicator

1. Record time taken to spray 100 metres.
2. Record amount of water sprayed into jug in one minute.
3. Measure swath width with nozzle held at a comfortable height.

1. Record Information Here.

Seconds to Walk 100m	Flow Rate in Litres (l)	Swath Width in Metres (m)

2. Convert Walking Speed into Kilometres Per Hour (km/h).

360	Seconds to Walk 100m	Walking Speed (km/h)
360	÷	=

3. Calculate Volume Sprayed Per Hectare.

600	Flow Rate in Litres (l)	Swath Width in Metres (m)	Walking Speed (km/h)	Volume Sprayed Per Hectare (l/ha)
600	×	÷	÷	=

4. Calculate Area to be Sprayed.

Lenth in Metres (m)	Width in Metres (m)	Area in Square Metres (m ²)
×	=	=

5. Calculate Total Amount of Liquid for Area.

Area in Square Metres (m ²)	Size of Hectare 10,000m ²	Volume Sprayed Per Hectare (l/ha)	Total Amount of Liquid needed for area (l)
÷	10000	×	=

6. Calculate Amount of Concentrate for Area.

Area in Square Metres (m ²)	Size of Hectare 10,000m ²	Concentrate required for 1 Hectare (l/ha)	Amount of Concentrate needed for area (l)
÷	10000	×	=

7. Calculate Amount of Water Needed for Area.

Total Amount of Liquid needed for area (l)	-	Amount of Concentrate needed for area (l)	=
	-		=

+

Amount of Water needed for area (l)

To convert litres to millilitres multiply by 1000
 litres x 1000 = millilitres