Forward Pesticide Application Program

North East Sydney

Period of coverage to:

31 December 2019

Downer EDI Works Pty Ltd
ABN 66 008 709 608
www.downergroup.com

Contents

General Information

Pesticide use is used for weed and vegetation control.

The pesticides used is a standard mixture of

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

All pesticide spraying is programmed between:

- Sunday to Friday
- 8pm – 5am

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

Information Line: 1300 776 069

Warnings:

Round-up Bioactive Herbicide

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

Lynx WG

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

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

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

Forward Program

NIGHT SPRAYING PROGRAM
JULY - DECEMBER 2019

PLATEAUTREES
Safety. Quality. Progress.

					PROGRAMMED DATES**					
Run #	Road	From	To	Verge / Median	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
2	Belgrave Street	West Espanade	Raglon St	V	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Belgrave Street	West Espanade	Raglon St	M	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Sydney Rd	West St	BBCD	V	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Sydney Rd	West St	BBCD	M	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Pittwater Road	Raglan St	Barrenjoey Road	V	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Pittwater Road	Raglan St	Barrenjoey Road	M	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Burnt Bridge Creek Dev, Condamine Street	Sydney Road	Pittwater Road	V	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Burnt Bridge Creek Dev, Condamine Street	Sydney Road	Pittwater Road	M	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Burnt Bridge Creek Dev, Condamine Street			GB	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Barrenjoey Rd, Beach Rd, Ocean Rd	Mona Vale Road	Palm Beach	V	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
2	Barrenjoey Rd, Beach Rd, Ocean Rd	Mona Vale Road	Palm Beach	M	02-Jul-19	no spray month	04-Sep-19	no spray month	05-Nov-19	no spray month
3	Miller Street, Falcon Street	Pacific Highway	Warringah Freeway	V	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Miller Street, Falcon Street	Pacific Highway	Warringah Freeway	M	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Military Road, Spit Road	Warringah Freeway	Sydney Road	V	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Military Road, Spit Road	Warringah Freeway	Sydney Road	M	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Miller Street, Strathallen Avenue, Sailors Bay Road, Eastern Valley Way	Falcon Street	Babbage Road	V	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Miller Street, Strathallen Avenue, Sailors Bay Road, Eastern Valley Way	Falcon Street	Babbage Road	M	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Penshurst St, Willoughby Rd	Warringah Freeway	Boundary Road	V	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
3	Penshurst St, Willoughby Rd	Warringah Freeway	Boundary Road	M	03-Jul-19	no spray month	05-Sep-19	no spray month	06-Nov-19	no spray month
4	Warringah Road, Boundary Street	Pittwater Road	Pacific Highway	V	06-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
4	Warringah Road, Boundary Street	Pittwater Road	Pacific Highway	M	04-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
4	Wakehurst Parkway	Burnt Bridge Creek Dev.	Pittwater Road	V	04-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
4	Wakehurst Parkway	Burnt Bridge Creek Dev.	Pittwater Road	M	04-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
4	Forest Way	Warringah Road	Mona Vale Road	V	04-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
4	Forest Way	Warringah Road	Mona Vale Road	M	04-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
4	Forest Way	Warringah Road	Mona Vale Road	GB	04-Jul-19	no spray month	10-Sep-19	no spray month	07-Nov-19	no spray month
5	Pittwater Road, McCarrs Creek Road	Barrenjoey Road	Mona Vale Road	V	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Pittwater Road, McCarrs Creek Road	Barrenjoey Road	Mona Vale Road	M	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Galston Road	Pacific Highway	Old Northern Road	V	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Galston Road	Pacific Highway	Old Northern Road	M	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Bobbin Head Road	Toll House	F3 Freeway	V	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Bobbin Head Road	Toll House	F3 Freeway	M	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Kur ring gai Chase Road	F3 Freeway	Pacific Highway	V	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Kur ring gai Chase Road	F3 Freeway	Pacific Highway	M	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	West Head Road	Toll House	Commodore Heights	V	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	West Head Road	Toll House	Commodore Heights	M	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Lib Gen San Martin Drive	Mc Carrs Creek Road	McCarrs Creek Road	V	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
5	Lib Gen San Martin Drive	Mc Carrs Creek Road	McCarrs Creek Road	M	07-Jul-19	no spray month	11-Sep-19	no spray month	10-Nov-19	no spray month
6	Pacific Highway	High Street	Peats Ferry Bridge	V	08-Jul-19	no spray month	12-Sep-19	no spray month	11-Nov-19	no spray month
6	Pacific Highway	High Street	Peats Ferry Bridge	M	08-Jul-19	no spray month	12-Sep-19	no spray month	11-Nov-19	no spray month
7	Castle Hill Road	Thompsons Corner	Rogans Corner	V	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Castle Hill Road	Thompsons Corner	Rogans Corner	M	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Boundary Road	Pennant Hills Road	New Line Road	V	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Boundary Road	Pennant Hills Road	New Line Road	M	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Beecroft Road	Epping Bridge	Pennant Hills Road	V	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Beecroft Road	Epping Bridge	Pennant Hills Road	M	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Beecroft Road			GB	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month

NIGHT SPRAYING PROGRAM
JULY - DECEMBER 2019

PLATEAUTREES
Safety. Quality. Progress.

					PROGRAMMED DATES**					
Run #	Road	From	To	Verge / Median	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
7	Carlingford Road	Beecroft Road	Pennant Hills Road	V	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Carlingford Road	Beecroft Road	Pennant Hills Road	M	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Carlingford Rd/Pennant Hills Rd			GB	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	New Line Road	Boundary Road	Old Northern Road	V	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	New Line Road	Boundary Road	Old Northern Road	M	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	New Line Road			GB	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Old Northern Road	Windsor Road	Galston Road	V	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
7	Old Northern Road	Windsor Road	Galston Road	M	09-Jul-19	no spray month	15-Sep-19	no spray month	12-Nov-19	no spray month
8	Great Western Hwy & Church St	Parramatta Road	Cumberland Highway	V	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Great Western Hwy & Church St	Parramatta Road	Cumberland Highway	M	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Church Street, Windsor Road	Victoria Road	Showground Road	V	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Church Street, Windsor Road	Victoria Road	Showground Road	M	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Showground Road	Old Northern Road	Windsor Road	M	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Showground Road	Old Northern Road	Windsor Road	V	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Showground Road			GB	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Windsor Rd			GB	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Cumberland Highway	Great Western Hwy	Old Windsor Road	V	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Cumberland Highway	Great Western Hwy	Old Windsor Road	M	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
8	Cumberland Highway			GB	10-Jul-19	no spray month	16-Sep-19	no spray month	13-Nov-19	no spray month
9	Silverwater Road	Parramatta Road	Kissing Point Road	V	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
9	Silverwater Road	Parramatta Road	Kissing Point Road	M	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
9	Silverwater Road			GB	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
9	Burns Bay Rd	Victoria Road	Epping Road	V	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
9	Burns Bay Rd	Victoria Road	Epping Road	M	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
9	Victoria Road	Iron Cove Bridge	Church Street	V	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
9	Victoria Road	Iron Cove Bridge	Church Street	M	11-Jul-19	no spray month	17-Sep-19	no spray month	14-Nov-19	no spray month
10	Delhi Rd, Millwood Ave, Fuller	Pacific Highway	Epping Road	V	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Delhi Rd, Millwood Ave, Fuller	Pacific Highway	Epping Road	M	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Marsden Road	Victoria Road	Pennant Hills Road	V	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Marsden Road	Victoria Road	Pennant Hills Road	M	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Rutledge St/Lawson St/Brush Rd/First Ave	Blaxland Road	Marsden Road	V	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Rutledge St/Lawson St/Brush Rd/First Ave	Blaxland Road	Marsden Road	M	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Great North Road, Lyons Road & Westbourne St	Parramatta Road	Victoria Road	V	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Great North Road, Lyons Road & Westbourne St	Parramatta Road	Victoria Road	M	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Stewart Street, Kissing Point Road	Marsden Road	Victoria Road	V	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Stewart Street, Kissing Point Road	Marsden Road	Victoria Road	M	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Stewart Street, Kissing Point Road			GB	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Paterson St/Gipps St/Queens Rd/Ramsay	Wattle Street	Concord Road	V	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
10	Paterson St/Gipps St/Queens Rd/Ramsay	Wattle Street	Concord Road	M	14-Jul-19	no spray month	19-Sep-19	no spray month	17-Nov-19	no spray month
11-TMA	James Ruse Drive	Parramatta Road	Pennant Hills Road	V	15-Jul-19	no spray month	22-Sep-19	no spray month	18-Nov-19	no spray month
11-TMA	James Ruse Drive	Parramatta Road	Pennant Hills Road	M	15-Jul-19	no spray month	22-Sep-19	no spray month	18-Nov-19	no spray month
11-TMA	James Ruse Drive			GB	15-Jul-19	no spray month	22-Sep-19	no spray month	18-Nov-19	no spray month
11-TMA	Pennant Hills Rd	James Ruse Dve	Pacific Highway	V	15-Jul-19	no spray month	22-Sep-19	no spray month	18-Nov-19	no spray month
11-TMA	Pennant Hills Rd	James Ruse Dve	Pacific Highway	M	15-Jul-19	no spray month	22-Sep-19	no spray month	18-Nov-19	no spray month
12-TMA	Warringah Freeway, Gore Hill Freeway	Lavendar Street	Pacific Highway	V	16-Jul-19	no spray month	23-Sep-19	no spray month	19-Nov-19	no spray month
12-TMA	Warringah Freeway, Gore Hill Freeway	Lavendar Street	Pacific Highway	M	16-Jul-19	no spray month	23-Sep-19	no spray month	19-Nov-19	no spray month
12-TMA	Warringah Freeway, Gore Hill Freeway			GB	16-Jul-19	no spray month	23-Sep-19	no spray month	19-Nov-19	no spray month

NIGHT SPRAYING PROGRAM
JULY - DECEMBER 2019

PLATEAUTREES
Safety. Quality. Progress.

					PROGRAMMED DATES**					
Run #	Road	From	To	Verge / Median	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
13-TMA	M1 Fwy				17-Jul-19	no spray month	25-Sep-19	no spray month	20-Nov-19	no spray month
13-TMA	M1 Fwy				17-Jul-19	no spray month	25-Sep-19	no spray month	20-Nov-19	no spray month
14-TMA	Mona Vale Road *90km section, need TMA*	Richmond Ave	Forest Way	V	18-Jul-19	no spray month	26-Sep-19	no spray month	21-Nov-19	no spray month
14-TMA	Mona Vale Road *90km section, need TMA*	Richmond Ave	Forest Way	M	18-Jul-19	no spray month	26-Sep-19	no spray month	21-Nov-19	no spray month
1	Parramatta Road	Wattle Street	Church Street	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Parramatta Road	Wattle Street	Church Street	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Lane Cove Road, Ryde Road	Blaxland Road	Pacific Highway	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Lane Cove Road, Ryde Road	Blaxland Road	Pacific Highway	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Homebush Bay Drive, Church Street	Parramatta Road	Blaxland Road	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Homebush Bay Drive, Church Street	Parramatta Road	Blaxland Road	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Australia Ave			GB	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Concord Road	Parramatta Road	Homebush Bay Drive	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Concord Road	Parramatta Road	Homebush Bay Drive	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Epping Road	Pacific Highway	Epping Bridge	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Epping Road			GB	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Epping Road	Pacific Highway	Epping Bridge	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Mona Vale Road	Pacific Hwy	Richmond Ave	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Mona Vale Road	Pacific Hwy	Richmond Ave	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Mona Vale Road ***(remember red zone area between Tumburra & Bahi Temple)*	Forest Way	Pittwater Road	V	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month
1	Mona Vale Road ***(remember red zone area between Tumburra & Bahi Temple)*	Forest Way	Pittwater Road	M	22-Jul-19	no spray month	29-Sep-19	no spray month	24-Nov-19	no spray month

SDS

SDS Lynx WG

Round-up Bioactive Herbicide

Garlon Herbicide

Section 1 - Identification of The Material and Supplier

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

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

Chemical nature: Metsulfuron methyl is a sulfonylurea derivative.

Trade Name: **Lynx WG Herbicide**

Product Use: Agricultural herbicide for use as described on the product label.

Creation Date: **May, 2005**

This version issued: **July, 2016** and is valid for 5 years from this date.

Poisons Information Centre: Phone 13 1126 from anywhere in Australia

Section 2 - Hazards Identification

Statement of Hazardous Nature

This product is classified as: Not classified as hazardous according to the criteria of SWA Australia.

Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

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

GHS Signal word: NONE. Not hazardous.

PREVENTION

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

RESPONSE

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

STORAGE

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

DISPOSAL

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

Emergency Overview

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

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m^3)	STEL (mg/m^3)
Metsulfuron methyl	74223-64-6	60	not set	not set
Other non hazardous ingredients	secret	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
Skin Contact: Gently brush away excess solids. Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.
Eye Contact: Quickly and gently brush particles from eyes. No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes.
Ingestion: If product is swallowed or gets in mouth, wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.
Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.
Extinguishing Media: Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.
Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade.

Flash point:	Not flammable.
Upper Flammability Limit:	No data.
Lower Flammability Limit:	No data.
Autoignition temperature:	No data.
Flammability Class:	No data.

Section 6 - Accidental Release Measures

Accidental release: Minor spills do not normally need any special cleanup measures. In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective glasses and, preferably, goggles. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask.
Stop leak if safe to do so, and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.
Storage: Keep containers dry and away from water. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

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

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

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

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

The ADI for Metsulfuron methyl is set at 0.01mg/kg/day. The corresponding NOEL is set at 1mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, June 2014.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.
Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that dusts are minimised.
Eye Protection: Eye protection such as protective glasses or goggles is recommended when this product is being used.
Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.
Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC.
Respirator: If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Off-white granulated solid.
Odour:	No odour.
Boiling Point:	No specific data. Expected to decompose before boiling.
Freezing/Melting Point:	No specific data. Solid at normal temperatures.
Volatiles:	No specific data. Expected to be low at 100°C.
Vapour Pressure:	No data.
Vapour Density:	No data.
Specific Gravity:	No data.
Water Solubility:	Wettable
pH:	No data.
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Autoignition temp:	No data.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.
Conditions to Avoid: Containers should be kept dry. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.
Incompatibilities: strong oxidising agents.
Fire Decomposition: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly.
Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Toxicity: Acute Toxicity: Metsulfuron methyl has very low toxicity in mammals. LD_{50} is > 5,000 mg/kg in rats. It has low dermal toxicity in tests with rabbits, with an LD_{50} > 2,000 mg/kg, and low inhalation toxicity in rats, with a median lethal concentration in air of greater than 5 mg/L air. Moderate but reversible eye irritation has been seen in rabbits, and mild skin irritation has been observed in guinea pigs. No skin sensitization has been observed in guinea pigs.
Chronic Toxicity: A 2-year feeding study in rats resulted in a NOEL of 25.0 mg/kg/day (or 500 ppm in feed), based on decreased body weights seen at 250 mg/kg/day (5,000 ppm) which was the highest dose tested. EPA has based its reference dose (0.25 mg/kg/day) on this study.
Reproductive Effects: Multigenerational studies in rats did not result in any reproductive effects at the highest doses tested of 250 mg/kg/day.

Teratogenic Effects: Metsulfuron-methyl did not cause developmental abnormalities to offspring of rats and rabbits fed 1000 mg/kg/day and 700 mg/kg/day respectively during gestation. These doses represent the highest dose tested for each experiment.
Mutagenic Effects: The weight of evidence presented by a battery of tests to measure mutagenicity and other adverse effects on DNA indicates that Metsulfuron-methyl is neither mutagenic nor genotoxic.
Carcinogenic Effects: Negative for rats and mice in laboratory tests, but studies may not have been at maximum tolerated dose.
Organ Toxicity: Metsulfuron-methyl is a moderate eye irritant.
Fate in Humans and Other Animals: The chemical is broken down quickly and eliminated from the body. In tests with radio labelled Metsulfuron-methyl in rats, the excretion half-lives ranged from 9 to 16 hours and 23 to 29 hours for rats administered low and high doses, respectively. It did not bioaccumulate in fish.

Potential Health Effects

Inhalation
Short term exposure: Significant inhalation exposure is considered to be unlikely. Long term inhalation of high amounts of any nuisance dust may overload lung clearance mechanism. Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.
Long Term exposure: No data for health effects associated with long term inhalation.

Skin Contact:
Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be mildly irritating, but is unlikely to cause anything more than mild discomfort which should disappear once contact ceases.
Long Term exposure: No data for health effects associated with long term skin exposure.

Eye Contact:
Short term exposure: Exposure via eyes is considered to be unlikely. This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.
Long Term exposure: No data for health effects associated with long term eye exposure.

Ingestion:
Short term exposure: Significant oral exposure is considered to be unlikely. However, this product may be mildly irritating to mucous membranes but is unlikely to cause anything more than mild transient discomfort.
Long Term exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:
SWA: No significant ingredient is classified as carcinogenic by SWA.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 12 - Ecological Information

Breakdown of Chemical in Soil and Groundwater: The breakdown of Metsulfuron-methyl in soils is largely dependant on soil temperature, moisture content, and pH. The chemical will degrade faster under acidic conditions, and in soils with higher moisture content and higher temperature. The chemical has a higher mobility potential in alkaline soils than in acidic soils, as it is more soluble under alkaline conditions. Metsulfuron-methyl is stable to photolysis, but will break down in ultraviolet light. Half-life estimates for Metsulfuron-methyl in soil are wide ranging from 14 - 180 days, with an overall average of reported values of 30 days. Reported half-life values (in days) for soil include: clay - 178 ; sandy loam - 102 ; clay loam - 70 , 14-28 , 14-105 ; silty loam - 120-180.
Breakdown of Chemical in Surface Water: The dissipation time for Metsulfuron-methyl was investigated in a mixed wood/boreal forest lake. The DT_{50} or length of time required for half of the material to dissipate in water was >84 days when high concentrations of Metsulfuron-methyl were applied, and 29.1 days at concentrations that might be expected if the chemical is applied for forestry uses. It is stable to hydrolysis at neutral and alkaline pHs, and has a half-life of 3 weeks at pH 5.0, 25°C and >30 days at 15°C.
Breakdown of Chemical in Vegetation: Metsulfuron-methyl is rapidly taken up by plants at the roots and on foliage. The chemical is translocated throughout the plant, but is not persistent. It is broken down to non-herbicidal products in tolerant plants.

Section 13 - Disposal Considerations

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

Section 14 - Transport Information

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

Section 15 - Regulatory Information

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

Section 16 - Other Information

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

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition
AICS	Australian Inventory of Chemical Substances
CAS number	Chemical Abstracts Service Registry Number
Hazchem Code	Emergency action code of numbers and letters that provide information to emergency services especially firefighters
IARC	International Agency for Research on Cancer
SWA	Safe Work Australia, formerly ASCC and NOHSC
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

Contact Points:

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

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

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

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

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

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

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document “Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice” (December 2011)

http://www.kilford.com.au/ Phone (02)9251 4532

Nufarm Roundup Biactive

Downer Infrastructure

Chemwatch Hazard Alert Code: **2**

Chemwatch: **7079-07**
Version No: **9.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **21/11/2018**
Print Date: **04/03/2019**
L.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Nufarm Roundup Biactive
Synonyms	Not Available
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains glyphosate isopropylamine salt and glyphosate acid)
Other means of identification	Not Available

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

Relevant identified uses	Water soluble herbicide for non selective control of many annual and perenial weeds in certain situations.

Details of the supplier of the safety data sheet

Registered company name	**Downer Infrastructure**
Address	468 St Kilda Road VIC 3004 Australia
Telephone	0386450800
Fax	Not Available
Website	www.downergroup.com
Email	info@downergroup.com

Emergency telephone number

Association / Organisation	**Not Available**
Emergency telephone numbers	**000**
Other emergency telephone numbers	**Not Available**

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	
Toxicity	1	
Body Contact	2	
Reactivity	1	
Chronic	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Chronic Aquatic Hazard Category 2
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)

SIGNAL WORD	**WARNING**

Hazard statement(s)

Continued...

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P271	Use only outdoors or in a well-ventilated area.
P261	Avoid breathing mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P362	Take off contaminated clothing and wash before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
Not Available	5-15	alkyl polyglycoside surface active agent, proprietary
1071-83-6		glyphosate acid
Not Available		present as
38641-94-0	30.76	glyphosate isopropylamine salt
7732-18-5	>50	water

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Immediately hold eyelids apart and flush the eye continuously with 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. ▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▸ Transport to hospital or doctor without delay. ▸ 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.

Continued...

Treatment for significant glyphosate exposures

The presence of a phosphono-group in the structure has been incorrectly interpreted as an organophosphate which suggests cholinesterase inhibition in poisoning cases. Retrospective studies on glyphosate poisoning have shown atropine and pralidoxime been mistakenly administered to counteract such poisoning cases.

There is no available antidote for glyphosate poisoning and treatment is largely symptomatic is nature.

In any significant ingestion exposure, the acute syndrome of glyphosate/ surfactant toxicity may occur within the first 24 hours of ingestion and may progress rapidly. These cases of significant ingestion, in particular those greater than a mouthful (> 0.5 ml/kg) of larger than 41% glyphosate concentrations SHOULD BE EVALUATED BY A PHYSICIAN AND CONSIDERED FOR HOSPITAL ADMISSION.

Prevention of absorption
On admission to a hospital, normally, further absorption of the ingested herbicide would be prevented by performing gastric lavage, It is usually considered if no significant spontaneous vomiting has occurred. Gastric lavage may be very effective if performed within one to two hours post ingestion.

However, if a co-ingestant has pharmacologic properties that slows gastrointestinal movement, lavage may be indicated even after a prolonged post-ingestion time.

Activated charcoal is also given to absorb remaining glyphosate. Cathartics speed gastrointestinal transit time and decrease the time that the drug or chemical is available for absorption. Cathartics also hasten the elimination of the charcoal/drug complex in the GI tract.

Enhanced elimination
Glyphosate is excreted very well by the kidneys. Thus to increase the elimination of the glyphosate, adequate urine flow will ensure the rapid elimination of the glyphosate. This elimination can be enhanced by a technique known as forced diuresis.

Monitoring of the blood pressure
A poisoned patient would normally be monitored for signs of haemodynamic or blood pressure instability. If the patient has a reduced blood pressure, intravenous fluids administration would be instituted to ensure adequate blood volume. If the blood pressure reduction is severe, then blood vessel vasoconstrictors (otherwise known as vasopressors) would be given to maintain the blood pressure. This would include the administration of drugs such as dopamine, noradrenaline, adrenaline or phenylephrine, which would raise the blood pressure rapidly.

http://www.pm2.usm.my/mainsite/bulletin/sun/1997/sun14.html

Dr. Mohd. Isa Abd. Majid

Toxicology Laboratory at the National Poison Centre, Universiti Sains Malaysia, 11800 Minden, Penang.
A 1991 survey of 93 attempted suicides by drinking undiluted Roundup type preparations noted 7 deaths within hours of intakes of 85 to 200 ml. Severe effects shown were pulmonary dysfunction, kidney failure, coma, hypotension requiring pressor amines, repeated seizures, cardiac arrest. 13 of 93 showed only mild effects, nausea, vomiting and recovered within 24 hours.

The physicochemical properties of phosphonic acid compounds, notably their high polarity, charge and complexing power, suggests that they will not be readily absorbed from the gastrointestinal tract. This is supported by experimental data which confirm that absorption after oral exposure is low, averaging 2-7% in animals and 2-10% in humans. Faecal elimination of unabsorbed material predominates after ingestion (up to 90% of dose). Renal clearance of any material absorbed from the gut is rapid, with urinary half-lives of 5 hr and 70 hr reported. This second phase of excretion may represent mobilization of material. Initially sequestered by bone, since deposition studies have shown preferential accumulation of these substances in the epiphyseal plate and other regions of the long bones *in vivo*. Around 25% of material absorbed following an oral dose is excreted unchanged in urine, with the reminder converted to an N-methyl derivative or unidentified product(s). Inconsistent data indicate conversion to carbon dioxide is negligible. More pronounced accumulation is observed in bone after i.v. or i.p. injection, reflecting enhanced bioavailability following exposure by these non-physiological routes. Based on the available data, no major differences appear to exist between animals and humans with regard to the absorption, distribution and elimination of phosphonic acid compounds *in vivo*.

ATMP acid and ATMP salts are poorly absorbed from the gut and rapidly eliminated after oral and i.v. administration. Faeces represent the principal route of excretion after oral administration with trace amounts present in urine and carcass. Faeces elimination was, in contrast, comparatively insignificant after i.v. injection, with the majority of the dose present either in urine or carcass. Bone is the only tissue that exhibits deposition of test-substance derived radioactivity. Absorption after dermal exposure was very low and only trace amounts were found in urine, faeces and carcass. The main route of excretion was via the urine in the first 24 hours following application.

Gastro-intestinal absorption of HEDP acid and HEDP salts is rat, dog, rabbit and monkey is low, with the majority of the dose excreted in faeces and a substantial amount excreted via the urine. The remainder of the test substance derived radioactivity deposited mainly in the bones. After i.v. or i.p. injection, internal body burdens increased, presumably reflecting greater systemic availability

Very limited information is available on the absorption, distribution, metabolism and elimination of DTPMP acid and DTPMP salts.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

Special hazards arising from the substrate or mixture

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

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. ▸ Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	▸ Non combustible. ▸ Not considered a significant fire risk, however containers may burn. Decomposes on heating and produces: carbon dioxide (CO_2) nitrogen oxides (NOx) phosphorus oxides (POx) other pyrolysis products typical of burning organic material.
HAZCHEM	•3Z

Continued...

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Environmental hazard - contain spillage. ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. ▸ Control personal contact with the substance, by using protective equipment. ▸ Contain and absorb spill with sand, earth, inert material or vermiculite.
Major Spills	Environmental hazard - contain spillage. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves. ▸ Prevent, by any means available, spillage from entering drains or water course.

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. ▸ Avoid contact with moisture. ▸ **DO NOT** allow clothing wet with material to stay in contact with skin
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry, well-ventilated area. ▸ Store away from incompatible materials and foodstuff containers.

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. ▸ **DO NOT** use mild steel or galvanised containers
Storage incompatibility	Do NOT mix, store or apply the material/ formulations of the glyphosate, its salts or compounds in galvanised steel or unlined steel (except stainless steel), containers or spray tanks. The material/ formulations of the material/ spay solutions react with such containers and tanks to produce hydrogen gas which forms gas mixtures which may flash or explode when exposed to open flame, spark, welder torch, lighted cigarette or other sources. Glyphosate preparations are considered to be relatively "safe to use" as weedkiller herbicide. However any weedkiller, by its action of killing plant life cannot be completely safe and must be used with care and not be sprayed about indiscriminately. Reacts with mild steel, galvanised steel and zinc to produce hydrogen (H2). ▸ Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Nufarm Roundup Biactive	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
glyphosate acid	Not Available	Not Available
glyphosate isopropylamine salt	Not Available	Not Available
water	Not Available	Not Available

MATERIAL DATA

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. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Continued...

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. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
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 The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Personal hygiene is a key element of effective hand care.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ P.V.C. apron. ▸ Barrier cream.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
Nufarm Roundup Biactive

Material	CPI
BUTYL	A
NEOPRENE	A
VITON	A
NATURAL RUBBER	C
PVA	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

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

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	A-AUS / Class1	-
up to 50	1000	-	A-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	A-2
up to 100	10000	-	A-3
100+			Airline**

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

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Green liquid; mixes with water.

Physical state	Liquid	**Relative density (Water = 1)**	1.17
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Applicable
pH (as supplied)	Not Available	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	-10	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	*>100 (water)	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Applicable	**Taste**	Not Available

Continued...

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)**	*~50 (water)
Vapour pressure (kPa)	Not Applicable	**Gas group**	Not Available
Solubility in water	Miscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ 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	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. The phosphonic acid compounds ATMP, HEDP, DTPMP and their salts can be considered to be of low to moderate acute oral toxicity. ATMP acid was of moderate acute toxicity to mammals. The acute oral LD50 in rat was determined to be 2910 mg active acid/kg bw. In comparison, the tetrasodium and pentasodium salt of ATMP were less acutely toxic with LD50 values of 8610 and 7120 mg active salt/kg bw, respectively. Glyphosate is classified by IARC as "Probably Carcinogenic to Humans"(Group 2A, 2016) In making this overall evaluation, the IARC Working Group noted that the mechanistic and other relevant data support the classification of glyphosate in Group 2A. In addition to limited evidence for the carcinogenicity of glyphosate in humans and sufficient evidence for the carcinogenicity of glyphosate in experimental animals, there is strong evidence that glyphosate can operate through two key characteristics of known human carcinogens, and that these can be operative in humans. Specifically: ·There is strong evidence that exposure to glyphosate or glyphosate-based formulations is genotoxic based on studies in humans in vitro and studies in experimental animals. One study in several communities in individuals exposed to glyphosate-based formulations also found chromosomal damage in blood cells; in this study, markers of chromosomal damage (micronucleus formation) were significantly greater after exposure than before exposure in the same individuals.
Skin Contact	Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. The material may accentuate any pre-existing dermatitis condition Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. The acids and salts of ATMP, HEDP, and DTPMP can be considered to be of low acute dermal toxicity. ATMP acid and its tetra- and pentasodium salt were practically non-toxic with LD50 values exceeding the concentrations tested. Dermal LD50 values were determined to be greater than 6310 mg active acid/kg bw. No dermal toxicity was observed for HEDP acid and its salts at the highest tested concentrations tested of 1650 mg active salt/kg bw. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation. The observed eye irritation potential of the phosphonic acid compounds ATMP, HEDP, DTPMP and their salts, ranged from practically non-irritating to severely irritating with irreversible effects. ATMP acid tested as neat product was considered to be moderately irritating to rabbit eyes, whereas the tetra- and pentasodium salt which were tested in aqueous solutions containing around 40 % active salt were found to be practically non-irritating. These products were evaluated without immediate rinsing the eye following application. All test animals were free of symptoms by the end of the observation period.
Chronic	Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Exposure to the material may cause concerns for human fertility, on the basis that similar materials provide some evidence of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects. . Glyphosate is classified by IARC as "Probably Carcinogenic to Humans"(Group 2A, 2016) In making this overall evaluation, the IARC Working Group noted that the mechanistic and other relevant data support the classification of glyphosate in

Continued...

	Group 2A. In addition to limited evidence for the carcinogenicity of glyphosate in humans and sufficient evidence for the carcinogenicity of glyphosate in experimental animals, there is strong evidence that glyphosate can operate through two key characteristics of known human carcinogens, and that these can be operative in humans. Specifically: ·There is strong evidence that exposure to glyphosate or glyphosate-based formulations is genotoxic based on studies in humans in vitro and studies in experimental animals. One study in several communities in individuals exposed to glyphosate-based formulations also found chromosomal damage in blood cells; in this study, markers of chromosomal damage (micronucleus formation) were significantly greater after exposure than before exposure in the same individuals. For glyphosates: Exposure of male farmers to glyphosate-based herbicides was associated with an increase in miscarriage and premature birth in farm families. Glyphosate killed cultured human placental cells at concentrations far below those used in agriculture practice. Moreover this study found that a commercial preparation containing glyphosate, Roundup, was at least twice as toxic as glyphosate alone. Roundup's main adjuvant is the surfactant tallow ethoxylated which helps penetration of plant cell walls. Long term exposure to organophosphonate chelating agents may cause adverse effects. Rats fed on aminotri(methylenephosphonic acid) (ATMP), for up to 24 months, exhibited reduced body weight and changes in liver, spleen and kidney weights. No adverse histologic. haematologic, biochemical or urinological effects were seen.

	TOXICITY	IRRITATION
Nufarm Roundup Biactive	Dermal (Rabbit) LD50: >5000 mg/kg*[2]	Not Available
	Inhalation (Rat) LC50: >1.3 mg/l/4h*[2]	
	Oral (Rat) LD50: >5000 mg/kg*[2]	
glyphosate acid	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 2000 mg/kg[2]	Not Available
	Inhalation (rat) LC50: >12.2 mg/l/4H[2]	
	Oral (rat) LD50: 3860 mg/kg[2]	
glyphosate isopropylamine salt	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: 7500 mg/kg[2]	Not Available
	Oral (rat) LD50: 4320 mg/kg[2]	
water	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: >90000 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*

GLYPHOSATE ACID	For ATMP (aminotris(methylenephosphonic acid) and its salts: ATMP acid, Na salt and 6Na salts cause serious eye irritation whereas ATMP.2Na to 5Na salts are not classified for eye irritation. Low pH (<2) would predict that ATMP acid should be severely irritant or corrosive to skin as well as eyes, however available existing animal data indicating non-classification take precedence in accordance with EU regulation (EC) 1272/2008 criteria ATMP acid and some of its sodium salts may cause corrosion to metals to varying degrees dependent upon the pH/degree of neutralization. Acute Toxicity: Oral/ inhalation/ dermal Not classified for acute toxicity, based on available studies results on oral and dermal routes of exposure. In the rat, ATMP is poorly absorbed from the gut and rapidly eliminated after oral and i.v. For phosphonic acid and its salts: Phosphonic acids and their salts have not been shown to induce skin sensitisation in guinea pigs. None of the studies however follow OECD guidelines or were GLP compliant. However, only the investigation on the disodium salt of HEDP was recorded to a standard sufficient to support the robustness and reliability of the study design and conduct. Most studies were not reported in great detail, but they stated the adherence to well established protocol such as Buehler or Magnusson and Kligman.
WATER	No significant acute toxicological data identified in literature search.
GLYPHOSATE ACID & GLYPHOSATE ISOPROPYLAMINE SALT	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

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

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

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Nufarm Roundup Biactive					

Continued...

	Not Available	Not Available	Not Available	Not Available	Not Available

glyphosate acid

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.3mg/L	4
EC50	48	Crustacea	2.95mg/L	4
EC50	96	Algae or other aquatic plants	=1.3mg/L	1
BCFD	96	Crustacea	10mg/L	4
NOEC	840	Algae or other aquatic plants	0.0069mg/L	4

glyphosate isopropylamine salt

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	1.3mg/L	4
EC50	48	Crustacea	3mg/L	4
EC50	96	Algae or other aquatic plants	1.05mg/L	4
NOEC	168	Algae or other aquatic plants	0.05mg/L	4

water

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	897.520mg/L	3
EC50	96	Algae or other aquatic plants	8768.874mg/L	3

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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*

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and /or delayed, to the structure and/ or functioning of natural ecosystems.
For ATMP (aminotris(methylenephosphonic acid) and its salts:
Environmental fate:
Based on the relevant physical-chemical properties, the known uses and the fact that it is not readily biodegradable, ATMP and its salts will partition primarily to water and suspended sediments.
ATMP and its salts are not expected to bioaccumulate.
The extremely low vapour pressure and very high water solubility of ATMP and its salts indicate that volatilization is negligible.
Biodegradation Neither readily nor inherently biodegradable
Partially photodegradable over short time period
Bioaccumulation potential Not potentially bioaccumulative (log Kow = -3.53)
PBT / vPvB conclusion Not considered to be either PBT or vPvB
ATMP is a polyphosphonic acid of molecular weight 299.
For phosphonates:
The physico-chemical characteristics determining the health and environmental behaviour of phosphonates are: high water solubility, non-volatility, very low octanol-water partition coefficients, moderate to high sorption coefficients, multi-protic acidity and strong (transition) metal complexation
Environmental fate:
Biodegradation: Orthophosphate has been found to suppress phosphonate utilisation in many microorganisms. Thus organisms preferentially use inorganic phosphate, which may explain the low biodegradability of phosphonates in synthetic test media and natural sewage systems.The classical tests, such as the OECD screening test, BOD20 test or the closed bottle test show only a low degree of ultimate biodegradation of phosphonate derivatives. For ATMP and HEDP a DOC (Dissolved Organic Carbon) removal of 23 - 33 % was observed in an inherent biodegradability test (Zahn-Wellens test), but mineralisation was very low even after long-term incubation. However, several studies have shown that phosphonate degrading bacteria can be found in almost any environment whether soil, activated sludge or river water.

The principal problems of phosphate contamination of the environment relates to eutrophication processes in lakes and ponds. Phosphorus is an essential plant nutrient and is usually the limiting nutrient for blue-green algae. A lake undergoing eutrophication shows a rapid growth of algae in surface waters. Planktonic algae cause turbidity and flotation films.
for glyphosate:
The Australian Acceptable Intake (ADI) of glyphosate for a human is 0.3 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 30 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Comm. Dept. of Human Services and Health, "ADI List", Australian Government Printing Services, May 1994) [NUFARM]
Environmental fate:
Glyphosate is strongly absorbed by some types of soil and becomes immobile; it is very mobile in water and is readily translocated in plants, even downwards. Even at low temperatures glyphosate is degraded in soil and would not be expected to persist from one growing season to the next.
DO NOT discharge into sewer or waterways.
|Rainbow trout: LC50: >989 mg/l/96h;|Carp: LC50: >895 mg/l/96h;|Daphnia: EC50: 675 mg/l/48h;|Algae: EC50: 150 mg/l/84h;

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
glyphosate acid	LOW	LOW
water	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
glyphosate acid	LOW (BCF = 10)
water	LOW (LogKOW = -1.38)

Mobility in soil

Ingredient	Mobility

Continued...

glyphosate acid	LOW (KOC = 18.79)
water	LOW (KOC = 14.3)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: ▸ Reduction ▸ Reuse ▸ Recycling ▸ Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▸ Where in doubt contact the responsible authority. ▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	
HAZCHEM	•3Z

Land transport (ADG)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains glyphosate isopropylamine salt and glyphosate acid)
Transport hazard class(es)	Class: 9 Subrisk: Not Applicable
Packing group	III
Environmental hazard	Environmentally hazardous
Special precautions for user	Special provisions: 274 331 335 375 AU01 Limited quantity: 5 L

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

Air transport (ICAO-IATA / DGR)

UN number	3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. * (contains glyphosate isopropylamine salt and glyphosate acid)
Transport hazard class(es)	ICAO/IATA Class: 9 ICAO / IATA Subrisk: Not Applicable ERG Code: 9L
Packing group	III
Environmental hazard	Environmentally hazardous
Special precautions for user	Special provisions: A97 A158 A197 Cargo Only Packing Instructions: 964 Cargo Only Maximum Qty / Pack: 450 L

Continued...

Passenger and Cargo Packing Instructions	964
Passenger and Cargo Maximum Qty / Pack	450 L
Passenger and Cargo Limited Quantity Packing Instructions	Y964
Passenger and Cargo Limited Maximum Qty / Pack	30 kg G

Sea transport (IMDG-Code / GGVSee)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains glyphosate isopropylamine salt and glyphosate acid)
Transport hazard class(es)	IMDG Class: 9 IMDG Subrisk: Not Applicable
Packing group	III
Environmental hazard	Marine Pollutant
Special precautions for user	EMS Number: F-A , S-F Special provisions: 274 335 969 Limited Quantities: 5 L

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

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

GLYPHOSATE ACID(1071-83-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Chinese)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Spanish)

GLYPHOSATE ISOPROPYLAMINE SALT(38641-94-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Chinese)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Spanish)

WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)
IMO IBC Code Chapter 18: List of products to which the Code does not apply

National Inventory Status

National Inventory	Status
Australia - AICS	No (alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Canada - DSL	No (alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Canada - NDSL	No (glyphosate acid; water; glyphosate isopropylamine salt; alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
China - IECSC	No (alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Europe - EINEC / ELINCS / NLP	No (alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Japan - ENCS	No (glyphosate isopropylamine salt; alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Korea - KECI	No (glyphosate isopropylamine salt; alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
New Zealand - NZIoC	No (alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Philippines - PICCS	No (glyphosate isopropylamine salt; alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
USA - TSCA	No (glyphosate acid; glyphosate isopropylamine salt; alkyl polyglycoside surface active agent, proprietary) Non-disclosed ingredients
Legend:	*Yes = All ingredients are on the inventory* *No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	21/11/2018

Continued...

Initial Date	21/03/2006

Other information

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

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

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
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

Dow Garlon 600 Herbicide

Downer Infrastructure

Chemwatch Hazard Alert Code: **2**

Chemwatch: **46198**
Version No: **11.1.1.1**
Safety Data Sheet according to WHS and ADG requirements

Issue Date: **24/08/2018**
Print Date: **04/03/2019**
L.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Dow Garlon 600 Herbicide
Synonyms	Not Available
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains triclopyr, butoxyethanol ester)
Other means of identification	Not Available

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

Relevant identified uses	Use according to manufacturer's directions.

Details of the supplier of the safety data sheet

Registered company name	**Downer Infrastructure**
Address	468 St Kilda Road VIC 3004 Australia
Telephone	0386450800
Fax	Not Available
Website	www.downergroup.com
Email	info@downergroup.com

Emergency telephone number

Association / Organisation	**Not Available**
Emergency telephone numbers	**000**
Other emergency telephone numbers	**Not Available**

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	1		
Toxicity	2		
Body Contact	2		
Reactivity	1		
Chronic	0		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	S6
Classification [1]	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Chronic Aquatic Hazard Category 1
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

Label elements

Hazard pictogram(s)

SIGNAL WORD	**WARNING**

Hazard statement(s)

Continued...

H302	Harmful if swallowed.
H315	Causes skin irritation.
H410	Very toxic to aquatic life with long lasting effects.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
64700-56-7	71.1	triclopyr, butoxyethanol ester
111-90-0	18.7	diethylene glycol monoethyl ether
Not Available	10.2	Ingredients determined not to be hazardous

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 dust is inhaled, remove from contaminated area. ▸ Encourage patient to blow nose to ensure clear passage of breathing. ▸ If irritation or discomfort persists seek medical attention.
Ingestion	▸ For advice, contact a Poisons Information Centre or a doctor at once. ▸ Urgent hospital treatment is likely to be needed. ▸ 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. ▸ Transport to hospital or doctor without delay.

Indication of any immediate medical attention and special treatment needed

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).
For poisons (where specific treatment regime is absent):

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.
- **DO NOT** use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and

Continued...

- does not drool.

ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994
Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

Special hazards arising from the substrate or mixture

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

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. ▸ Prevent, by any means available, spillage from entering drains or water course. ▸ Use water delivered as a fine spray to control fire and cool adjacent area.
Fire/Explosion Hazard	▸ Combustible. ▸ Slight fire hazard when exposed to heat or flame. ▸ Heating may cause expansion or decomposition leading to violent rupture of containers. ▸ On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include: carbon dioxide (CO_2) hydrogen chloride phosgene hydrogen fluoride nitrogen oxides (NOx) sulfur oxides (SOx) other pyrolysis products typical of burning organic material.
HAZCHEM	•3Z

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Environmental hazard - contain spillage. ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. ▸ Control personal contact with the substance, by using protective equipment. ▸ Contain and absorb spill with sand, earth, inert material or vermiculite.
Major Spills	Environmental hazard - contain spillage. Moderate hazard. ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▸ **DO NOT** allow clothing wet with material to stay in contact with skin The tendency of many ethers to form explosive peroxides is well documented. Ethers lacking non-methyl hydrogen atoms adjacent to the ether link are thought to be relatively safe ▸ **DO NOT** concentrate by evaporation, or evaporate extracts to dryness, as residues may contain explosive peroxides with DETONATION potential. ▸ Any static discharge is also a source of hazard. ▸ Before any distillation process remove trace peroxides by shaking with excess 5% aqueous ferrous sulfate solution or by percolation through a column of

Continued...

	▸ activated alumina. ▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area. ▸ Prevent concentration in hollows and sumps.
Other information	▸ Store in original containers. ▸ Keep containers securely sealed. ▸ No smoking, naked lights or ignition sources. ▸ Store in a cool, dry, well-ventilated area.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ Glass container is suitable for laboratory quantities ▸ Metal can or drum ▸ Packaging as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	▸ Avoid strong bases. ▸ Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
diethylene glycol monoethyl ether	Ethoxyethoxy)ethanol, 2-(2-; (Carbitol cellosolve; Diethylene glycol monoethyl ether)	75 ppm	100 ppm	450 ppm

Ingredient	Original IDLH	Revised IDLH
triclopyr, butoxyethanol ester	Not Available	Not Available
diethylene glycol monoethyl ether	Not Available	Not Available

MATERIAL DATA

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. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
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. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
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 The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and.has to be observed when making a final choice. Personal hygiene is a key element of effective hand care.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ P.V.C. apron. ▸ Barrier cream.

Respiratory protection

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

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	A-AUS / Class1	-
up to 50	1000	-	A-AUS / Class 1
up to 50	5000	Airline *	-

Continued...

up to 100	5000	-	A-2
up to 100	10000	-	A-3
100+			Airline**

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

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Brown liquid with no odour; emulsify with water.

Physical state	Liquid	**Relative density (Water = 1)**	1.2 @20C
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	6.7	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Applicable	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	95 (CC)	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Miscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	1.2	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ 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	Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation of diethylene glycol monoethyl ether vapours (when product is heated), mist or ingestion of liquid may result in vomiting, headache, rapid breathing, increased heart rate, lowered blood pressure, muscle weakness and unconsciousness. (Source: CCINFO) When rats were exposed to a saturated vapour for up to 6 hours there was no evidence of toxic effects.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Skin Contact	Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. 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, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Continued...

Eye	Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Chronic	On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Dow Garlon 600 Herbicide	**TOXICITY**	**IRRITATION**
	Dermal (Rabbit) LD50: >2000 mg/kg*[2]	Not Available
triclopyr, butoxyethanol ester	**TOXICITY**	**IRRITATION**
	dermal (mammal) LD50: >2000 mg/kg[2]	Not Available
	Inhalation (mammal) LC50: >4.8 mg/l/4H[2]	
	Oral (rat) LD50: 2140 mg/kg[2]	
diethylene glycol monoethyl ether	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: 5940 mg/kg[2]	Eye (rabbit): 125 mg mild
	Inhalation (rat) LC50: >5.24 mg/l/4H[2]	Eye (rabbit): 500 mg moderate
	Oral (rat) LD50: ~1920 mg/kg[2]	Skin (rabbit): 500 mg/24h mild

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*

Dow Garlon 600 Herbicide	Oral (Rat, adult male) LD50: >2000 mg/kg* Eye (-): slight
TRICLOPYR, BUTOXYETHANOL ESTER	Dermal (None) rabbit, male: None > 4000 mg/kg*[Dow]* Dermal (None) rabbit, female: None 2315 mg/kg*
DIETHYLENE GLYCOL MONOETHYL ETHER	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 a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. For diethylene glycol monoalkyl ethers and their acetates: This category includes diethylene glycol ethyl ether (DGEE), diethylene glycol propyl ether (DGPE) diethylene glycol butyl ether (DGBE) and diethylene glycol hexyl ether (DGHE) and their acetates. **Acute toxicity:** There are adequate oral, inhalation and/or dermal toxicity studies on the category members. Oral LD50 values in rats for all category members are all > 3000 mg/kg bw, with values generally decreasing with increasing molecular weight. Four to eight hour acute inhalation toxicity studies were conducted for all category members except DGPE in rats at the highest vapour concentrations achievable.

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

Legend: ✘ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Dow Garlon 600 Herbicide	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	Not Available	Not Available	Not Available	Not Available	Not Available

triclopyr, butoxyethanol ester	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	LC50	96	Fish	0.3mg/L	4
	EC50	48	Crustacea	0.35mg/L	4
	EC50	96	Algae or other aquatic plants	0.229mg/L	3
	BCF	72	Fish	0.05mg/L	4
	NOEC	96	Fish	0.32mg/L	4

diethylene glycol monoethyl ether	**ENDPOINT**	**TEST DURATION (HR)**	**SPECIES**	**VALUE**	**SOURCE**
	LC50	96	Fish	ca.6-10mg/L	2
	EC50	48	Crustacea	ca.7-611mg/L	2
	EC50	72	Algae or other aquatic plants	14-861mg/L	2

Continued...

	EC10	168	Crustacea	7.38mg/L	2
	NOEC	96	Algae or other aquatic plants	>100mg/L	2

Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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*

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
triclopyr, butoxyethanol ester	HIGH	HIGH
diethylene glycol monoethyl ether	LOW (Half-life = 56 days)	LOW (Half-life = 0.93 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
triclopyr, butoxyethanol ester	MEDIUM (LogKOW = 4.4529)
diethylene glycol monoethyl ether	LOW (LogKOW = -0.54)

Mobility in soil

Ingredient	Mobility
triclopyr, butoxyethanol ester	LOW (KOC = 557.3)
diethylene glycol monoethyl ether	HIGH (KOC = 1)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. Otherwise: ▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▸ Where in doubt contact the responsible authority. ▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	
HAZCHEM	•3Z

Land transport (ADG)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains triclopyr, butoxyethanol ester)
Transport hazard class(es)	Class: 9 Subrisk: Not Applicable
Packing group	III
Environmental hazard	Environmentally hazardous

Continued...

Special precautions for user	Special provisions	274 331 335 375 AU01
	Limited quantity	5 L

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

Air transport (ICAO-IATA / DGR)

UN number	3082	
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. * (contains triclopyr, butoxyethanol ester)	
Transport hazard class(es)	ICAO/IATA Class	9
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	9L
Packing group	III	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	A97 A158 A197
	Cargo Only Packing Instructions	964
	Cargo Only Maximum Qty / Pack	450 L
	Passenger and Cargo Packing Instructions	964
	Passenger and Cargo Maximum Qty / Pack	450 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y964
	Passenger and Cargo Limited Maximum Qty / Pack	30 kg G

Sea transport (IMDG-Code / GGVSee)

UN number	3082	
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains triclopyr, butoxyethanol ester)	
Transport hazard class(es)	IMDG Class	9
	IMDG Subrisk	Not Applicable
Packing group	III	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-A , S-F
	Special provisions	274 335 969
	Limited Quantities	5 L

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

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

TRICLOPYR, BUTOXYETHANOL ESTER(64700-56-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Chinese)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Spanish)

DIETHYLENE GLYCOL MONOETHYL ETHER(111-90-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)
GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances
IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO

National Inventory Status

National Inventory	Status
Australia - AICS	No (Ingredients determined not to be hazardous) Non-disclosed ingredients
Canada - DSL	No (triclopyr, butoxyethanol ester; Ingredients determined not to be hazardous) Non-disclosed ingredients

Continued...

Canada - NDSL	No (triclopyr, butoxyethanol ester; diethylene glycol monoethyl ether; Ingredients determined not to be hazardous) Non-disclosed ingredients
China - IECSC	No (triclopyr, butoxyethanol ester; Ingredients determined not to be hazardous) Non-disclosed ingredients
Europe - EINEC / ELINCS / NLP	No (Ingredients determined not to be hazardous) Non-disclosed ingredients
Japan - ENCS	No (triclopyr, butoxyethanol ester; Ingredients determined not to be hazardous) Non-disclosed ingredients
Korea - KECI	No (triclopyr, butoxyethanol ester; Ingredients determined not to be hazardous) Non-disclosed ingredients
New Zealand - NZIoC	No (Ingredients determined not to be hazardous) Non-disclosed ingredients
Philippines - PICCS	No (triclopyr, butoxyethanol ester; Ingredients determined not to be hazardous) Non-disclosed ingredients
USA - TSCA	No (triclopyr, butoxyethanol ester; Ingredients determined not to be hazardous) Non-disclosed ingredients
Legend:	*Yes = All ingredients are on the inventory* *No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	24/08/2018
Initial Date	08/01/2003

Other information

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

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

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
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