



SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name	Tigrex® Selective Herbicide
Other names	none
Product code (UVP)	81014345
Chemical Group	Phenoxy Nicotinamide
Recommended use	Herbicide
Chemical Formulation	Emulsifiable concentrate (EC)
Company	Bayer CropScience Pty Ltd –ABN 87 000 226 022 391-393 Tooronga Road, East Hawthorn Victoria 3123, Australia
Telephone	(03) 9248 6888
Technical Information Service	1800 804 479
Facsimile	(03) 9248 6800
Website	www.bayercropscience.com.au
Emergency telephone no.	1800 033 111 Orica SH&E Shared Services

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

HAZARDOUS SUBSTANCE

DANGEROUS GOODS

Hazardous classification	Hazardous (National Occupational Health and Safety Commission - NOHSC)
R-phrase(s)	R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed. R36/37/38 - Irritating to eyes, respiratory system and skin. R61 - May cause harm to the unborn child. R65 - Harmful: may cause lung damage if swallowed.
S-phrase(s)	See sections 4, 5, 6, 7, 8, 10, 12, 13.
ADG Classification	"Dangerous goods" for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. - See Section 14.
SUSMP classification (Poison Schedule)	Schedule 5 (Standard for the Uniform Scheduling of Medicines and Poisons)

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature
 MCPA/Diflufenican 250:25g/l

Chemical Name	CAS-No.	Concentration [%]
Diflufenican	83164-33-4	2.50
MCPA 2-ethylhexyl ester	29450-45-1	42.50
N-Methyl-2-pyrrolidone	872-50-4	>= 10.00 - <= 20.00
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	>= 30.00 - <= 40.00



Other ingredients (non-hazardous) to 100%		
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SECTION 4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Safety Data Sheet to the doctor.

General advice

Remove contaminated clothing immediately and dispose of safely.

Inhalation

When inhaled remove to fresh air and seek medical aid. Keep patient warm and at rest. Oxygen or artificial respiration if needed. If symptoms persist, call a physician.

Skin contact

Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. If symptoms persist, call a physician.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

Ingestion

Rinse out mouth and give water in small sips to drink. Do NOT induce vomiting. If symptoms persist, call a physician. Never give anything by mouth to an unconscious person.

Notes to physician

Symptoms

Local: The product causes irritation of eyes, skin and mucous membranes.

Symptoms

Systemic: Mild acidosis, Tachycardia, Irregular cardiac activity, Low blood pressure, Circulatory collapse, Cough, Shortness of breath, Vomiting, Diarrhoea, Abdominal pain, Rhabdomyolysis, Nausea, Somnolence, Coma, Fever, Convulsions

Risks

Kidney injury may occur.
Ingestion may cause liver damage.

Treatment

Treat symptomatically.

Systemic treatment:

In the event of a mouthful or more being ingested, the following measures should be considered:

In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable.

Watch for pulmonary edema, which may develop in serious cases of poisoning even after 24-48 hours. At first sign of pulmonary edema, the patient should be placed in an oxygen tent and treated symptomatically.

Monitor: respiratory, cardiac, kidney, liver and central nervous system.

Oxygen or artificial respiration if needed.

Elimination by dialysis (forced alkaline diuresis).

Anticonvulsant therapy with i.v. phenobarbital.

There is no specific antidote.

Recovery is spontaneous and without sequelae.



SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Water spray
Foam
Carbon dioxide (CO₂)
Dry powder

Hazards from combustion products

In the event of fire the following may be released:
Carbon monoxide (CO)
Nitrogen oxides (NO_x)
Hydrogen chloride (HCl)
Hydrogen fluoride

Precautions for fire-fighting

Wear self-contained breathing apparatus and protective suit.
Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat.
Whenever possible, contain fire-fighting water by diking area with sand or earth.
Do not allow run-off from fire fighting to enter drains or water courses.

Hazchem Code •3Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid contact with spilled product or contaminated surfaces.
Remove all sources of ignition.
When dealing with a spillage do not eat, drink or smoke.
Keep unauthorized people away.

Environmental precautions

Do not allow to get into surface water, drains and ground water.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.
Clean contaminated floors and objects thoroughly, observing environmental regulations.

Reference to other sections

Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7. HANDLING AND STORAGE

Handling

Hygiene measures

When using, do not eat, drink or smoke.
After each day's use, wash gloves, face shield or goggles and contaminated clothing.
Wash hands immediately after work, if necessary take a shower.
Remove soiled clothing immediately and clean thoroughly before using again.

Advice on protection against fire and explosion

Keep away from heat and sources of ignition.



Storage

Requirements for storage areas and containers

Store in original container.

Keep containers tightly closed in a dry, cool and well-ventilated place.

Keep away from direct sunlight.

Advice on common storage

Keep away from food, drink and animal feedingstuffs.

Flammability

C1 Combustible Liquids Flash Point > 60 °C - <= 150 °C

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Control parameters	Update	Basis
N-Methyl-2-pyrrolidone	872-50-4	19 ppm (TWA)		OES BCS
N-Methyl-2-pyrrolidone	872-50-4	103 mg/m ³ / 25 ppm (TWA)	08 2005	AU OEL
N-Methyl-2-pyrrolidone	872-50-4	309 mg/m ³ / 75 ppm (STEL)	08 2005	AU OEL

N-Methyl-2-pyrrolidone 872-50-4 Skin designation: Can be absorbed through the skin.

For further details on the Occupational Exposure Standards, see Section 16.

Biological limit values

none

Personal protective equipment - End user

Respiratory protection

AS/NZS 1715/1716 approved respirator
Use respiratory protection for organic vapours.

Hand protection

Elbow-length PVC or nitrile gloves

Eye protection

Face-shield or goggles

Skin and body protection

Cotton overall buttoned to the neck and wrist
Washable hat

Engineering Controls

Advice on safe handling

Use only in area provided with appropriate exhaust ventilation.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form

Liquid, clear

Colour

light yellow to dark brown

Odour

ester-like

Safety data

pH

ca. 3.7 at 5 % (23 °C)



Flash point	75 °C
Ignition temperature	no data available
Upper explosion limit	no data available
Lower explosion limit	no data available
Vapour pressure	no data available
Relative vapour density	no data available
Density	ca. 1.00 g/cm ³ at 20 °C
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	no data available

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	Extremes of temperature and direct sunlight.
Materials to avoid	Acids Bases Oxidizing agents Reducing agents
Hazardous Decomposition Products	Thermal decomposition can lead to release of: Hydrogen fluoride Hydrogen chloride (HCl) Nitrogen oxides (NO _x) Carbon oxides
Hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions. Exothermic reaction.

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects

Inhalation	Harmful if inhaled. May cause irritation of the mucous membranes.
Skin	Irritating to skin. Harmful if absorbed through skin.
Eye	Causes eye irritation.
Ingestion	Harmful if swallowed.
Acute oral toxicity	LD ₅₀ (rat) 1,580 mg/kg Test conducted with a similar formulation.
Acute inhalation toxicity	LC ₅₀ (rat) > 5.12 mg/l The value mentioned relates to the active ingredient diflufenican.



Acute inhalation toxicity	LC50 (rat) > 5.11 mg/l The value mentioned relates to the active ingredient MCPA 2-ethylhexyl ester.
Acute dermal toxicity	LD50 (rat) > 2,000 mg/kg Test conducted with a similar formulation.
Skin irritation	Slight irritation (rabbit) Test conducted with a similar formulation.
Eye irritation	Slight irritation (rabbit) Test conducted with a similar formulation.
Sensitisation	Sensitising (guinea pig) OECD Test Guideline 406, Buehler test Test conducted with a similar formulation.
Chronic toxicity	Diflufenican did not cause specific target organ toxicity in experimental animal studies. MCPA-2-ethylhexyl ester did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity

Diflufenican was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
MCPA-2-ethylhexyl ester was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity

Diflufenican was not carcinogenic in lifetime feeding studies in rats and mice.
MCPA-2-ethylhexyl ester was not carcinogenic in lifetime feeding studies in rats and mice.
This product contains $\geq 1\%$ naphthalene. Naphthalene caused an increased incidence of tumours after chronic inhalation of high vapour concentrations in the following organ: Respiratory Tract. The tumours seen with naphthalene were caused through a non-genotoxic mechanism, which is not relevant at low doses.

Assessment toxicity to reproduction

Diflufenican did not cause reproductive toxicity in a two-generation study in rats.
MCPA-2-ethylhexyl ester did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Diflufenican did not cause developmental toxicity in rats and rabbits.
MCPA-2-ethylhexyl ester caused developmental toxicity only at dose levels toxic to the dams. MCPA-2-ethylhexyl ester caused a delayed foetal growth.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects



Toxicity to fish	LC50 (Rainbow trout (<i>Oncorhynchus mykiss</i>)) 50 - 560 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient MCPA 2-ethylhexyl ester.
Toxicity to fish	LC50 (<i>Oncorhynchus mykiss</i> (rainbow trout)) > 109 µg/l Exposure time: 96 h The value mentioned relates to the active ingredient diflufenican.
Toxicity to aquatic invertebrates	EC50 (Water flea (<i>Daphnia magna</i>)) > 240 µg/l Exposure time: 48 h The value mentioned relates to the active ingredient diflufenican.
Toxicity to aquatic invertebrates	EC50 (Water flea (<i>Daphnia magna</i>)) > 190 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient MCPA 2-ethylhexyl ester.
Toxicity to aquatic plants	EC50 (Algae) > 10 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient diflufenican.
Toxicity to aquatic plants	EC50 (<i>Selenastrum capricornutum</i>) > 392 mg/l The value mentioned relates to the active ingredient MCPA 2-ethylhexyl ester.
Toxicity to other organisms	LD50 (<i>Colinus virginianus</i> (Bobwhite quail)) 377 mg/kg Exposure time: 4 d The value mentioned relates to the active ingredient MCPA 2-ethylhexyl ester.
Toxicity to other organisms	LD50 (<i>Colinus virginianus</i> (Bobwhite quail)) > 2,150 mg/kg The value mentioned relates to the active ingredient diflufenican.
Biodegradability	Not readily biodegradable. The value mentioned relates to the active ingredient diflufenican.
Biodegradability	Readily biodegradable. The value mentioned relates to N-methyl-2-pyrrolidone.
Stability in soil	DT50 85.6 - 282 d. Depending on soil type and water content. The value mentioned relates to the active ingredient diflufenican. DT50 < 7 d. The value mentioned relates to the active ingredient MCPA 2-ethylhexyl ester.
Bioaccumulation	Bioconcentration factor (BCF): 1.60 The value mentioned relates to the active ingredient diflufenican.
Additional Environmental Information	no data available

SECTION 13. DISPOSAL CONSIDERATIONS



Metal drums and plastic containers:

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

Refillable containers:

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty container by pumping through dry-break connection system. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products. Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed and drained after each use. When empty, or contents no longer required, return the container to the point of purchase. This container remains the property of Bayer CropScience Pty Ltd.

SECTION 14. TRANSPORT INFORMATION

ADG

UN number	3082
Class	9
Subsidiary Risk	None
Packaging group	III
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MCPA-2-ETHYLHEXYL ESTER SOLUTION)
Hazchem Code	•3Z

According to AU01, Environmentally Hazardous Substances in packagings, IBC or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code.

IMDG

UN number	3082
Class	9
Subsidiary Risk	None
Packaging group	III
EmS	F-A , S-F
Marine pollutant	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MCPA-2-ETHYLHEXYL ESTER SOLUTION)

IATA

UN number	3082
Class	9
Subsidiary Risk	None
Packaging group	III
Environm. Hazardous Mark	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MCPA-2-ETHYLHEXYL ESTER SOLUTION)

SECTION 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994

Australian Pesticides and Veterinary Medicines Authority approval number: 31525

See also Section 2.



SECTION 16. OTHER INFORMATION

Trademark information Tigrex® is a registered trademark of the Bayer Group.

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 should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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.

Further details on the Occupational Exposure Standards mentioned in Section 8:

CEILING: Ceiling Limit Value

OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

PEAK: Exposure Standard - Peak means a maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period of time which does not exceed 15 minutes.

STEL: Exposure standard - short term exposure limit (STEL): A 15 minute TWA exposure which should not be exceeded at any time during a working day even if the eight-hour TWA average is within the TWA exposure standard. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL.

SKIN_DES: Skin notation: Absorption through the skin may be a significant source of exposure.

TWA: Exposure standard - time-weighted average (TWA): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

SK-SEN: Skin sensitiser

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

END OF SDS