**SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

Product name Bromoxynil Diflufenican
Other names none
Product code (UVP) 81010587
Chemical Group hydroxybenzonitrile
Nicotinanilide
Recommended use Herbicide
Chemical Formulation Emulsifiable concentrate (EC)

**SECTION 2. HAZARDS IDENTIFICATION**

**Emergency Overview**

HAZARDOUS SUBSTANCE DANGEROUS GOODS
Hazardous classification Hazardous (National Occupational Health and Safety Commission - NOHSC)
R-phrase(s) R22 - Harmful if swallowed.
R23 - Toxic by inhalation.
R36/37/38 - Irritating to eyes, respiratory system and skin.
R43 - May cause sensitization by skin contact.
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 6 (Standard for the Uniform Scheduling of Medicines and Poisons)

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical nature
Bromoxynil/Diflufenican 250:25 g/l

| Chemical Name | CAS-No. | Concentration [%] |
|---|---|---|
| Bromoxynil octanoate | 1689-99-2 | 34.00 |
| Diflufenican | 83164-33-4 | 2.30 |
| 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% | | |

Safety Data Sheet
Version 0 / AUS Revision Date: 08.03.2013
102000027891 Print Date: 08.03.2013


**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.**

**Inhalation**

Move the victim to fresh air and keep at rest. Oxygen or artificial respiration if needed. If
symptoms persist, call a physician.

**Skin contact**

Take off contaminated clothing and shoes immediately. 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. Get
medical attention if irritation develops and persists.

**Ingestion**

Call a physician or poison control center immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Risk of product entering the lungs
on vomiting after ingestion. Rinse out mouth and give water in small sips to drink. Never give
anything by mouth to an unconscious person.

**Notes to physician**

**Symptoms**

Local:, Sensitisation, Irritation, Systemic:, Lethargy, Thirst, Anxiety, Hyperventilation, Tachycardia, Muscle rigidity, Nausea, Vomiting, Sweating, Salivation, Convulsions

**Risks**

Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.

**Treatment**

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.
Gastric lavage is not normally required. However, if a significant amount (more than a mouthful) has been ingested, administer activated charcoal and sodium sulphate.
In case of hyperthermia physical cooling is advisable; in case of muscle rigidity muscle relaxants and mechanical ventilation may support in counteracting hyperthermia.
There is no specific antidote.

## SECTION 5. FIRE FIGHTING MEASURES

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Extinguishing media which shall not be used for safety reasons**

High volume water jet

**Hazards from combustion products**

Dangerous gases are evolved in the event of a fire.
In the event of fire the following may be released:
Hydrogen bromide (HBr)
Hydrogen cyanide (hydrocyanic acid)



Hydrogen fluoride
Nitrogen oxides (NOx)
Carbon dioxide (CO2)
Carbon monoxide (CO)

**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**
Keep people away from and upwind of spill/leak.
Avoid contact with spilled product or contaminated surfaces.
When dealing with a spillage do not eat, drink or smoke.
**Environmental precautions**
Retain and dispose of contaminated wash water.
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).
Clean contaminated floors and objects thoroughly, observing environmental regulations.
Keep in suitable, closed containers for disposal.
**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.
Contaminated work clothing should not be allowed out of the workplace.
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Advice on protection against fire and explosion
Keep away from heat and sources of ignition.
Vapours may form explosive mixture with air.
Take measures to prevent the build up of electrostatic charge.
**Storage**
Requirements for storage areas and containers
Keep out of the reach of children.
Store in a place accessible by authorized persons only.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Protect from freezing.
Keep away from direct sunlight.

Advice on common storage
Keep away from food, drink and animal feeding stuffs.
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 872-50-4 309 mg/m3 / 75 ppm
(STEL)
08 2005
AU OEL
N-Methyl-2-pyrrolidone 872-50-4 103 mg/m3 / 25 ppm
(TWA)
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
**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**
**Appearance**
**Form** liquid, clear
**Colour** light yellow to dark brown
**Odour** aromatic
**Safety data**
**pH** ca. 4.2 at 10 % (23 ° C)
**Flash point** 66 ° C
**Ignition temperature** > 200 ° C
The data refer to the solvent.
**Upper explosion limit** 7.00 %(V)
The data refer to the solvent.


**Lower explosion limit** 0.6 %(V)
The data refer to the solvent.
**Vapour pressure** no data available
**Relative vapour density** no data available
**Density** ca. 1.09 g/cm³ at 20 ° C
**Water solubility** emulsifiable
**Partition coefficient: noctanol/ water**
no data available

**Other information** Further safety related physical-chemical data are not known.

## SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid Elevated temperatures
Heat, flames and sparks.
Materials to avoid Strong acids
Strong bases
Oxidizing agents
Store only in the original container.
Hazardous Decomposition
Products
Thermal decomposition can lead to release of:
Hydrogen bromide (HBr)
Hydrogen cyanide (hydrocyanic acid)
Hydrogen fluoride
Oxides of carbon
Nitrogen oxides (NOx)
Hazardous reactions No hazardous reactions known.

## SECTION 11. TOXICOLOGICAL INFORMATION

**Potential Health Effects**

Inhalation
Harmful if inhaled.
Skin
Irritating to skin. May cause sensitization by skin contact.
Eye
Causes eye irritation.
Ingestion
Harmful if swallowed.
Acute oral toxicity LD50 (rat) 1,113 mg/kg
Test conducted with a similar formulation.
Acute inhalation toxicity LC50 (rat) 2.1 mg/l
Exposure time: 4 h
Irritating to respiratory system.
The information is derived from the properties of the individual components.



Acute dermal toxicity LD50 (rat) > 2,000 mg/kg
Test conducted with a similar formulation.
Skin irritation No skin irritation (rabbit)
Test conducted with a similar formulation.
Eye irritation Irritating to eyes. (rabbit)
Test conducted with a similar formulation.
Sensitisation Sensitising (guinea pig)
The information is derived from the properties of the individual components.
Chronic toxicity Bromoxynil octanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): liver. The observed effects do not appear to be relevant for humans.
Diflufenican did not cause specific target organ toxicity in experimental animal studies.
N-methyl-2-pyrrolidone caused specific target organ toxicity in experimental animal studies in the following organ(s): testes.
Assessment Mutagenicity

Bromoxynil octanoate was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Diflufenican was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
N-methyl-2-pyrrolidone was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Assessment Carcinogenicity
Bromoxynil octanoate caused at high dose levels an increased incidence of tumours in the following organ(s): liver. The mechanism of tumour formation is not considered to be relevant
to man.
Diflufenican was not carcinogenic in lifetime feeding studies in rats and mice.
N-methyl-2-pyrrolidone was not carcinogenic in lifetime feeding studies in rats and mice.
This product contains ≥ 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 nongenotoxic mechanism, which is not relevant at low doses.
Assessment Toxicity to Reproduction
Bromoxynil octanoate did not cause reproductive toxicity in a two-generation study in rats.
Diflufenican did not cause reproductive toxicity in a two-generation study in rats.
N-methyl-2-pyrrolidone caused testicular damage and male infertility.
Assessment developmental toxicity
Bromoxynil octanoate caused a delayed foetal growth, an increased incidence of nonspecific malformations. Bromoxynil octanoate caused developmental toxicity only at dose levels toxic to the dams.
Diflufenican did not cause developmental toxicity in rats and rabbits.
N-methyl-2-pyrrolidone is considered a developmental toxicant based on developmental toxicity studies in rats.


## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity effects

Toxicity to fish LC50 (Rainbow trout (Oncorhynchus mykiss)) > 0.109 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient diflufenican.
Toxicity to aquatic
invertebrates
EC50 (Water flea (Daphnia magna)) 0.046 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient bromoxynil
octanoate.
Toxicity to aquatic
invertebrates
EC50 (Water flea (Daphnia magna)) > 0.24 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient diflufenican.
Toxicity to aquatic plants EC50 (Desmodesmus subspicatus) 1 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient bromoxynil
octanoate.
Toxicity to aquatic plants EC50 (Algae) > 10 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient diflufenican.

Toxicity to other organisms LD50 (Colinus virginianus (Bobwhite quail)) > 2,150 mg/kg
The value mentioned relates to the active ingredient diflufenican.
Toxicity to other organisms LD50 (Anas platyrhynchos (Mallard duck)) > 4,000 mg/kg
The value mentioned relates to the active ingredient diflufenican.
Toxicity to other organisms LD50 (Anas platyrhynchos (Mallard duck)) 2,350 mg/kg
The value mentioned relates to the active ingredient bromoxynil
octanoate.
Toxicity to other organisms LD50 (Colinus virginianus (Bobwhite quail)) 170 mg/kg
The value mentioned relates to the active ingredient bromoxynil
octanoate.
Additional ecological information
No further ecological information is available.
Biodegradability Not readily biodegradable.
The value mentioned relates to the active ingredient bromoxynil.
Biodegradability Readily biodegradable.
The value mentioned relates to N-methyl-2-pyrrolidone.
Biodegradability Not readily biodegradable.
The value mentioned relates to the active ingredient diflufenican.
Biodegradability Not applicable for this mixture.

Stability in soil in Laboratory trial: DT50 1 d. The value mentioned relates to the
active ingredient bromoxynil.
DT50 85.6 - 282 d. Depending on soil type and water content.
The value mentioned relates to the active ingredient diflufenican.
Bioaccumulation Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 230
The value mentioned relates to the active ingredient bromoxynil.
Bioaccumulation Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1.60
The value mentioned relates to the active ingredient diflufenican.

## 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.

## 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.
(BROMOXYNIL OCTANOATE 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.
(BROMOXYNIL OCTANOATE SOLUTION)

**IATA**

UN number **3082**
Class 9
Subsidiary Risk None
Packaging group III
Version 0 / AUS Revision Date: 08.03.2013
102000027891 Print Date: 08.03.2013
9/9
Environm. Hazardous Mark YES
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BROMOXYNIL OCTANOATE SOLUTION )

## SECTION 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994
Australian Pesticides and Veterinary Medicines Authority approval number: 40383
See also Section 2.

## SECTION 16. OTHER INFORMATION

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