

# SAFETY DATA SHEET



## Firebird

Version 1 / NZ  
10200007948

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Revision Date: 19.09.2017  
Print Date: 28.09.2017

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

### 1.1 Product identifier

Trade name Firebird  
Product code (UVP) 05700094

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

Use Herbicide  
EPA-Nr. HSR100012

### 1.3 Details of the supplier of the safety data sheet

Supplier Bayer New Zealand Limited  
3 Argus Place, Hillcrest  
Auckland 0627  
New Zealand  
Telephone 0800 428 246  
Telefax (09) 441 8645

### 1.4 Emergency telephone no.

Emergency Number 0800 734 607 (24hr)  
Global Incident Response Hotline (24h) +1 (760) 476-3964 (Company 3E for Bayer AG, Crop Science Division)

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## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Classified as hazardous according to the criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001

6.1D  
H302 Harmful if swallowed.  
6.5B  
H317 May cause an allergic skin reaction.  
6.9B  
H371 May cause damage to organs.  
9.1A  
H410 Very toxic to aquatic life with long lasting effects.  
9.2A  
H421 Very toxic to the soil environment.  
9.3C  
H433 Harmful to terrestrial vertebrates.

### 2.2 Label elements

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### Labelling in accordance with Hazardous Substances Identification Regulations 2001

Hazard label for supply/use required.



**Signal word:** Warning

#### Hazard statements

H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H371 May cause damage to organs.  
H410 Very toxic to aquatic life with long lasting effects.  
H421 Very toxic to the soil environment.  
H433 Harmful to terrestrial vertebrates.

#### Precautionary statements

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P321 Specific treatment (see supplemental first aid instructions on this label).  
P391 Collect spillage.  
P501 Dispose of contents/container in accordance with local regulation.

#### 2.3 Other hazards

No other hazards known.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixtures

#### Chemical nature

Suspension concentrate (=flowable concentrate)(SC)  
Flufenacet/Diflufenican 400:200 g/l

#### Hazardous components

Name	CAS-No.	Conc. [%]
Flufenacet	142459-58-3	32,5
Diflufenican	83164-33-4	16,5
Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one	55965-84-9	> 0,0002 – < 0,0015
Glycerine	56-81-5	> 1,00

#### Further information

Flufenacet	142459-58-3	M-Factor: 100 (acute), 100 (chronic)
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### SECTION 4: FIRST AID MEASURES

#### 4.1 Description of first aid measures

**General advice** Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.

**Inhalation** Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.

**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** Call a physician or poison control center immediately. Induce vomiting only, if: 1. patient is fully conscious, 2. medical aid is not readily available, 3. a significant amount (more than a mouthful) has been ingested and 4. time since ingestion is less than 1 hour. (Vomit should not get into the respiratory tract.) Rinse mouth.

#### 4.2 Most important symptoms and effects, both acute and delayed

**Symptoms** If large amounts are ingested, the following symptoms may occur:  
Shortness of breath, Drowsiness, Headache, Tiredness, Dizziness, Nausea  
Symptoms and hazards refer to effects observed after intake of significant amounts of the active ingredient(s).  
The absorption of this product into the body may lead to the formation of methaemoglobine that, in sufficient concentration, causes cyanosis.

#### 4.3 Indication of any immediate medical attention and special treatment needed

**Risks** Danger of formation of methaemoglobin.

**Treatment** Treat symptomatically. 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. In case of methaemoglobinemia, oxygen and specific antidotes (methylene blue/ toluidine blue) should be given.

Contact the National Poisons and Hazardous Chemicals Information center in Dunedin, PO Box 913, Dunedin. Phone 0800 POISON (0800 764 766).

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### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

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

**Unsuitable** High volume water jet

**5.2 Special hazards arising from the substance or mixture** In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Hydrogen fluoride, Carbon monoxide (CO), Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides

#### 5.3 Advice for firefighters

**Special protective equipment for firefighters** In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

**Further information** Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

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### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures

**Precautions** Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

**6.2 Environmental precautions** Do not allow to get into surface water, drains and ground water.

#### 6.3 Methods and materials for containment and cleaning up

**Methods for cleaning up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

**6.4 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.

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### SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

**Advice on safe handling** Use only in area provided with appropriate exhaust ventilation.

**Hygiene measures** Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash thoroughly with soap and water after handling. Wash hands before breaks and immediately after handling the product. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).

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### 7.2 Conditions for safe storage, including any incompatibilities

**Requirements for storage areas and containers** Store in a place accessible by authorized persons only. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from frost. Keep away from direct sunlight.

**Advice on common storage** Keep away from food, drink and animal feedingstuffs.

**Suitable materials** HDPE (high density polyethylene)

**7.3 Specific end use(s)** Refer to the label and/or leaflet.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Flufenacet	142459-58-3	0,3 mg/m <sup>3</sup> (SK-SEN)		OES BCS*
Diflufenican	83164-33-4	5,5 mg/m <sup>3</sup> (TWA)		OES BCS*
Glycerine (Mist.)	56-81-5	10 mg/m <sup>3</sup> (TWA)	06 2016	NZ OEL

\*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

### 8.2 Exposure controls

#### Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

#### Respiratory protection

Respiratory protection is not required under anticipated circumstances of exposure.

Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

#### Hand protection

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.

Material Nitrile rubber  
Rate of permeability > 480 min  
Glove thickness > 0,4 mm  
Protective index Class 6  
Directive Protective gloves complying with EN 374.

#### Eye protection

Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).

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<b>Skin and body protection</b>	Wear standard coveralls and Category 3 Type 4 suit. If there is a risk of significant exposure, consider a higher protective type suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently. If chemical protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.
<b>General protective measures</b>	If product is handled while not enclosed, and if contact may occur: Complete suit protecting against chemicals

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Form</b>	suspension
<b>Colour</b>	white to beige
<b>Odour</b>	weak, characteristic
<b>pH</b>	4,0 - 6,5 at 100 % (23 °C)
<b>Flash point</b>	> 100 °C No flash point - Determination conducted up to the boiling point.
<b>Ignition temperature</b>	445 °C
<b>Density</b>	ca. 1,24 g/cm <sup>3</sup> at 20 °C
<b>Water solubility</b>	dispersible
<b>Partition coefficient: n-octanol/water</b>	Flufenacet: log Pow: 3,2 Diflufenican: log Pow: 4,2 reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): log Pow: 0,401
<b>Viscosity, dynamic</b>	250 - 450 mPa.s at 20 °C Velocity gradient 20 /s 100 - 300 mPa.s at 20 °C Velocity gradient 100 /s
<b>Surface tension</b>	36 mN/m at 25 °C
<b>Oxidizing properties</b>	No oxidizing properties
<b>Explosivity</b>	Not explosive 92/69/EEC, A.14 / OECD 113
<b>9.2 Other information</b>	Further safety related physical-chemical data are not known.

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## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

**Thermal decomposition** Stable under normal conditions.

**10.2 Chemical stability** Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions** No hazardous reactions when stored and handled according to prescribed instructions.

**10.4 Conditions to avoid** Extremes of temperature and direct sunlight.

**10.5 Incompatible materials** Store only in the original container.

**10.6 Hazardous decomposition products** No decomposition products expected under normal conditions of use.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

**Acute oral toxicity** LD50 (Rat) 500 - 2.000 mg/kg

**Acute inhalation toxicity** LC50 (Rat) > 2,078 mg/l  
Exposure time: 4 h  
Highest attainable concentration.  
Determined in the form of a respirable aerosol.

**Acute dermal toxicity** LD50 (Rat) > 4.000 mg/kg

**Skin irritation** No skin irritation (Rabbit)

**Eye irritation** No eye irritation (Rabbit)

**Sensitisation** Sensitising (Guinea pig)  
OECD Test Guideline 406, Magnusson & Kligman test

### Assessment STOT Specific target organ toxicity – single exposure

Flufenacet: Based on available data, the classification criteria are not met.

Diflufenican: Based on available data, the classification criteria are not met.

reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1):  
Based on available data, the classification criteria are not met.

### Assessment STOT Specific target organ toxicity – repeated exposure

Flufenacet caused neurobehavioral effects and/or neuropathological changes in animal studies.

Diflufenican did not cause specific target organ toxicity in experimental animal studies.

reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): This information is not available.

### Assessment mutagenicity

Flufenacet was not mutagenic or genotoxic 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.

reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1) is not

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considered mutagenic.

### Assessment carcinogenicity

Flufenacet was not carcinogenic in lifetime feeding studies in rats and mice.  
Diflufenican was not carcinogenic in lifetime feeding studies in rats and mice.  
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): Based on available data, the classification criteria are not met.

### Assessment toxicity to reproduction

Flufenacet 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.  
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): Based on available data, the classification criteria are not met.

### Assessment developmental toxicity

Flufenacet caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Flufenacet are related to maternal toxicity.  
Diflufenican did not cause developmental toxicity in rats and rabbits.  
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): Based on available data, the classification criteria are not met.

### Aspiration hazard

Based on available data, the classification criteria are not met.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

<b>Toxicity to fish</b>	LC50 (Oncorhynchus mykiss (rainbow trout)) 12,3 mg/l Exposure time: 96 h Test conducted with a similar formulation.
<b>Toxicity to aquatic invertebrates</b>	LC50 (Daphnia magna (Water flea)) > 100 mg/l Exposure time: 48 h Test conducted with a similar formulation.
<b>Toxicity to aquatic plants</b>	EC50 (Raphidocelis subcapitata (freshwater green alga)) 6,63 µg/l Growth rate; Exposure time: 72 h  EC50 (Lemna gibba (gibbous duckweed)) 307 µg/l Growth rate; Exposure time: 7 d

### 12.2 Persistence and degradability

<b>Biodegradability</b>	Flufenacet: Not rapidly biodegradable Diflufenican: Not rapidly biodegradable reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): < 50 %, Exposure time: 10 d Not rapidly biodegradable
<b>Koc</b>	Flufenacet: Koc: 202 Diflufenican: Koc: 3417

### 12.3 Bioaccumulative potential



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### Bioaccumulation

Flufenacet: Bioconcentration factor (BCF) 71  
Does not bioaccumulate.  
Diflufenican: Bioconcentration factor (BCF) 1.596  
Does not bioaccumulate.  
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1):  
On the basis of the partition coefficient n-octanol/water (log pOW) no accumulation in organisms is expected.

### 12.4 Mobility in soil

#### Mobility in soil

Flufenacet: Moderately mobile in soils  
Diflufenican: Slightly mobile in soils  
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): No data available

### 12.5 Results of PBT and vPvB assessment

#### PBT and vPvB assessment

Flufenacet: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).  
Diflufenican: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).  
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (3:1): No data available

### 12.6 Other adverse effects

#### Additional ecological information

No other effects to be mentioned.

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## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Dispose of this product only by using according to the label, or at an approved landfill or other approved facility.

#### Contaminated packaging

Triple rinse containers. Recycle if possible. If allowed under local authority, burn if circumstances, especially wind direction permit, otherwise crush and bury in an approved local authority facility. Do not use container for any other purpose.

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## SECTION 14: TRANSPORT INFORMATION

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

### ADR/RID/ADN

14.1 UN number

14.2 Proper shipping name

**3082**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(FLUFENACET, DIFLUFENICAN SOLUTION)

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14.3 Transport hazard class(es) 9  
14.4 Packing group III  
14.5 Environm. Hazardous Mark YES  
Hazchem Code 3Z

### IMDG

14.1 UN number **3082**  
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(FLUFENACET, DIFLUFENICAN SOLUTION)  
14.3 Transport hazard class(es) 9  
14.4 Packing group III  
14.5 Marine pollutant YES

### IATA

14.1 UN number **3082**  
14.2 Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(FLUFENACET, DIFLUFENICAN SOLUTION )  
14.3 Transport hazard class(es) 9  
14.4 Packing group III  
14.5 Environm. Hazardous Mark YES

### 14.6 Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

No transport in bulk according to the IBC Code.

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## SECTION 15: REGULATORY INFORMATION

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

#### Further information

HSNO approval-Nr. HSR100012  
HSNO Controls See [www.epa.govt.nz](http://www.epa.govt.nz)  
ACVM Reg. P8095  
ACVM Condition See [www.foodsafety.govt.nz](http://www.foodsafety.govt.nz)

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## SECTION 16: OTHER INFORMATION

### Abbreviations and acronyms

ADN European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
ADR European Agreement concerning the International Carriage of Dangerous Goods by Road  
ATE Acute toxicity estimate  
CAS-Nr. Chemical Abstracts Service number  
Conc. Concentration

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ECx	Effective concentration to x %
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods
LCx	Lethal concentration to x %
LDx	Lethal dose to x %
LOEC/LOEL	Lowest observed effect concentration/level
MARPOL	MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.	Not otherwise specified
NOEC/NOEL	No observed effect concentration/level
OECD	Organization for Economic Co-operation and Development
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe products in terms of their safety requirements. The above details do not imply any guarantee concerning composition, properties or performance of the product.

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