

SAFETY DATA SHEET



PUMA S

Version 3 / NZ
102000011404

1/12
Revision Date: 10.10.2022
Print Date: 10.10.2022

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

1.1 Product identifier

Trade name PUMA S
Product code (UVP) 06396216

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

Use Herbicide
EPA-Nr. HSR000409

1.3 Details of the supplier of the safety data sheet

Supplier Bayer New Zealand Limited
Crop Science Division
B:HIVE Building
74 Taharoto Rd
Smales Farm
Takapuna
Auckland, 0622
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)

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) Notice 2020 as amended

6.1 E
H303 May be harmful if swallowed.
6.3 A
H315 Causes skin irritation.
6.4 A
H320 Causes eye irritation.

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

2/12

Revision Date: 10.10.2022
Print Date: 10.10.2022

6.5 B
H317 May cause an allergic skin reaction.

9.1 A
H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling in accordance with the Hazardous Substances (Safety Data Sheets) Notice 2020 as amended

Hazard label for supply/use required.



Signal word: Warning

Hazard statements

H303 May be harmful if swallowed.
H315 Causes skin irritation.
H320 Causes eye irritation.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P102 Keep out of reach of children.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor/ physician.
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 additional hazards known beside those mentioned.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature

Emulsion, oil in water (EW)
Fenoxaprop-p-ethyl/Mefenpyr-diethyl 69.0:18,8 g/l

Hazardous components

| Chemical name | CAS-No. | Conc. [%] |
|---|-------------|------------|
| Fenoxaprop-P-ethyl | 71283-80-2 | 6.57 |
| Mefenpyr-diethyl | 135590-91-9 | 1.79 |
| Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene | 64742-94-5 | > 25 |
| Fatty alcohol ethoxylate | 78330-21-9 | > 1 – < 25 |
| reaction mass of 5-chloro-2- methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3- | 55965-84-9 | < 0.1 |

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

3/12

Revision Date: 10.10.2022

Print Date: 10.10.2022

| | | |
|-----------|---------|-----|
| one (3:1) | | |
| Glycerine | 56-81-5 | > 1 |

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. In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if irritation develops and persists. |
| Ingestion | Do NOT induce vomiting. Rinse mouth. Call a physician or poison control center immediately. |

4.2 Most important symptoms and effects, both acute and delayed

| | |
|-----------------|--|
| Symptoms | If large amounts are ingested, the following symptoms may occur: Headache, Nausea, Dizziness, Somnolence Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration may cause pulmonary oedema and pneumonitis. Inhalation may provoke the following symptoms: Cough, Shortness of breath, Cyanosis, Fever Symptoms and hazards refer to the solvent. |
|-----------------|--|

4.3 Indication of any immediate medical attention and special treatment needed

| | |
|------------------|---|
| Treatment | Treat 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 aspiration intubation and bronchial lavage should be considered. Monitor: kidney, liver and pancreas function. There is no specific antidote. Contraindication: derivatives of adrenaline. |
|------------------|---|

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

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

4/12

Revision Date: 10.10.2022

Print Date: 10.10.2022

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 chloride (HCl), Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)

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.

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). Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.

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.

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 hands before breaks and immediately after handling the product. Wash hands immediately after work, if necessary take a shower. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

5/12

Revision Date: 10.10.2022
Print Date: 10.10.2022

7.2 Conditions for safe storage, including any incompatibilities

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

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

Suitable materials Combination of sheet metal and 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 |
|--|-------------|---|---------|----------|
| Fenoxaprop-P-ethyl | 71283-80-2 | 2.6 mg/m ³ (TWA) | | OES BCS* |
| Mefenpyr-diethyl | 135590-91-9 | 10 mg/m ³ (TWA) | | OES BCS* |
| Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene | 64742-94-5 | 1,600 mg/m ³ /400 ppm (TWA) | 02 2013 | NZ OEL |
| Glycerine (Mist.) | 56-81-5 | 10 mg/m ³ (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 outside cannot be removed.

| | |
|----------------------|-------------------------------------|
| Material | Nitrile rubber |
| Rate of permeability | > 480 min |
| Glove thickness | > 0.4 mm |
| Protective index | Class 6 |
| Directive | Protective gloves complying with EN |

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

6/12

Revision Date: 10.10.2022

Print Date: 10.10.2022

374.

| | |
|------------------------------------|---|
| Eye protection | Wear goggles (conforming to EN166, Field of Use = 5 or equivalent). |
| Skin and body protection | 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. |
| General protective measures | If product is handled while not enclosed, and if contact may occur: Complete suit protecting against chemicals |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|---|--|
| Form | Liquid |
| Colour | white to beige |
| Odour | aromatic |
| Odour Threshold | No data available |
| pH | 7.6 - 8.2 (10 %) (23 °C) (deionized water) |
| Melting point/range | No data available |
| Boiling Point | No data available |
| Flash point | > 100 °C |
| Flammability | No data available |
| Auto-ignition temperature | No data available |
| Thermal decomposition | > 250 °C Heating rate: 10 K/min |
| Ignition temperature | 435 °C (1,008 hPa) |
| Minimum ignition energy | No data available |
| Self-accelerating decomposition temperature (SADT) | No data available |
| Upper explosion limit | No data available |
| Lower explosion limit | No data available |
| Vapour pressure | No data available |
| Evaporation rate | No data available |
| Relative vapour density | No data available |
| Relative density | No data available |
| Density | ca. 1.05 g/cm ³ (20 °C) |

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

7/12
Revision Date: 10.10.2022
Print Date: 10.10.2022

| | |
|---|---|
| Water solubility | emulsifiable |
| Partition coefficient: n-octanol/water | Fenoxaprop-P-ethyl: log Pow: 4.58 (30 °C) Mefenpyr-diethyl: log Pow: 3.83 (21 °C) |
| Viscosity, dynamic | 600 - 1,200 mPa.s (20 °C) Velocity gradient 20 /s 300 - 800 mPa.s (20 °C) Velocity gradient 100 /s |
| Viscosity, kinematic | 201 mm ² /s (40 °C) Shear rate of 100/sec |
| Surface tension | 34 mN/m (20 °C) |
| Impact sensitivity | Not impact sensitive. |
| Oxidizing properties | No data available |
| Explosivity | Not explosive 92/69/EEC, A.14 / OECD 113 |
| 9.2 Other information | Further safety related physical-chemical data are not known. |

SECTION 10: STABILITY AND REACTIVITY

| | |
|--|--|
| 10.1 Reactivity | 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) > 5,000 mg/kg Test conducted with a similar formulation. |
| Acute inhalation toxicity | LC50 (Rat) > 10.74 mg/l Exposure time: 4 h Highest attainable concentration. |

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

8/12

Revision Date: 10.10.2022
Print Date: 10.10.2022

| | |
|--|---|
| | Test conducted with a similar formulation. |
| Acute dermal toxicity | LD50 (Rat) > 4,000 mg/kg Test conducted with a similar formulation. |
| Skin corrosion/irritation | Slight irritant effect - does not require labelling. (Rabbit) Test conducted with a similar formulation. |
| Serious eye damage/eye irritation | Slight irritant effect - does not require labelling. (Rabbit) Test conducted with a similar formulation. |
| Respiratory or skin sensitisation | Skin: Sensitising (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA) |

Assessment STOT Specific target organ toxicity – single exposure

Fenoxaprop-P-ethyl: Based on available data, the classification criteria are not met.
Mefenpyr-diethyl: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Fenoxaprop-P-ethyl did not cause specific target organ toxicity in rats. Fenoxaprop-P-ethyl caused specific target organ toxicity in experimental animal studies in mice in the following organ(s): Kidney.
Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Fenoxaprop-P-ethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Fenoxaprop-P-ethyl demonstrated no carcinogenic potential in a lifetime feeding study in rats.
Fenoxaprop-P-ethyl caused an increased incidence of liver tumours in mice at high doses. Fenoxaprop-P-ethyl causes tumours through peroxisome proliferation. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.
Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

Assessment toxicity to reproduction

Fenoxaprop-P-ethyl did not cause reproductive toxicity in a two-generation study in rats.
Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Fenoxaprop-P-ethyl did not cause developmental toxicity in rats and rabbits.
Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.

Aspiration hazard

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

11.2 Information on other hazards

Endocrine disrupting properties

| | |
|-------------------|---|
| Assessment | The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. |
|-------------------|---|



PUMA S

Version 3 / NZ
102000011404

9/12

Revision Date: 10.10.2022
Print Date: 10.10.2022

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 (Cyprinus carpio (Carp)) 3.8 mg/l
Exposure time: 96 h
Test conducted with a similar formulation.

Toxicity to aquatic invertebrates EC50 (Daphnia magna (Water flea)) 3 mg/l
Exposure time: 48 h
Test conducted with a similar formulation.

Toxicity to aquatic plants EC50 (Desmodemus subspicatus (green algae)) 4.9 mg/l
Exposure time: 72 h
Test conducted with a similar formulation.

12.2 Persistence and degradability

Biodegradability Fenoxaprop-P-ethyl:
Not rapidly biodegradable
Mefenpyr-diethyl:
Not rapidly biodegradable

Koc Fenoxaprop-P-ethyl: Koc: 11354
Mefenpyr-diethyl: Koc: 625

12.3 Bioaccumulative potential

Bioaccumulation Fenoxaprop-P-ethyl: Bioconcentration factor (BCF) 338
Does not bioaccumulate.
Mefenpyr-diethyl: Bioconcentration factor (BCF) 232
Does not bioaccumulate.

12.4 Mobility in soil

Mobility in soil Fenoxaprop-P-ethyl: Immobile in soil
Mefenpyr-diethyl: Slightly mobile in soils

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment Fenoxaprop-P-ethyl: 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).
Mefenpyr-diethyl: 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).

12.6 Endocrine disrupting properties

Assessment The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Additional ecological information No other effects to be mentioned.

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

10/12

Revision Date: 10.10.2022
Print Date: 10.10.2022

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. |

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 | 3082 |
| 14.2 Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION) |
| 14.3 Transport hazard class(es) | 9 |
| 14.4 Packaging 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. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION) |
| 14.3 Transport hazard class(es) | 9 |
| 14.4 Packaging 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. (FENOXAPROP-P-ETHYL, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION) |
| 14.3 Transport hazard class(es) | 9 |
| 14.4 Packaging 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

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

11/12

Revision Date: 10.10.2022

Print Date: 10.10.2022

No transport in bulk according to the IBC Code.

SECTION 15: REGULATORY INFORMATION

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

Further information

| | |
|-------------------|--|
| HSNO approval-Nr. | HSR000409 |
| HSNO Controls | See www.epa.govt.nz |
| ACVM Reg. | P3945 |
| ACVM Condition | See www.foodsafety.govt.nz |

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 |
| EC _x | 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) |
| IC _x | Inhibition concentration to x % |
| IMDG | International Maritime Dangerous Goods |
| LC _x | Lethal concentration to x % |
| LD _x | 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.

SAFETY DATA SHEET



PUMAS

Version 3 / NZ
102000011404

12/12

Revision Date: 10.10.2022

Print Date: 10.10.2022

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