

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

1/11
Revision Date: 14.04.2022
Print Date: 14.04.2022

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

1.1 Product identifier

Trade name Betanal Forte
Product code (UVP) 05942888

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

Use Herbicide
EPA-Nr. HSR007865

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

STOT RE 2

H373 May cause damage to organs through prolonged or repeated exposure.

Aquatic Chronic 1

H410 Very toxic to aquatic life with long lasting effects.

Hazardous to soil organisms

H422 Toxic to the soil environment.

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

2/11
Revision Date: 14.04.2022
Print Date: 14.04.2022

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

H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.
H422 Toxic to the soil environment.

Precautionary statements

P312 Call a POISON CENTER/doctor/physician if you feel unwell.
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

Emulsifiable concentrate (EC)
Phenmedipham/Desmedipham 160:160 g/l

Hazardous components

| Chemical name | CAS-No. | Conc. [%] |
|---|------------|------------------|
| Phenmedipham | 13684-63-4 | 15.53 |
| Desmedipham | 13684-56-5 | 15.53 |
| Tributyl phenol polyglycol ether | 9046-09-7 | > 2.50 – < 25.00 |
| Phenol ethoxylate phosphate ester | 39464-70-5 | > 1.00 – < 5.00 |
| iso-Tridecyl alcohol, ethoxylated, phosphated | 73038-25-2 | > 1.00 – < 5.00 |
| Reaction mass of N,N-Dimethyldecan-1-amide and N,N-Dimethyloctanamide | | > 25 |

Further information

| | | |
|--------------|------------|---------------------|
| Phenmedipham | 13684-63-4 | M-Factor: 1 (acute) |
|--------------|------------|---------------------|

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

3/11

Revision Date: 14.04.2022

Print Date: 14.04.2022

| | |
|-----------------------|--|
| 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. Call a physician or poison control center immediately. |
| 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. Call a physician or poison control center immediately. |
| Ingestion | Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately. |

4.2 Most important symptoms and effects, both acute and delayed

| | |
|-----------------|---|
| Symptoms | lethargy May cause respiratory tract irritation. |
|-----------------|---|

4.3 Indication of any immediate medical attention and special treatment needed

| | |
|------------------|---|
| Risks | This product, although being a carbamate, is NOT a cholinesterase inhibitor. |
| 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. There is no specific antidote. Forced alkaline diuresis and hemodialysis may be considered. |

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

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

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

| | |
|--|--|
| 5.2 Special hazards arising from the substance or mixture | In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Oxides of phosphorus, Nitrogen oxides (NOx) |
|--|--|

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. |
|----------------------------|--|

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

4/11

Revision Date: 14.04.2022
Print Date: 14.04.2022

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.

Advice on protection against fire and explosion Keep away from heat and sources of ignition.

Hygiene measures Avoid contact with skin, eyes and clothing. Keep working clothes separately. 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).

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. Protect from freezing. Keep away from direct sunlight.

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

Suitable materials HDPE (high density polyethylene)
Black mild steel sheet with interior coating

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 |
|------------|---------|--------------------|--------|-------|
|------------|---------|--------------------|--------|-------|

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

5/11
Revision Date: 14.04.2022
Print Date: 14.04.2022

| | | | | |
|--------------|------------|--------------------------------|--|----------|
| Phenmedipham | 13684-63-4 | 1.5 mg/m ³ (TWA) | | OES BCS* |
| Desmedipham | 13684-56-5 | 1.2 mg/m ³ (TWA) | | OES BCS* |

*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

If product is handled while not enclosed, and if contact may occur: Wear respirator with an organic vapours and gas filter mask (protection factor 10) conforming to EN140 type A or equivalent. 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).

Skin and body protection

Wear standard coveralls and Category 3 Type 6 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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form Liquid, clear to slightly turbid

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

6/11

Revision Date: 14.04.2022
Print Date: 14.04.2022

| | |
|---|--|
| Colour | tan |
| Odour | aromatic |
| Odour Threshold | No data available |
| pH | 1.8 - 3.0 (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 | 400 °C |
| Minimum ignition energy | No data available |
| Self-accelarating 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. 1.03 g/cm ³ (20 °C) |
| Water solubility | emulsifiable |
| Partition coefficient: n-octanol/water | Phenmedipham: log Pow: 3.59 Desmedipham: log Pow: 3.39 |
| Viscosity, dynamic | No data available |
| Viscosity, kinematic | 122 mm ² /s (40 °C) Shear rate of 20/sec |
| Surface tension | 32.6 mN/m (25 °C) Determined in the undiluted form. |
| Oxidizing properties | No data available |
| Explosivity | Not explosive |
| 9.2 Other information | Further safety related physical-chemical data are not known. |

SECTION 10: STABILITY AND REACTIVITY

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

7/11
Revision Date: 14.04.2022
Print Date: 14.04.2022

| | |
|--|--|
| 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 hazard classes as defined in regulation (EC) No 1272/2008

| | |
|--|---|
| Acute oral toxicity | LD50 (Rat) > 2,000 mg/kg |
| Acute inhalation toxicity | LC50 (Rat) > 2.14 mg/l Exposure time: 4 h Determined in the form of a respirable aerosol. Highest attainable concentration. Irritating to respiratory system. |
| Acute dermal toxicity | LD50 (Rat) > 5,000 mg/kg |
| Skin corrosion/irritation | Slight irritant effect - does not require labelling. (Rabbit) |
| Serious eye damage/eye irritation | Slight irritant effect - does not require labelling. (Rabbit) |
| Respiratory or skin sensitisation | Non-sensitizing. (Guinea pig) OECD Test Guideline 406, Buehler test |

Assessment STOT Specific target organ toxicity – single exposure

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

Assessment STOT Specific target organ toxicity – repeated exposure

Phenmedipham caused haemolytic anaemia, methaemoglobinaemia in animal studies. The observed effects do not appear to be relevant for humans.
Desmedipham caused methaemoglobinaemia, haemolytic anaemia in animal studies. The observed effects do not appear to be relevant for humans.

Assessment mutagenicity

Phenmedipham was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Desmedipham was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Phenmedipham was not carcinogenic in lifetime feeding studies in rats and mice.

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

8/11

Revision Date: 14.04.2022
Print Date: 14.04.2022

Desmedipham was not carcinogenic in lifetime feeding studies in rats and mice.

Assessment toxicity to reproduction

Phenmedipham caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Phenmedipham is related to parental toxicity.

Desmedipham caused a reduced litter size and a reduced pup weight. The reproduction toxicity seen with Desmedipham is related to parental toxicity.

Assessment developmental toxicity

Phenmedipham caused developmental toxicity only at dose levels toxic to the dams. Phenmedipham caused a delayed ossification of foetuses. The developmental effects seen with Phenmedipham are related to maternal toxicity.

Desmedipham caused developmental toxicity only at dose levels toxic to the dams. Desmedipham caused a delayed ossification of foetuses, an increased incidence of variations. The developmental effects seen with Desmedipham are related to maternal toxicity.

Aspiration hazard

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

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

| | |
|--|---|
| Toxicity to fish | LC50 (Oncorhynchus mykiss (rainbow trout)) 8.6 mg/l static test; Exposure time: 96 h |
| Toxicity to aquatic invertebrates | EC50 (Daphnia magna (Water flea)) 3.67 mg/l static test; Exposure time: 48 h |
| Chronic toxicity to aquatic invertebrates | NOEC (Daphnia (water flea)): 0.01 mg/l Exposure time: 21 d The value mentioned relates to the active ingredient desmedipham. |
| Toxicity to aquatic plants | IC50 (Raphidocelis subcapitata (freshwater green alga)) 8.79 mg/l Growth rate; Exposure time: 72 h IC50 (Lemna gibba (gibbous duckweed)) 13.2 mg/l Growth rate; Exposure time: 7 d |

12.2 Persistence and degradability

| | |
|-------------------------|---|
| Biodegradability | Phenmedipham: Not rapidly biodegradable Desmedipham: Not rapidly biodegradable |
| Koc | Phenmedipham: Koc: 888 Desmedipham: Koc: > 5000 |

12.3 Bioaccumulative potential

| | |
|------------------------|---|
| Bioaccumulation | Phenmedipham: Bioconcentration factor (BCF) 165 Does not bioaccumulate. Desmedipham: Bioconcentration factor (BCF) 157 Does not bioaccumulate. |
|------------------------|---|

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

9/11

Revision Date: 14.04.2022
Print Date: 14.04.2022

12.4 Mobility in soil

Mobility in soil Phenmedipham: Slightly mobile in soils
Desmedipham: Immobile in soil

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment Phenmedipham: 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).
Desmedipham: 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 Other adverse effects

Additional ecological information No other effects to be mentioned.

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. (PHENMEDIPHAM, DESMEDIPHAM 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. (PHENMEDIPHAM, DESMEDIPHAM SOLUTION) |
| 14.3 Transport hazard class(es) | 9 |
| 14.4 Packaging Group | III |
| 14.5 Marine pollutant | YES |

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

10/11
Revision Date: 14.04.2022
Print Date: 14.04.2022

IATA

| | |
|---------------------------------|---|
| 14.1 UN number | 3082 |
| 14.2 Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PHENMEDIPHAM, DESMEDIPHAM 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

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. | HSR007865 |
| HSNO Controls | See www.epa.govt.nz |
| ACVM Reg. | P7688 |
| 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 |
| 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 |

SAFETY DATA SHEET



Betanal Forte

Version 4 / NZ
102000000595

11/11
Revision Date: 14.04.2022
Print Date: 14.04.2022

| | |
|-----------|--|
| 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.

Reason for Revision: The following sections have been revised: Section 2: Hazards Identification. Section 4: First Aid Measures. Section 5: Fire Fighting Measures. Section 9: Physical and Chemical Properties. Section 15: Regulatory information. Section 16: Other Information.

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