



Dow AgroSciences



ASTROKERB

HERBICIDE

Product Registration Number: MAPP 16184 / PCS No 05322
A suspension concentrate containing 500 g/ litre propyzamide and 5.3 g/ litre aminopyralid (present as 6.3 g/litre aminopyralid potassium salt).

A foliar and residual herbicide for the control of a wide range of weeds in WINTER OILSEED RAPE.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work. (UK Only)

READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

PROTECT FROM FROST.

10 Litres e

Dow AgroSciences Limited
Capital Park, CPC2, Fulbourn, Cambridge, CB21 5XE
Telephone: (01462) 457272 Fax: (01462) 426605
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®Trademark of the Dow Chemical Company ("Dow") or an affiliated company of Dow

This label is compliant with the CPA Voluntary Initiative Guidance. (UK Only)



Product Identifier according to Art.18 of Reg. (EC) No 1272/2008
[CLP]: AstroKerb®, Propyzamide

Warning

Suspected of causing cancer
Toxic to aquatic life with long lasting effects

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site except for triple rinsed empty containers which can be disposed of as non-hazardous waste.

Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

To avoid risks to human health and the environment, comply with the instructions for use.

MAPP 16184/ PCS No. 05322

Triple Rinse Containers, Puncture and Invert to Dry at time of Use

PROFESSIONAL USE ONLY



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A foliar and residual herbicide for the control of a wide range of weeds in WINTER OILSEED RAPE.

SAFETY PRECAUTIONS

Operator protection:

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment: WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate or handling contaminated surfaces.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection. (UK Only)

WASH HANDS before meals and after work.

Environmental protection:

Do not contaminate water with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

Extreme care must be taken to avoid spray drift onto non-crop plants outside of the target area.

Storage and disposal:

STORE IN ORIGINAL CONTAINER, tightly closed, in a safe place. EMPTY CONTAINER COMPLETELY and dispose of safely.

Triple Rinse Containers, Puncture and invert to Dry at time of Use

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MAPP 16184 / PCS No 05322

IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops/Situations:	Oilseed rape (winter)
Maximum Individual Dose:	}
Maximum Number of Treatments:	} Full details are given in the Important Information
Latest Time of Application:	} Area on the attached leaflet
Other Specific Restrictions:	}

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

IMPORTANT INFORMATION.

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops/Situations	Maximum Individual Dose (litres product/hectare)	Maximum Number of Treatments	Latest Time of Application
Oilseed rape (winter)	1.7	One per crop	Before 1 st February in year of harvest

Other Specific Restrictions:

Do not harvest crops for human or animal consumption for at least 6 weeks after application.

Livestock must be kept out of treated areas for at least 1 week following treatment and until poisonous weeds such as ragwort have died and become unpalatable.

Users must have received adequate instruction, training and guidance in the safe and efficient use of the product and must take all reasonable precautions to protect the health of human beings and non-target organisms and safeguard the environment.

The product must not be used on land where vegetation will be cut for animal feed, fodder or bedding nor for composting or mulching within one calendar year of treatment.

Following crops (winter and spring wheat) should not be planted within 30 weeks of application of ASTROKERB.

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

WARNINGS

ASTROKERB contains aminopyralid, traces of this material in oilseed rape straw can damage sensitive crops. Aminopyralid residues in plant tissues which have not completely decayed may affect succeeding susceptible crops e.g. peas, beans and other legumes, sugar beet, fodder beet, carrots and umbelliferae, potatoes and tomatoes, lettuce and other compositae. Therefore following good agricultural practice ensure that all remains of the oilseed rape crop have completely decayed before planting susceptible crops.

DO NOT remove oilseed rape straw from the field unless it is to be used for burning for heat or electricity production.

DO NOT feed animals with treated oilseed rape straw.

DO NOT use oilseed rape straw for animal bedding.

DO NOT use oilseed rape straw for composting or mulching.

Take care to avoid local overdosing.

Do not make more than one application of ASTROKERB to any one crop.

If animals are inadvertently fed or bedded on oilseed rape straw treated with ASTROKERB, do not use animal waste for composting.

Do not use on crops grown for seed.

Neighbouring Crops/Plants

Avoid damage by drift onto susceptible crops, non-target plants or waterways. Do not apply directly to, or allow spray drift to come into contact with agricultural or horticultural crops, amenity plantings, gardens, ponds, lakes or watercourses.

SOIL TYPES

ASTROKERB can be used on all soil types except those containing more than 10% organic matter.

SOIL AND WEATHER CONDITIONS

ASTROKERB requires moisture for root uptake. Best residual action is obtained in moist soils of fine tilth.

ASTROKERB can be applied under frosty conditions but should not be used where run-off from the soil surface is likely.

Best results are achieved when growth of weeds (especially blackgrass and volunteer cereals) is slow, but transpiration continues. In mild autumns/winters, emerged weeds may take longer to be controlled, the residual activity of ASTROKERB will be shortened and overall control may be reduced.

The efficacy of ASTROKERB may be reduced in organic soils and in the presence of excessive surface organic debris, burnt straw, ash, or ploughed-up turf.

RESISTANCE

Strains of some annual grasses (e.g. blackgrass, wild oats, Italian ryegrass) have developed resistance to herbicides which may lead to poor control. A strategy for preventing and managing such resistance should be adopted. Guidelines have been produced by the Weed Resistance Action Group and copies are available from the HGCA, CPA, your distributor, crop adviser or product manufacturer.

WINTER OILSEED RAPE

ASTROKERB can be applied after the use of an approved specific graminicide applied in accordance with the manufacturers' recommendations.

WATER VOLUMES

Apply ASTROKERB in 200 to 300 litres of water per hectare.

Ensure good ground cover.

APPLICATION EQUIPMENT

Application should be made through a ground crop sprayer.

Do not apply through broadcast air-assisted sprayers.

CROP RECOMMENDATION TABLES

S = Susceptible MS = Moderately susceptible MR = Moderately resistant R = Resistant

Crop	Rate of Use	Weed Species	Stage of Weed Growth			Time of Year	Timing Stage of Crop	Soil Type (Soil Texture (85 System))
			Germinating	Up to 2 leaf	Established*			
Winter oilseed rape	1.5 L/ha	Annual meadow-grass, barren brome, volunteer cereals, wild-oat	S	S	S	1 st October to 31 st January	As soon as possible after 3rd true leaf stage Crop selectivity is by depth protection. Factors which cause shallow rooting may reduce crop selectivity	All soils with less than 10% organic matter
		Common chickweed ¹ , mayweed, common poppy	S	S	S ¹			
		Blackgrass ²	S	S	MS ²			
		Black-bindweed, black nightshade, fat-hen, knotgrass, redshank, small nettle, speedwells	S	S	MR			
		Field forget-me-not	MS	MS	R			
		Cleavers	MS	MR	R			
	1.0 L/ha - Use this rate only where a specific graminicide has controlled volunteer cereals and grassweeds and chickweed is not a problem	Annual meadow-grass, volunteer cereals, wild-oat	S	S	S			
		Black-bindweed, black nightshade, common chickweed, fat-hen, knotgrass, redshank, small nettle	S	S	R			
		Speedwells	S	R	R			

* Established = 3-4 true leaves to flower bud development stage.

NOTES FOR CROP RECOMMENDATION TABLES

1	Chickweed control may be reduced where it is well established (over 10 cm in diameter)
2	<p>CONTROL OF BLACKGRASS</p> <p>Established (well-tillered) blackgrass is moderately susceptible: Where populations of blackgrass and/or volunteer cereals exceed 50/m² ASTROKERB should be applied in tank mix with an approved graminicide, or following an effective approved graminicide to ensure optimum weed control. Deeper germinating blackgrass within the soil profile could reduce product efficacy.</p> <p>Where partial resistance (R[*] or RR[*]) to the partner graminicide is known to exist the dose of ASTROKERB may be increased to 1.7 L/ha. This may also be done if applications are made early in the season, under warm conditions and an increase in the duration of residual control is required (see 'Soil and Weather Conditions' above).</p> <p>Where high levels of resistance (RRR[*]) to the partner graminicide occurs there is no advantage of adding this graminicide to ASTROKERB for blackgrass control, and ASTROKERB even at 1.7 L/ha will not give acceptable levels of established black-grass control in these circumstances.</p> <p>† R = 1* RR = 2*/3* RRR = 4*/5*</p>

FOLLOWING CROPS

Winter cereals and spring cereals only.

Treated land must be mouldboard ploughed to a depth of 15 cm prior to drilling a following cereal crop.

Please consult Dow AgroSciences if a treated crop fails because of bad growing conditions.

MIXING

Add half the required volume of water to the spray tank and begin agitation. Add the recommended quantity of ASTROKERB. Agitate while topping up the tank and continue agitation until spraying is complete.

TANK CLEANING

Thoroughly wash all spraying and measuring equipment with water immediately after use.

To avoid subsequent injury to crops, all spraying equipment must be thoroughly cleaned both inside and out after an application of ASTROKERB.

1. Immediately after spraying, drain tank completely. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. Rinse inside of tank with clean water and flush through booms and hoses using at least one tenth of the spray tank volume. Drain tank completely.
3. Half fill tank with clean water. Agitate and then briefly flush the boom and hoses. Top up with water making sure the tank is completely full and allow to stand for 15 minutes with agitation. Flush the boom and hoses and drain tank completely.
4. Nozzles and filters should be cleaned separately and removed if necessary.
5. For disposal of washings, follow local regulations. Do not spray onto sensitive crop or land intended for cropping with sensitive crop.

Note: If it is not possible to drain the tank completely, step 3 must be repeated before going onto step 4.

TRADEMARK ACKNOWLEDGEMENTS

Dow AgroSciences Conditions of Supply

All goods supplied by us are of high grade and we believe them to be suitable but, as we cannot exercise control over their storage, handling, mixing or use, or the weather conditions before, during or after application which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded. No responsibility will be accepted by us or re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling, application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.

Safety Data Sheet

This Safety Data Sheet does not form part of the approved product label.

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

1.1 Product identifiers

Product name: ASTROKERB Herbicide

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

Identified uses: Plant Protection Product

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

DOW AGROSCIENCES LIMITED
LATCHMORE COURT
BRAND STREET
HITCHIN
England
SG5 1NH
UNITED KINGDOM

Customer Information Number: SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 0031 115 694 982

Local Emergency Contact: 00 31 115 69 4982

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EU) 1272/2008 :

Carcinogen - Category 2 - H351

Chronic aquatic toxicity - Category 2 - H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC:

Carc.Cat.3 - R40

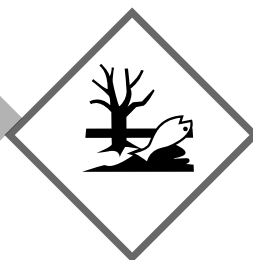
Dangerous for the environment - R51/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]:

Hazard pictograms



Signal word: WARNING

Hazard statements

- | | |
|------|--|
| H351 | Suspected of causing cancer. |
| H411 | Toxic to aquatic life with long lasting effects. |

Supplemental Hazard Statements

- | | |
|--------|---|
| EUH401 | To avoid risks to human health and the environment, comply with the instructions for use. |
|--------|---|

Precautionary statements

- | | |
|------|---|
| P202 | Do not handle until all safety precautions have been read and understood. |
| P281 | Use personal protective equipment as required. |
| P501 | Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste. |

Contains

Propyzamide (ISO)

2.3 Other hazards

no data available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 23950-58-5 EC-No. 245-951-4 Index-No. 616-055-00-4	–	43.7%	Propylzamide (ISO)	Carc. - 2 - H351 Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 566191-87-5 EC-No. Not available Index-No. –	–	0.6%	Aminopyralid Potassium	Not classified
CASRN 57-55-6 EC-No. 200-338-0 Index-No. –	01- 2119456809- 23	< 5.0 %	Propylene glycol	Not classified

For the full text of the H-Statements mentioned in this Section, see Section 16.

CASRN / EC-No. / Index-No.	Concentration	Component	Classification: 67/548/EEC
CASRN 23950-58-5 EC-No. 245-951-4 Index-No. 616-055-00-4	43.7%	Propylzamide (ISO)	Carc.Cat.3 - R40 N - R50 - R53

CASRN / EC-No. / Index-No.	Concentration	Component	Classification: 67/548/EEC
CASRN 566191-87-5 EC-No. Not available Index-No. –	0.6%	Aminopyralid Potassium	Not classified
CASRN 57-55-6 EC-No. 200-338-0 Index-No. –	< 5.0 %	Propylene glycol	Not classified

For the full text of the R-phrases mentioned in this Section, see Section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: No emergency medical treatment necessary.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice. Suitable emergency safety shower facility should be available in work area.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: No emergency medical treatment necessary.

4.2 Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control centre or doctor, or going for treatment.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Unsuitable extinguishing media: no data available

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

4.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapour or mist. Wash thoroughly after handling. Use with adequate ventilation. Spills of these organic materials on hot fibrousinsulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

7.3 Specific end use(s): Refer to product label.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Propylene glycol	US WEEL	TWA	10 mg/m3
	GB EH40	TWA	474 mg/m3 150 ppm
	GB EH40	TWA	10 mg/m3

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

8.2 Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapour cartridge with a particulate pre-filter, type AP2.

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	Brown
Odour	Mild
Odour Threshold	No test data available

pH	7.2 1% pH Electrode (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup > 100 °C Pensky-Martens Closed Cup ASTM D 93
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapour Pressure	No test data available
Relative Vapour Density (air = 1)	No test data available
Relative Density (water = 1)	No test data available
Water solubility	No test data available
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	EC Method A15 none below 400 degC
Decomposition temperature	No test data available
Kinematic Viscosity	not applicable
Explosive properties	No EEC A14
Oxidizing properties	No significant increase (>5C) in temperature.

9.2 Other information

Liquid Density	1.139 g/cm ³ at 20.0 °C <i>Digital density meter</i>
Molecular weight	no data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: no data available

10.2 Chemical stability: Thermally stable at typical use temperatures.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Some components of this product can decompose at elevated temperatures.

10.5 Incompatible materials: Avoid contact with: Strong oxidizers.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Nitrogen oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, rat, female, > 5,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, rat, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from inhalation. Based on the available data, respiratory irritation was not observed.

As product:

LC50, rat, 4 Hour, Aerosol, > 5.5 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

Essentially nonirritating to eyes.

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Product test data not available.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

In animals, effects have been reported on the following organs: Adrenal gland.

Gastrointestinal tract.

Kidney.

Liver.

Ovaries.

Pancreas.

Thyroid.

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Carcinogenicity

For the active ingredient(s): Propyzamide. Has caused cancer in laboratory animals.

Teratogenicity

For the active ingredient(s): Propyzamide. Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

For the active ingredient(s): Propyzamide. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Propyzamide (ISO)

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Propylene glycol

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

12.1 Toxicity

Acute toxicity to fish

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50, Rainbow trout (*Oncorhynchus mykiss*), static test, 96 Hour, > 30.4 mg/l

Acute toxicity to aquatic invertebrates

EC50, water flea *Daphnia magna*, static test, 48 Hour, > 34.5 mg/l

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), Growth inhibition, 72 Hour, 6.4 mg/l

ErC50, *Lemna gibba*, Growth inhibition, 7 d, 5.5 mg/l

Toxicity to Above Ground Organisms

oral LD50, *Apis mellifera* (bees), 48 Hour, > 330.25micrograms/bee

contact LD50, *Apis mellifera* (bees), 48 Hour, > 300micrograms/bee

12.2 Persistence and degradability

Propyzamide (ISO)

Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen).
no data available

Stability in Water (1/2-life)

Hydrolysis, pH 5 - 9, Half-life Temperature . Stable

Aminopyralid Potassium

Biodegradability: For similar active ingredient(s). Aminopyralid. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Propylene glycol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).
10-day Window: Pass

Biodegradation: 81 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

Biodegradation: 96 %

Exposure time: 64 d

Method: OECD Test Guideline 306 or Equivalent

12.3 Bioaccumulative potential

Bioaccumulation: No data available.

12.4 Mobility in soil

Propyzamide (ISO)

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient(Koc): 840 Measured

Aminopyralid Potassium

For similar active ingredient(s).

Aminopyralid.

Potential for mobility in soil is very high (Koc between 0 and 50).

Propylene glycol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): < 1 Estimated.

12.5 Results of PBT and vPvB assessment

Propyzamide (ISO)

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Aminopyralid Potassium

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Propylene glycol

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Propyzamide (ISO)

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Aminopyrid Potassium

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Propylene glycol

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Propyzamide)
14.3 Class	9
14.4 Packing group	III
14.5 Environmental hazards	Propyzamide
14.6 Special precautions for user	Hazard identification No: 90

Classification for SEA transport (IMO-IMDG):

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Propyzamide)
14.3 Class	9

14.4 Packing group	III
14.5 Environmental hazards	Propyzamide
14.6 Special precautions for user	EmS: F-A, S-F
14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1 UN number	UN 3082
14.2 Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Propyzamide)
14.3 Class	9
14.4 Packing group	III
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15. REGULATORY INFORMATION

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

Other regulations_
Registration Number: MAPP 16184_

This product contains only components that have been either pre-registered, registered, are exempt from registration or are regarded as registered according to Regulation (EC) No. 1907/2006 (REACH). The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

15.2 Chemical Safety Assessment

For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

SECTION 16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Full text of R-phrases referred to under sections 2 and 3

R40	Limited evidence of a carcinogenic effect.
R50	Very toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

CANCER - 2 - H351 - Calculation method

Aquatic Chronic - 2 - H411 - Calculation method

Revision

Identification Number: 101218521 / A293 / Issue Date: 13.08.2014 /

Version: 1.3

DAS Code: GF-2540

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

GB EH40	UK. EH40 WEL - Workplace Exposure Limits
TWA	Long-term exposure limit (8-hour TWA reference period)
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOWN AGROSCIENCES LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data

contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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ASTROKERB®

HERBICIDE

Product Registration Number: MAPP 16184 / PCS No 05322

A suspension concentrate containing 500 g/ litre propyzamide and 5.3 g/ litre aminopyralid (present as 6.3 g/litre aminopyralid potassium salt).

A foliar and residual herbicide for the control of a wide range of weeds in WINTER OILSEED RAPE.

SAFETY PRECAUTIONS

Operator protection:

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment: WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate or handling contaminated surfaces.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection. (UK Only)

WASH HANDS before meals and after work.

Environmental protection:

Do not contaminate water with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

Extreme care must be taken to avoid spray drift onto non-crop plants outside of the target area.

Storage and disposal:

STORE IN ORIGINAL CONTAINER, tightly closed, in a safe place. EMPTY CONTAINER COMPLETELY and dispose of safely.

Triple Rinse Containers, Puncture and invert to Dry at time of Use



Product Identifier according to Art.18 of Reg. (EC) No 1272/2008 [CLP]: AstroKerb®, Propyzamide

Warning

Suspected of causing cancer

Toxic to aquatic life with long lasting effects

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for triple rinsed empty containers which can be disposed of as non-hazardous waste.

Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

To avoid risks to human health and the environment, comply with the instructions for use.

MAPP 16184 / PCS No 05322

IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops/Situations:	Oilseed rape (winter)
Maximum Individual Dose:	}
Maximum Number of Treatments:	}
	Full details are given in the Important Information
Latest Time of Application:	}
Other Specific Restrictions:	}
	Area on the attached leaflet

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.