



PATH & DRIVE WEEDKILLER

Version 3 / GB
1020000235261/11
Revision Date: 04.12.2014
Print Date: 14.05.2015

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

1.1 Product identifier

Trade name PATH & DRIVE WEEDKILLER
Product code (UVP) 80231652

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

Use Herbicide

1.3 Details of the supplier of the safety data sheet

Supplier Bayer CropScience Limited
230 Cambridge Science Park
Milton Road
Cambridge
Cambridgeshire CB4 0WB
United Kingdom

Telephone +44(0)1223 226500
Telefax +44(0)1223 426240
Responsible Department Email: gardening.adviser@bayergarden.co.uk

1.4 Emergency telephone no.

Emergency telephone no. 0800-220876 (UK 24 hr)
+44(0)1635-563000 (Overseas 24 hr)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Chronic aquatic toxicity: Category 2
H411 Toxic to aquatic life with long lasting effects.

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

N Dangerous for the environment, R51/53

2.2 Label elements

Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Hazard label for supply/use required.

Hazardous components which must be listed on the label:

- Flufenacet
- Metosulam
- Glyphosate



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H411	Toxic to aquatic life with long lasting effects.
EUH208	Contains 1,2-Benzisothiazolin-3-one, 5-chloro-2-methyl-isothiazol-3-one/2-methyl-isothiazol-3-one. May produce an allergic reaction.
EUH401	To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P260	Do not breathe spray.
P271	Use only outdoors or in a well-ventilated area.
P501	Dispose of contents/container to a household waste recycling centre as hazardous waste except for empty containers which can be disposed of by recycling. Contact your local council for details.

2.3 Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures****Chemical nature**

Any other liquids (AL)

Flufenacet/Metosulam/Glyphosate 0,6:0,03:1,77 g/l

Hazardous components

R-phrases according to EC directive 67/548/EEC

Hazard statements according to Regulation (EC) No. 1907/2006

Name	CAS-No. / EC-No.	Classification		Conc. [%]
		EC Directive 67/548/EEC	Regulation (EC) No 1272/2008	
Flufenacet	142459-58-3 604-290-5	Xn; R22, R48/22 R43 N; R50/53	Acute Tox. 4, H302 STOT RE 2, H373 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	0.06
Metosulam	139528-85-1 604-145-6	Carc. Cat. 3 R40 Xn; R48/22 N; R50/53	Carc. 2, H351 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	0.003
Glyphosate	1071-83-6 213-997-4	Xi; R41 N; R51/53	Eye Dam. 1, H318 Aquatic Chronic 2, H411	0.18
Fatty alcohol polyglycol ether	61791-13-7	Xn; R22 Xi; R41	Acute Tox. 4, H302 Eye Dam. 1, H318	> 1.00 – <= 3.00
Benzyl alcohol	100-51-6 202-859-9	Xn; R20/22	Acute Tox. 4, H332 Acute Tox. 4, H302 Eye Irrit. 2, H319	> 1.00 – < 10.00
1,2-Benzisothiazol- 3(2H)-one	2634-33-5 220-120-9	Xn; R22 Xi; R38, R41	Acute Tox. 4, H302 Skin Irrit. 2, H315	> 0.005 – < 0.05

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		R43 N; R50	Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400	
Mixture of 5-Chlor-2-methyl-3(2H)-isothiazolon and 2-Methyl-2H-isothiazol-3-on	55965-84-9	T; R23/24/25 C; R34 R43 N; R50/53	Acute Tox. 3, H331 Acute Tox. 3, H311 Acute Tox. 3, H301 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	> 0.0002 – < 0.0015

Further information

Flufenacet	142459-58-3	M-Factor: 100 (acute)
Metosulam	139528-85-1	M-Factor: 1,000 (acute), 100 (chronic)

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

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. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists.

Eye contact

Remove contact lens and rinse eyes 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 unless directed to do so by a physician or poison control center. Rinse out mouth and give water in small sips to drink. Keep patient warm and at rest.

4.2 Most important symptoms and effects, both acute and delayed**Symptoms**

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

Initial treatment: symptomatic. In the event of a mouthful or more being ingested, the following measures should be considered: 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.

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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 Dangerous gases are evolved in the event of a fire.

5.3 Advice for firefighters

Special protective equipment for fire-fighters	In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
Further information	Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth.

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. If spillage enters drains leading to sewage works inform local water company immediately. If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up Keep in suitable, closed containers for disposal. Clean floors and contaminated objects with plenty of water. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

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 No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.

Hygiene measures When using, do not eat, drink or smoke. Wash hands immediately after work, if necessary take a shower.

7.2 Conditions for safe storage, including any incompatibilities

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Requirements for storage areas and containers	Store in original container and out of the reach of children, preferably in a locked storage area. Keep away from direct sunlight. Protect from freezing. Keep containers tightly closed in a dry, cool and well-ventilated place.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.
7.3 Specific end uses	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	0.47 mg/m ³ (TWA)		OES BCS*
Metosulam	139528-85-1	0.7 mg/m ³ (TWA)		OES BCS*

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

8.2 Exposure controls

Refer to COSHH assessment (Control of Substances Hazardous to Health (Amendment) Regulations 2004). Engineering controls should be used in preference to personal protective equipment wherever practicable. Refer also to COSHH Essentials.

Personal protective equipment

In normal use conditions personal protective equipment is not deemed to be necessary. If there is a potential for excessive exposure the following applies:

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	Wear CE Marked (or equivalent) nitrile rubber gloves (minimum thickness of 0,4 mm). Wash when contaminated and 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.
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.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Form	Liquid, clear
Colour	light yellow
Odour	weak, characteristic
Flash point	Not relevant; aqueous solution
Density	ca. 1.00 g/cm ³ at 20 °C
Water solubility	miscible
Partition coefficient: n-octanol/water	Flufenacet: log Pow: 3.2 Metosulam: log Pow: 2.46 at pH 7 Glyphosate: log Pow: -2.9

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

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) > 5,000 mg/kg
Test conducted with a similar formulation.

Acute inhalation toxicity LC50 (rat) > 5.067 mg/l
Exposure time: 4 h
Determined in the form of a respirable aerosol.
Highest attainable concentration.
Test conducted with a similar formulation.

Acute dermal toxicity LD50 (rat) > 4,000 mg/kg
Test conducted with a similar formulation.

Skin irritation No skin irritation (rabbit)
Test conducted with a similar formulation.

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Eye irritation	No eye irritation (rabbit) Test conducted with a similar formulation.
Sensitisation	Non-sensitizing. (guinea pig) OECD Test Guideline 406, Magnusson & Kligman test Test conducted with a similar formulation.

Assessment repeated dose toxicity

Flufenacet caused neurobehavioral effects and/or neuropathological changes in animal studies.
Metosulam caused specific target organ toxicity in experimental animal studies in the following organ(s):
kidneys, liver, Eyes.
Glyphosate did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity

Flufenacet was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Metosulam was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Glyphosate was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity

Flufenacet was not carcinogenic in lifetime feeding studies in rats and mice.
Metosulam caused an increased incidence of kidney tumours in rats at high dose levels. Metosulam was
not carcinogenic in lifetime feeding studies in mice.
Glyphosate was not carcinogenic in lifetime feeding studies in rats and mice.

Assessment toxicity to reproduction

Flufenacet did not cause reproductive toxicity in a two-generation study in rats.
Metosulam did not cause reproductive toxicity in a two-generation study in rats.
Glyphosate did not cause reproductive toxicity in a two-generation study in rats.

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.
Metosulam did not cause developmental toxicity in rats and rabbits.
Glyphosate did not cause developmental toxicity in rats and rabbits.

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity**

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 2.13 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient flufenacet.
	LC50 (Oncorhynchus mykiss (rainbow trout)) > 77.5 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient metosulam.
	LC50 (Oncorhynchus mykiss (rainbow trout)) 95 - 171 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient glyphosate.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 30.9 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient flufenacet.
	EC50 (Daphnia magna (Water flea)) > 100 mg/l Exposure time: 48 h

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The value mentioned relates to the active ingredient metosulam.

EC50 (Daphnia magna (Water flea)) 87 mg/l
Exposure time: 48 h

The value mentioned relates to the active ingredient glyphosate.

Toxicity to aquatic plants EC50 (Pseudokirchneriella subcapitata) 4.93 mg/l
Growth rate; Exposure time: 72 h
Test conducted with a similar formulation.

12.2 Persistence and degradability

Biodegradability Flufenacet:
not rapidly biodegradable
Metosulam:
not rapidly biodegradable
Glyphosate:
not rapidly biodegradable

Koc Flufenacet: Koc: 202
Metosulam: Koc: 166
Glyphosate: Koc: 884 - 60000

12.3 Bioaccumulative potential

Bioaccumulation Flufenacet: Bioconcentration factor (BCF) 71
Does not bioaccumulate.
Metosulam:
Does not bioaccumulate.
Glyphosate: Bioconcentration factor (BCF) < 1
Does not bioaccumulate.

12.4 Mobility in soil

Mobility in soil Flufenacet: Moderately mobile in soils
Metosulam: Moderately mobile in soils
Glyphosate: Slightly mobile in soils

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).
Metosulam: 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).
Glyphosate: 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**

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Product	Do not empty into drains. Dispose of unused product in its container at a household waste site (civic amenity site). Contact your local council (local authority) for details.
Contaminated packaging	Dispose of empty container in the dustbin. Follow advice on product label and/or leaflet.
Waste key for the unused product	020108 agrochemical waste containing dangerous substances

SECTION 14: TRANSPORT INFORMATION**ADR/RID/ADN**

14.1 UN number	3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUFENACET, METOSULAM SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Hazard no.	90
Tunnel Code	E

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

IMDG

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

UK 'Carriage' Regulations

14.1 UN number	3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUFENACET, METOSULAM SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environm. Hazardous Mark	YES
Emergency action code	3Z



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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 73/78 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

UK and Northern Ireland Regulatory References

This material may be subject to some or all of the following regulations (and any subsequent amendments). Users must ensure that any uses and restrictions as indicated on the label and/or leaflet are followed.

Transport

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No 1348)

Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No 2367)

Air Navigation Dangerous Goods Regulations 2002 (SI 2002 No 2786)

Supply and Use

Chemical (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716)

Chemical (Hazard Information and Packaging for Supply) (Northern Ireland) Regulations 2009

Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No 2677)

EH40 Occupational Exposure Limits - Table 1 List of approved workplace exposure limits

Control of Pesticide Regulations 1986

Dangerous Substances and Explosive Atmospheres Regulations 2002

Waste Treatment

Environmental Protection Act 1990, Part II

Environmental Protection (Duty of Care) Regulations 1991

The Waste Management Licensing Regulations 1994 (as amended)

Hazardous Waste Regulations 2005 (Replacing Special Waste Regulations 1996 as amended)

Landfill Directive

Regulation on Substances That Deplete the Ozone Layer 1994 (EEC/3093/94)

Water Resources Act 1991

Anti-Pollution Works Regulations 1999

Further information

WHO-classification: U (Unlikely to present acute hazard in normal use)

15.2 Chemical Safety Assessment

A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R20/22	Harmful by inhalation and if swallowed.
R22	Harmful if swallowed.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R34	Causes burns.
R38	Irritating to skin.
R40	Limited evidence of a carcinogenic effect.



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R41	Risk of serious damage to eyes.
R43	May cause sensitisation by skin contact.
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R50	Very toxic to aquatic organisms.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Text of the hazard statements mentioned in Section 3

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs (kidneys, liver, Eyes) through prolonged or repeated exposure.
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.

The above information is intended to give general health and safety guidance on the storage and transport of the product.

It is not intended to apply to the use of the product for which purposes the product label and any appropriate technical usage literature available should be consulted and any relevant licenses, consents or approvals complied with.

The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate.

No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.

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