

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/September 2009
Replaces GHB/August 2008

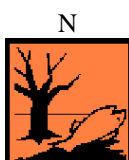
Page 1 of 10

SAFETY DATA SHEET

DIFLUFENICAN 60% METSULFURON 6% WG

Revision: Sections containing a revision or new information are marked with a ♣.

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING



Dangerous
for the
environment

Product name **DIFLUFENICAN 60%
METSULFURON 6% WG**

Intended use Herbicide

Manufacturer **CHEMINOVA A/S**
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Denmark
sds@cheminova.dk

Phone (+45) 97 83 53 53 (24 h; for emergencies only)

2. ♣ HAZARDS IDENTIFICATION

- 2.1. EU classification of the product N;R50/53; see 15.1.
according to Dir. 1999/45/EC as amended
- CLP classification Eye irritation: Category 2
according to EU Reg. 1272/2008 Hazards to the aquatic environment: Category acute 1 and chronic 1
- WHO classification None (unlikely to present acute hazard in normal use)
- 2.2. Health hazards (acute and chronic) The product may cause mild to moderate irritation to skin and eyes.
- 2.3. Signs and symptoms of exposure Primarily irritation. Poisoning is unlikely, unless large quantities
are ingested. In acute toxicity tests on diflufenican only non-
specific signs of toxicity were observed.
- 2.4. Environmental hazards The product is a herbicide and therefore expected to be toxic to all
green plants. See section 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. ACTIVE INGREDIENTS

Diflufenican

CAS name 3-Pyridinecarboxamide, N-(2,4-difluorophenyl)-2-[3-(trifluoro-
methyl)phenoxy]-

CAS no. 83164-33-4

IUPAC name 2',4'-Difluoro-2-(α,α,α -trifluoro-*m*-tolylloxy)nicotinamide

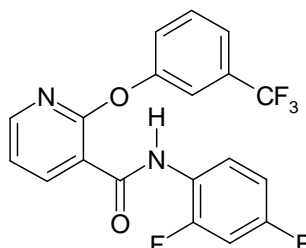
EU name **Diflufenican**

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

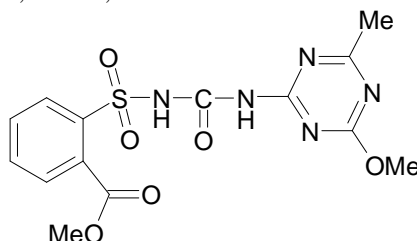
Page 2 of 10

EC no. (EINECS no.) -
EU index no. 616-032-00-9
EU classification of the ingredient ... R52/53; see section 16.
Structural formula



Metsulfuron-methyl

CAS name Benzoic acid, 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]sulfonyl]-, methyl ester
CAS no. 74223-64-6
IUPAC name Methyl 2-(4-methoxy-6-methyl-1,3,5-triazin-2-ylcarbamoyl-sulfamoyl)benzoate
EU name **Metsulfuron-methyl**
EC no. (EINECS no.) -
EU index no. 613-139-00-2
EU classification of the ingredient ... N;R50/53; see section 16.
Structural formula



3.2. COMPOSITION

Active ingredients	Diflufenican	60% by weight
	Metsulfuron-methyl	6% by weight
Reportable ingredients	Sulphonated aromatic polymer, sodium salt	4 - 7% by weight
	EU classification: Xi;R36/38; see section 16.	
	Morwet EFW	5% by weight
	CAS no.: 105864-15-1	
	EU classification: Xi;R41-38; see section 16.	
	Sulphonated lignin, sodium salt	4% by weight
	EU classification: Xi;R36/37; see section 16.	

4. FIRST AID MEASURES

4.1. Emergency and first aid procedures

Inhalation	If experiencing any discomfort, immediately remove the exposed person from exposure. Get medical attention immediately if symptoms develop.
Ingestion	Inducing vomiting is not recommended. Rinse mouth and drink a few glasses of water or milk. If vomiting occurs, rinse mouth and drink fluids again. Call a doctor or get medical attention.
Eye contact	Immediately flush eyes with plenty of water or eyewash solution,

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 3 of 10

occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and flush again. See physician if irritation persists.

Skin contact Immediately flush skin with plenty of water while removing contaminated clothing and footwear. Wash with water and soap. See physician if irritation persists.

4.2. Note to physician There is no specific antidote against this product. After decontamination, treatment is supportive and symptomatic. Administration of activated charcoal or gastric lavage can be considered.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media and procedure Dry chemical or carbon dioxide for small fires, water spray or foam for large fires.

Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Avoid heavy hose streams. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

5.2. Hazardous decomposition products in a fire The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as hydrogen fluoride, various fluorinated organic compounds, nitrogen oxides, sulphur dioxide and carbon oxides.

5.3. Unusual fire and explosion hazards –

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal protection Observe all protection and safety precautions when cleaning up spills. Depending on the magnitude of the spill this may mean wearing safety glasses or face mask, protective gloves, chemical resistant clothing and boots. See section 8, Personal protection.

6.2. Steps to be taken in case of spill It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.

Stop the source of the spill immediately if safe to do so. Contain the spill to prevent any further contamination of surface, soil or water. Reduce and avoid formation of airborne dust as much as possible, if appropriate by moistening. Remove sources of ignition.

Spills on the floor or other impervious surface should be swept up immediately or preferably vacuumed up using equipment with high efficiency final filter. Transfer to suitable containers. Rinse area with strong industrial detergent and much water. Absorb wash liquid onto inert absorbent such as universal binder, Fuller's earth, bentonite or other absorbent clay and transfer collected material to suitable containers. Wash waters must be prevented from entering surface water drains.

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 4 of 10

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

The used containers should be properly closed and labelled. Refer to section 13 for disposal.

7. HANDLING AND STORAGE

- 7.1. Precautions to be taken in handling
- In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. Otherwise the material should preferably be handled by mechanical means. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.
- For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8. The precautions of section 8 are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.
- 7.2. Precautions to be taken in storing
- The product is stable under normal conditions of warehouse storage.
- Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. The room should exclusively be used for storage of chemicals. Food, drink, feed or seed should not be present. A warning sign reading "POISON" is recommended. A hand wash station should be available.
- 7.3. Specific use
- This product is a registered pesticide, which may only be used for the applications it is registered for.
- 7.4. Fire and explosion precautions
- Like most organic solids, the product can form explosive mixtures with air. Avoid dust formation and take precautionary measures against static discharge. Use explosion protected equipment. Keep away from sources of ignition and protect from exposure to fire and heat.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1. Personal exposure limits
- Not established for the active substances in this product. Metsulfuron-methyl is a sulphonylurea. An exposure limit of 10 mg/m³ (8-hr TWA) is recommended for other sulphonylureas.

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 5 of 10

However, other exposure limits defined by local regulations may exist and must be observed.

- 8.2. Personal protection When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.



Respiratory protection

The product does not automatically present an airborne exposure concern when handled carefully due to low vapour pressure and low toxicity, but in the event of discharge of the material which produces a heavy vapour or dust, workers should put on officially approved face mask or respiratory protection equipment with a universal filter type including particle filter.



Protective gloves

Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton. The breakthrough times of these materials for this product are unknown, but it is expected that they will give adequate protection.



Eye protection

Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.



Other protection

Wear appropriate chemical resistant clothing to prevent skin contact.

- 8.3. Work/hygienic practices Keep all unprotected persons and children away from working area.

Avoid contact with eyes, skin or clothing. Avoid breathing vapour or dust.

Wash thoroughly with water and soap after handling. Remove contaminated clothing immediately and wash before reuse. Wash protective clothing and protective equipment with water and soap after each use.

- 8.4. Environmental exposure controls Do not discharge into the environment. See section 13 for disposal.

9. PHYSICAL AND CHEMICAL PROPERTIES

- | | |
|---------------------------|--|
| 9.1. Physical state | Solid |
| 9.2. Colour | Off-white |
| 9.3. Odour | Faint, ester-like |
| 9.4. Melting point | Diflufenican : 159°C |
| | Metsulfuron-methyl : 162°C |
| 9.5. Boiling point | Diflufenican and metsulfuron-methyl : Decompose |
| 9.6. Density | 0.66 - 0.68 g/cm ³ |

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 6 of 10

9.7. Vapour pressure	Diflufenican	: 4.25 x 10 ⁻⁶ Pa at 25°C 8.19 x 10 ⁻⁶ Pa at 35°C
	Metsulfuron-methyl	: 1.1 x 10 ⁻¹⁰ Pa at 20°C 3.3 x 10 ⁻¹⁰ Pa at 25°C
9.8. Solubility in water	Diflufenican	: < 0.05 mg/l at 25°C
	Metsulfuron-methyl	: 0.097 g/l at pH 4 and 20°C 0.74 g/l at pH 5 and 20°C 2.14 g/l at pH 7 and 20°C 189 g/l at pH 9 and 20°C
9.9. Solubility in organic solvents	Solubility of diflufenican at 20°C in:	
	1,2-dichloroethane	57-67 g/l
	acetone	100-114 g/l
	ethyl acetate	67-80 g/l
	methanol	< 10 g/l
	hexane	< 10 g/l
	xylene	30-40 g/l
	Solubility of metsulfuron-methyl at 25°C in:	
	n-hexane	0.584 mg/l
	acetone	37 g/l
	dichloromethane	132 g/l
	methanol	7.63 g/l
	acetonitrile	25.9 g/l
	ethyl acetate	11.1 g/l
	toluene	1.24 g/l
9.10. Partition coefficient n-octanol/water	Diflufenican	: log K _{ow} = 4.9 K _{ow} = 7.9 x 10 ⁴ at 25°C
	Metsulfuron-methyl	: log K _{ow} = -1.7 K _{ow} = 0.018 at pH 7 and 25°C
9.11. pH	1% solution in water: 4.7 at 25°C	
9.12. Flammability	Not highly flammable	
9.13. Autoignition temperature	> 400°C	
9.14. Explosive properties	Not explosive	
9.15. Oxidising properties	Not oxidising	

10. STABILITY AND REACTIVITY

10.1. Thermal decomposition	Stable at ambient temperatures. Excessive dust formation may pose a dust explosion hazard.
10.2. Hazardous decomposition products	See 5.2.
10.3. Materials to avoid	Strong oxidising compounds and strong alkalis.

11. TOXICOLOGICAL INFORMATION

11.1. Toxicokinetics, metabolism and distribution	Diflufenican is rapidly absorbed after oral administration. Distribution occurs preferentially to tissues with a high fat content. It is extensively metabolised and rapidly excreted. Metsulfuron-methyl is rapidly absorbed after oral intake. It is widely distributed in the body. It is partially metabolised. Excretion is rapid, within a few days. No indication of bioaccumulation is found.
11.2. Acute toxicity	The product is not harmful by inhalation, in contact with skin or if swallowed. However, it should always be treated with the usual

Product no. 12J/1270
 Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 7 of 10

care of handling chemicals. The acute toxicity of the product is measured as:

Route(s) of entry	- ingestion	LD ₅₀ , oral, rat: > 2000 mg/kg
	- skin	LD ₅₀ , dermal, rat: > 2000 mg/kg
	- inhalation	LC ₅₀ , inhalation, rat: > 4.9 mg/l/4 h

- 11.3. Irritancy Mildly to moderately irritating to skin and eyes.
- 11.4. Allergic sensitisation No indications of causing hypersensitivity are found for the product.
- 11.5. Carcinogenicity No indications of carcinogenic effects are found for the active ingredients.
- 11.6. Effects on reproduction No effects on fertility are found for the active ingredients.
- 11.7. Teratogenicity No indications of teratogenic (birth defect causing) effects of the active ingredients are found.
- 11.8. Mutagenicity The active ingredients are not mutagenic.

12. ♣ ECOLOGICAL INFORMATION

- 12.1. Ecotoxicity Both the active ingredients are highly toxic to many plant species. The product is considered as non-toxic to fish, aquatic invertebrates, soil micro- and macroorganisms, birds, mammals and insects.

The toxicity of the product is measured as:

- Fish	Rainbow trout (<i>Oncorhynchus mykiss</i>)	96-h LC ₅₀ : > 164 mg/l
- Invertebrates	Daphnids (<i>Daphnia magna</i>)	48-h EC ₅₀ : > 164 mg/l
- Algae	Green algae (<i>Desmodesmus subspicatus</i>)	72-h EC ₅₀ : 0.506 µg/l
- Plants	Duckweed (<i>Lemna gibba</i>)	7-day EC ₅₀ : 5.47 µg/l
- Earthworms	<i>Eisenia fetida</i>	LC ₅₀ : > 1000 mg/kg dry soil
- Insects	Honeybees (<i>Apis mellifera</i>)	LD ₅₀ , oral: > 100 µg/bee LD ₅₀ , contact: > 100 µg/bee

- 12.2. Mobility **Diflufenican** has low mobility in soil.
- Under normal conditions **metsulfuron-methyl** is mobile in soil. It has a potential for leaching to groundwater.
- 12.3. Persistence and degradability **Diflufenican** is not readily biodegradable. Degradation half-lives vary depending on soil type, but are usually several months.
- Metsulfuron-methyl** does not fulfil the criteria for being readily biodegradable. It is moderately persistent in the environment. Degradation half-lives vary with circumstances, from a few weeks to a few months in aerobic soil and water. Degradation occurs both by chemical hydrolysis and by microbiological degradation.
- 12.4. Bioaccumulative potential **Diflufenican** has a potential to bioaccumulate. The Bioconcentration Factor (BCF) was measured to be approx. 1500 for whole

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 8 of 10

fish (rainbow trout). It was excreted within 14 days.

Due to high solubility in water, **metsulfuron-methyl** does not bioaccumulate.

13. ♣ DISPOSAL CONSIDERATIONS

13.1. Waste disposal method Waste that cannot be reused or chemically reprocessed can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

13.2. Packaging/container disposal Triple rinse (or equivalent) and offer for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

Disposal of waste and packagings must always be in accordance with all applicable local regulations.

14. TRANSPORT INFORMATION**ADR/RID classification**

Proper shipping name Environmentally hazardous substance, solid, n.o.s. (Diflufenican and metsulfuron-methyl)

Class 9

UN no. 3077

Packaging group III

IMDG classification

Proper shipping name Environmentally hazardous substance, solid, n.o.s. (Diflufenican and metsulfuron-methyl)

Class 9

UN no. 3077

Packaging group III

Marine pollutant Marine pollutant

IATA/ICAO classification

Proper shipping name Environmentally hazardous substance, solid, n.o.s. (Diflufenican and metsulfuron-methyl)

Class 9

UN no. 3077

Packaging group III

15. ♣ REGULATORY INFORMATION

15.1. **LABELLING IN THE EU**
according to Dir. 1999/45/EC as amended

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 9 of 10

Hazard symbol

N



Dangerous
for the
environment

Contains

Diflufenican and metsulfuron-methyl

R-phrases

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases

S60-61: This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

Other mentions

To avoid risks to man and the environment, comply with the instructions of use.

15.2. GLOBALLY HARMONISED SYSTEM

according to EU Reg. 1272/2008

CLP classification

Eye irritation: Category 2

Hazards to the aquatic environment: Category acute 1 and chronic 1

CLP labelling

Product identifier

Diflufenican 60% Metsulfuron 6% WG

Contains

Diflufenican and metsulfuron-methyl

Hazard pictograms required on label



Signal word

Warning

Hazard statements

H319: Causes serious eye irritation

H410: Very toxic to aquatic life with long lasting effects

Supplementary hazard statement

EUH401: To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements

Prevention

P264: Wash hands thoroughly after handling.

P273: Avoid release to the environment.

Response

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

P391: Collect spillage.

Storage

-

Disposal

P501: Dispose of contents/container in accordance with local regulations.

Product no. 12J/1270
Product name **DIFLUFENICAN 60% METSULFURON 6% WG**

GHB/August 2008

Page 10 of 10

15.3. Regulatory status All the ingredients in this product are in compliance with EU chemical regulations.

16. OTHER INFORMATION

Used R-phrases	R36/38	Irritating to eyes and skin.
	R36/37	Irritating to eyes and respiratory system.
	R38	Irritating to skin.
	R41	Risk of serious damage to eyes.
	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product may vary and situations unforeseen by Cheminova A/S may exist. The user of the material has to check the validity of the information under local circumstances.