



AUXO EC 337

Version 7 / EU
1020000136021/12
Revision Date: 26.11.2015
Print Date: 06.07.2016

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

1.1 Product identifier

Trade name AUXO EC337
Product code (UVP) 05856557

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 (Pty) Ltd.
27 Wrench Road, P.O. Box 143
1600 Isando
South Africa

Telephone +27 (011) 921 5911
Telefax +27 (011) 921 5766
Responsible Department QHSE - Nigel, South Africa
+27 (011) 365 8675 (during business hours only)

1.4 Emergency telephone no.

Emergency telephone no. +27 (0861) 555 777 (Western Cape Poisons Helpline)
Global Incident Response Hotline (24h) +1 (760) 476-3964 (Company 3E for Bayer CropScience)

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.

Acute toxicity: Category 4
H302 Harmful if swallowed.

Aspiration hazard: Category 1
H304 May be fatal if swallowed and enters airways.

Eye irritation: Category 2
H319 Causes serious eye irritation.

Skin sensitisation: Category 1
H317 May cause an allergic skin reaction.

Reproductive toxicity: Category 2
H361d Suspected of damaging the unborn child.

Acute aquatic toxicity: Category 1
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1



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H410 Very toxic to aquatic life with long lasting effects.

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:

- Bromoxynil
- Tembotrione
- Isoxadifen-ethyl
- Solvent Naphtha (petroleum), heavy aromatic

**Signal word:** Danger

Hazard statements

H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.
H410 Very toxic to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.
EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection.
P301 + P330 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
+ P331
P310 Immediately call a POISON CENTER/doctor/physician.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor/ physician.
P501 Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature

Emulsifiable concentrate (EC)
Bromoxynil/Tembotrione/Isoxadifen-ethyl 180:50:25 g/l

Hazardous components

Hazard statements according to Regulation (EC) No. 1272/2008

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Name	CAS-No. / EC-No. / REACH Reg. No.	Classification	Conc. [%]
		Regulation (EC) No 1272/2008	
Bromoxynil octanoate	1689-99-2 216-885-3	Repr. 2, H361d Acute Tox. 3, H331 Acute Tox. 4, H302 Skin Sens. 1, H317 Aquatic Chronic 1, H410 Aquatic Acute 1, H400	23,60
Tembotrione	335104-84-2	Skin Sens. 1, H317 STOT RE 2, H373 Repr. 2, H361d Aquatic Acute 1, H400 Aquatic Chronic 1, H410	4,50
Isoxadifen-ethyl	163520-33-0 443-870-0	Acute Tox. 4, H302 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	2,30
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	70528-83-5 274-654-2	Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	> 0,10 – < 2,50
1-Octanol	111-87-5 203-917-6	Eye Irrit. 2, H319 Skin Irrit. 2, H315	> 1,00 – < 20,00
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5 265-198-5 01-2119451097-39-xxxx	Asp. Tox. 1, H304 Aquatic Chronic 2, H411	> 2,50 – < 25,00
Acetophenone	98-86-2 202-708-7	Eye Irrit. 2, H319 Acute Tox. 4, H302	> 25,00

Further information

Bromoxynil octanoate	1689-99-2	M-Factor: 10 (acute), 10 (chronic)
Tembotrione	335104-84-2	M-Factor: 100 (acute), 10 (chronic)
Isoxadifen-ethyl	163520-33-0	M-Factor: 1 (acute)

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

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures**

General advice	Remove contaminated clothing immediately and dispose of safely.
Inhalation	Move the victim to fresh air and keep 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.



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Eye contact	Wash off immediately with plenty of water 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. Keep patient warm and at rest. Do NOT induce vomiting. Risk of product entering the lungs on vomiting after ingestion. Call a physician or poison control center immediately.
4.2 Most important symptoms and effects, both acute and delayed	
Symptoms	Local: Sensitisation, The product causes irritation of eyes, skin and mucous membranes. Systemic: Tiredness, Thirst, Sweating, Anxiety, Hyperventilation, Tachycardia, Muscle rigidity, Hyperthermia
4.3 Indication of any immediate medical attention and special treatment needed	
Treatment	Local treatment: Initial treatment: symptomatic. Systemic treatment: Initial treatment: symptomatic. 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 hyperthermia physical cooling is advisable; in case of muscle rigidity muscle relaxants and mechanical ventilation may support in counteracting hyperthermia. There is no specific antidote.

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.

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Precautions Keep people away from and upwind of spill/leak. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke.

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). Keep in suitable, closed containers for disposal. Clean floors and contaminated objects with plenty of water.

Additional advice Check also for any local site procedures.

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.

Advice on protection against fire and explosion Keep away from heat and sources of ignition. Vapours may form explosive mixture with air. Take measures to prevent the build up of electrostatic charge. Use only explosion-proof equipment.

Hygiene measures When using, do not eat, drink or smoke. Remove soiled clothing immediately and clean thoroughly before using again. Contaminated work clothing should not be allowed out of the workplace. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Wash hands immediately after work, if necessary take a shower.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a place accessible by authorized persons only. Keep containers tightly closed in a dry, cool and well-ventilated place. 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)

7.3 Specific end uses Refer to the label and/or leaflet.

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Components	CAS-No.	Control parameters	Update	Basis
Bromoxynil octanoate	1689-99-2	0,21 mg/m ³ (TWA)		OES BCS*
Tembotrione	335104-84-2	0,15 mg/m ³ (TWA)		OES BCS*
Isoxadifen-ethyl	163520-33-0	1 mg/m ³ (TWA)		OES BCS*
Acetophenone	98-86-2	10 ppm (TWA)		OES BCS*

*OES BCS: Internal Bayer CropScience "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

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 4 suit.
If there is a risk of significant exposure, consider a higher protective type suit.
Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.

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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
Colour	light brown
Odour	aromatic
pH	3,5 - 4,5 at 10 % (23 °C) (deionized water)
Flash point	ca.87 °C
Ignition temperature	425 °C
Upper explosion limit	7,00 %(V) The data refer to solvent naphtha petroleum.
Lower explosion limit	0,8 %(V) The data refer to solvent naphtha petroleum.
Relative vapour density	1,00 The data refer to solvent naphtha petroleum.
Density	ca. 1,11 g/cm ³ at 20 °C
Water solubility	miscible
Partition coefficient: n-octanol/water	Bromoxynil octanoate: log Pow: 5,4 Tembotrione: log Pow: -1,09 Isoxadifen-ethyl: log Pow: 3,8
Viscosity, kinematic	7,68 mm ² /s at 40 °C
Surface tension	ca. 34,3 mN/m at 20 °C
Oxidizing properties	No oxidizing properties
Explosivity	Not explosive
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.

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- 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) 500 mg/kg
Acute inhalation toxicity	LC50 (rat) > 4,90 mg/l Exposure time: 4 h
Acute dermal toxicity	LD50 (rat) > 2.000 mg/kg
Skin irritation	No skin irritation (rabbit)
Eye irritation	Irritating to eyes. (rabbit)
Sensitisation	Sensitising (mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment repeated dose toxicity

Bromoxynil octanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): liver. The observed effects do not appear to be relevant for humans.
Tembotrione caused specific target organ toxicity in experimental animal studies in the following organ(s): Eyes, kidneys, liver.
Isoxadifen-ethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Bromoxynil octanoate was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Tembotrione was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Isoxadifen-ethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Bromoxynil octanoate caused at high dose levels an increased incidence of tumours in the following organ(s): liver. The mechanism of tumour formation is not considered to be relevant to man.
Tembotrione caused an increased incidence of tumours in rats in the following organ(s): cornea. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.
Isoxadifen-ethyl was not carcinogenic in lifetime feeding studies in rats and mice.

Assessment toxicity to reproduction

Bromoxynil octanoate did not cause reproductive toxicity in a two-generation study in rats.
Tembotrione did not cause reproductive toxicity in a two-generation study in rats.
Isoxadifen-ethyl did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Bromoxynil octanoate caused a delayed foetal growth, an increased incidence of non-specific malformations. Bromoxynil octanoate caused developmental toxicity only at dose levels toxic to the

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dams.

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

Isoxadifen-ethyl did not cause developmental toxicity in rats and rabbits.

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity**

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 0,71 mg/l Exposure time: 96 h
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 0,146 mg/l Exposure time: 48 h
Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) 0,643 mg/l Growth rate; Exposure time: 72 h EC50 (Lemna gibba (gibbous duckweed)) 0,1 mg/l Growth rate; Exposure time: 168 h

12.2 Persistence and degradability

Biodegradability	Bromoxynil octanoate: not rapidly biodegradable Tembotrione: not rapidly biodegradable Isoxadifen-ethyl: not rapidly biodegradable
Koc	Bromoxynil octanoate: Koc: 639 Tembotrione: Koc: 66 Isoxadifen-ethyl: Koc: 2512

12.3 Bioaccumulative potential

Bioaccumulation	Bromoxynil octanoate: Bioconcentration factor (BCF) 230 Does not bioaccumulate. Tembotrione: Does not bioaccumulate. Isoxadifen-ethyl: Does not bioaccumulate.
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12.4 Mobility in soil

Mobility in soil	Bromoxynil octanoate: Slightly mobile in soils Tembotrione: Mobile in soils Isoxadifen-ethyl: Slightly mobile in soils
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12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment	Bromoxynil octanoate: 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). Tembotrione: 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).
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Isoxadifen-ethyl: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects**Additional ecological information**

No other effects to be mentioned.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Product	In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.
Contaminated packaging	Triple rinse containers. Do not re-use empty containers. Not completely emptied packagings should be disposed of as hazardous waste.
Waste key for the unused product	02 01 08* 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. (BROMOXYNIL OCTANOATE 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. (BROMOXYNIL OCTANOATE SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Marine pollutant	YES

IATA

14.1 UN number	3082
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14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BROMOXYNIL OCTANOATE SOLUTION)
14.3 Transport hazard class(es)	9
14.4 Packing 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

WHO-classification: II (Moderately hazardous)

15.2 Chemical Safety Assessment

A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

Text of the hazard statements mentioned in Section 3

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
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.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs 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.

Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
Conc.	Concentration
EC-No.	European community number



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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
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 information contained within this Safety Data Sheet is in accordance with the guidelines established by Regulation (EU) 1907/2006 and Regulation (EU) 2015/830 amending Regulation (EU) No 1907/2006 and any subsequent amendments. This data sheet complements the user's instructions, but does not replace them. The information it contains is based on the knowledge available about the product concerned at the time it was compiled. Users are further reminded of the possible risks of using a product for purposes other than those for which it was intended. The required information complies with current EEC legislation. Addressees are requested to observe any additional national requirements.

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