

ADAMA 

Ethosat[®] 500



MAPP 13050

A suspension concentrate formulation containing 500 g/l (44.3 % w/w) ethofumesate.

A herbicide for control of annual grass and broad-leaved weeds in sugar beet, fodder beet, red beet and mangels and in amenity grassland.

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



Toxic to aquatic life with long lasting effects.

Keep out of reach of children.
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.

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

ADAMA AGRICULTURAL SOLUTIONS UK LTD

Unit 15, Thatcham Business Village, Colthrop Way, Thatcham, Berkshire, RG19 4LW
Telephone: (01635) 860555 Technical Helpline: (01635) 876622

For advice on medical emergencies, fires or major spills telephone the National Chemical Emergency Centre on 01865 407333

Batch No: see packaging

PROTECT FROM FROST
SHAKE WELL BEFORE USE

5 litres e

This leaflet/booklet is part of the approved label.

For advice on medical emergencies, fires or major spills telephone
the National Chemical Emergency Centre on 01865 407333

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE

Crops	Maximum individual dose (litres product/ha)	Maximum total dose (litres product/ha/crop)	Latest time of application
Sugar beet, fodder beet, red beet, mangels	2.0	2.0	Before crop leaves meet between the rows
Grassland (seed crops)	2.0	2.0	-
Amenity grassland	2.0	2.0	-

Other specific restrictions:

On grassland and amenity grassland, the maximum total dose MUST NOT exceed 1.0 kg ethofumesate per hectare per year, or a total of 2.0 kg per hectare in any three year period.

On land other than grassland and amenity grassland DO NOT apply more than 1 kg of ethofumesate per hectare in any three year period.

This product must not be used on grassland where treated grass may be consumed by livestock (either by direct grazing or consumption of grass cuttings).

The product must not be applied to red beet later than 84 days before harvest.

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.

SAFETY PRECAUTIONS

Operator Protection

WASH CONCENTRATE from skin or eyes immediately.
WASH HANDS AND EXPOSED SKIN before eating, drinking or smoking and after work.
DO NOT BREATHE SPRAY.

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.

DO NOT USE on grassland where treated grass may be consumed by livestock (either by direct grazing or consumption of grass cuttings).

Storage and Disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.
WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely.
DO NOT RE-USE CONTAINER for any purpose.

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.

ETHOSAT® 500 can be used as a pre- or post-weed emergence herbicide in sugar beet, fodder beet, red beet and mangels. It can also be used in amenity grassland situations which include grassland grown for non-crop use which covers the following:

- areas of semi-natural or planted grassland subject to minimal or non-intensive management.
- areas that may be accessed by the public such as golf roughs.
- air fields and predominantly grassed railway embankments and roadside verges.

It must not be used on grassland for agricultural use or animal consumption.

RESTRICTIONS AND WARNINGS

Weather conditions

As with many residual herbicides, adverse weather, soil or cultural conditions may lead to unsatisfactory results or a check to growth from which recovery may not be complete.

Do not apply when the air temperature is above 21°C or is likely to rise above this temperature on the day of treatment. In these situations, wait for more suitable conditions (e.g. spray in the late afternoon or early evening, provided that the temperature has dropped below 21°C). Do not apply during frosty conditions or if frost is forecast or likely to occur within 7 days of treatment.

Drift

Avoid drift to areas outside those being sprayed, having due regard to the prevailing weather conditions and spray quality being used.

Crop Conditions

Apply to healthy crops that are growing normally. DO NOT apply to any crop that is under stress from any cause. Stress can be caused by many factors (examples below). In situations where more than one stress factor is present, the check to crop growth can be severe, possibly leading to some loss of crop and a reduction in yield.

Nutrient deficiency

If a crop is suffering from a nutrient deficiency, ETHOSAT 500 may cause a check to the crop from which it may not fully recover. Correct any deficiency before ETHOSAT 500 treatment.

Pest or disease attack

If the crop has been damaged by pest or disease, application of ETHOSAT 500 may result in a check to growth from which it may not fully recover.

Wind or hail

Physical damage can occur to the crop as a result of strong wind action, from wind-blown soil and from hail damage. In these circumstances, wait until the crop has recovered before application.

Light intensity

If crop is under stress for any reason, application under conditions of high light intensity may result in a check to growth from which it may not fully recover.

Temperature

When significant variation occurs between day and night temperature, for a few days before or after application, the crop may suffer a check to growth from which it may not fully recover.

Other herbicides

When used after other beet herbicides, the crop may be suffering from stress that is not always obvious or predictable. In this situation, application of ETHOSAT 500 may result in a more serious check to growth than would be expected.

Crop Failure

If crop failure occurs by reason of insect damage, soil blow, capping etc., re-drill only with sugar beet, red beet, fodder beet or mangels.

For grassland grown as an under-sown crop, apply when the cover crop has been removed.

Clover – any clover present will be killed or severely checked.

In grassland, some slight check of the crop might be noted, but this is generally transient and quickly outgrown.

Amenity ryegrass – owing to lack of competition, amenity ryegrass varieties grown for seed may need to be treated in the spring as well as in the autumn to give adequate control of weed grasses.

Farmyard manure – if farmyard manure is to be applied before re-seeding, ensure there is a gap of one month before ETHOSAT 500 is applied, and it should be buried by mould board ploughing. Do not apply slurry two months before or one month after ETHOSAT 500 is applied.

Grass seed crops – no guarantee is given that certification will be obtained after using ETHOSAT 500.

Cutting – do not cut grass for 14 days after applying ETHOSAT 500. Where the sward is to be cut it is preferable to do this before rather than after applying ETHOSAT 500. Any cuttings must not be fed to livestock.

Rolling – if required this should be carried out 7 days before or after using ETHOSAT 500, and increased if frost is expected.

Re-seeding into established grassland – delay application until the seedlings have at least 2-3 leaves and the crop is healthy.

Re-seeding grass – ETHOSAT 500 may be applied post-emergence whether traditional cultivations, minimum cultivations or direct drilling techniques are used, although weed control may be reduced where minimum tillage or direct drilling have been carried out. Ryegrass may be safely sown any time after ETHOSAT 500 treatment. Cock's-foot, timothy or meadow fescue may be sown three months

Sugar beet, red beet*, fodder beet and mangels

Soil type	ETHOSAT 500 plus L/ha	Pyramin DF or kg/ha	Venzar Flowable L/ha
Very light/light (LS-ZL)[§]	2.0	1.7	0.9
Medium[#] (SCL-ZCL)[§]	2.0	2.2	1.3

* ETHOSAT 500 mixtures with Pyramin DF should not be used on red beet.

[§] Soil Texture (85 System) (see above).

[#] On medium soils persistence and residual control may be reduced and/or weed control may be less than the listed susceptibilities.

before or two months after the use of ETHOSAT 500, provided conditions are suitable for the grass seeds to germinate. The over-sown grasses should be drilled not broadcast.

Soil types and soil conditions

ETHOSAT 500 should not be used on sands, very light soils containing a high percentage of stones, or on soils containing above 5% organic matter (this level can only be determined by chemical analysis). Do not use ETHOSAT 500 on heavy soils. Sufficient soil moisture is necessary for residual activity. The seedbed should have a good tilth and be firm and free of clods. Ensure that the soil is not acidic by correcting any lime deficiency prior to drilling, because ETHOSAT 500 may cause a growth check to crops on acidic soils. Ensure any surface trash is buried before applying.

Storage

Store in a safe dry place designated as a chemical store.

WEED CONTROL

The following weed susceptibilities apply if ETHOSAT 500 is used pre-emergence in mixture with either chloridazon or lenacil, as detailed in the table below. It is advisable to apply ETHOSAT 500 as part of a weed control programme, following a suitable pre-emergence herbicide. If weeds are present at the time of application, control may be reduced, and we advise tank-mixing with a suitable contact herbicide (see tank-mix section).

Sugar beet

Susceptible

Annual meadowgrass	Knotgrass
Black-bindweed	Mayweeds
Blackgrass	Pale persicaria
Charlock	Redshank
Cleavers	Scarlet pimpernel
Common chickweed	Shepherd's purse
Common fumitory	Smooth sowthistle
Common orache	Wild radish (Runch)
Corn spurrey	
Fat-hen	

Moderately Susceptible

Black nightshade	Field pansy
Common hemp-nettle	Field penny-cress
Common field-speedwell	Small nettle
Common poppy	Wild oat

Resistant

Fool's parsley	Red dead-nettle
Henbit dead-nettle	Ryegrass
Ivy-leaved speedwell	

ETHOSAT 500 can be applied alone post-emergence of the weed to control the following:

- Common chickweed - susceptible up to 6 expanded true leaf stage.
- Cleavers - moderately susceptible up to 5cm across or high.

Grassland

Best results are obtained if ETHOSAT 500 is applied to a vigorous competitive crop where some growth is occurring in moist soil and when further rain falls within 10 days of spraying. The crop and weeds must be at the correct stage when sprayed. This is normally between mid-October and mid-December.

Applications may be made up to the end of February in Avon, Berkshire, Cornwall, Devon, Dorset, Gloucestershire, Hampshire, Kent, Oxfordshire, Somerset, Surrey, Sussex and Wiltshire, up to the end of March in the remainder of England, Wales and Northern Ireland and up to mid-April in Scotland. Common chickweed will be controlled by applications up to mid-April in all regions provided rapid growth has not started and application ensures that a reasonably high proportion of the spray reaches the soil.

Weeds	Post-emergence
Meadowgrass, Annual	S
Blackgrass	MS
Barley, Wall	MS
Meadowgrass, Rough	MR
Soft-brome	MS
Brome, Barren	MS
Volunteer barley	MS
Volunteer oats	MR
Wild oat	MR
Volunteer wheat	R
Yorkshire fog	-
Perennial grasses	R
Chickweed, Common	S
Cleavers	-

- S - susceptible: complete or almost complete kill.
- MS - moderately susceptible: effective suppression or variable amount of kill.
- MR - moderately resistant: variable suppression depending on the weather and the vigour of the crop.
- R - resistant: no useful effect.

Levels of control may be reduced in established crops.

Common chickweed is controlled at all stages.

Soft brome may be controlled in Scotland if applied when the weed has 2-3 leaves, normally from mid-January to end of February, but in some cases as late as end of April. Check the size of the soft brome before spraying.

CROP SPECIFIC INFORMATION

SUGAR BEET, RED BEET, FODDER BEET AND MANGELS

All varieties of these crops (including seed crops) may be sprayed with ETHOSAT 500.

Consult the processor before using ETHOSAT 500 on contracted crops of beet.

Application

ETHOSAT 500 can be applied pre-emergence of the weed and post-emergence of the crop and weed, either as a conventional overall application or repeat low dose programme.

Overall and band application

Maximum individual dose:
2 L/ha of ETHOSAT 500

Total maximum dose:
2 L/ha of ETHOSAT 500

The following doses apply to OVERALL AND BAND APPLICATION. For band application, the doses relate to the area of the sprayed band. The area of field treated by these doses depends on the row spacing and the width of the band. For information on band spraying see Application.

Application

Volume: 200 – 240 litres water/hectare

Spray quality – Overall application

ETHOSAT 500 should be applied as a MEDIUM quality spray (BCPC definition). Do NOT use a coarse quality spray such as produced by low pressure of 'reduced-drift' nozzles, as this may give poor weed control.

Spray quality – Band application

Flat fan nozzles, including Evenspray nozzles, with a fan angle of 80° and having an output of 0.4 litres per minute at 3 bar pressure are particularly suitable for application to an 18cm band at 240 litres/hectare.

Low volume overall treatment

Application

Volume: 80 – 100 litres water/hectare

Applications must be separated by at least 5 days. Do NOT spray once the crop has met between the rows.

Spray quality – Low volume overall application
FINE quality spray (BCPC definition).

The required spray quality can be achieved by setting an appropriate combination of nozzles, pressure and forward speed. Fan or hollow cone nozzles which have an output of 0.3 to 0.6 litres per minute at 3 bar have been found to be suitable. Fan nozzles must have at least an 80° spray angle.

F80-110/0.3-0.6/3
HC-/0.3-0.6/3

GRASSLAND

ETHOSAT 500 can be safely used on Italian, hybrid and perennial ryegrasses, timothy, cock's foot, meadow fescue and tall fescue, as described below.

Application

Control declines once tillering begins for best results apply when weeds are small and conditions are favourable for good crop growth and competition.

1. **New leys**

Ryegrass (perennial, Italian and hybrid) and tall fescue

Apply when the crop has 2-3 leaves, and is healthy at the time of application.

Leys containing cock's foot, timothy and meadow fescue

Apply ETHOSAT 500 60 or more days after crop seedling emergence provided the majority are in the 2-3 leaf stage. Ensure the crop is healthy at the time of application.

Apply at a rate of 2.0 L/ha.
Avoid overlapping.

2. Herbage seed crops

(Including perennial ryegrass, Italian ryegrass, hybrid ryegrass, tall fescue, cock's foot, timothy and meadow fescue.)

For timothy and cock's-foot, ensure crop is healthy and growing well at the time of application, as these species are prone to stress and ETHOSAT 500 applied at the wrong time may cause crop damage.

Apply at a rate of 2.0 L/ha, but a follow up application with a suitable herbicide may be required within 3 months of the first application.

3. Established grassland

(Includes amenity ryegrass and seed crops in their second or subsequent years.)

ETHOSAT 500 is safe to ryegrass, (perennial, Italian and hybrid), tall fescue, cock's foot, timothy and meadow fescue.

It is essential that the above grasses are the main grasses and are evenly distributed throughout the sward. Otherwise, large bare areas will be left following treatment which may be re-colonised by grass weeds. For annual meadowgrass and common chickweed apply at 2.0 L/ha. Make a follow up treatment as required within 3 months.

For annual grass weeds and common chickweed apply at 2.0 L/ha in one application.

SUCCEEDING CROPS

Any crop may be sown 3 months after using ETHOSAT 500 at recommended doses. Ploughing (mould board) to a minimum depth of 15cm should precede preparation of the new seedbed.

MIXING AND APPLICATION

Application

ETHOSAT 500 may be applied as an overall spray (overall as a low volume spray) or as a band spray.

Mixing procedure

SHAKE THE CONTAINER BEFORE USE.

Preparation

- Wash out the sprayer, spraybars and nozzles to ensure no trace remains of previous chemicals. *This is most important after hormone or sulfonyl urea weedkillers.* Contaminated hoses should be replaced by new hoses. All hose connections must be secured with hose clips.
- Check that nozzle tips are clean, undamaged, of the correct type to apply the recommended spray quality and all of the same size, given equal spray outputs and distribution.

Mixing and filling – ETHOSAT 500 mixtures pre-emergence

Part fill the sprayer with clean water and check that the agitation is functioning properly.

Following the instructions for the partner product, add and thoroughly disperse the required quantity of the partner product in the spray tank. Then add the required volume of ETHOSAT 500.

Fill the tank with water to the required level and mix well by agitating or stirring. Continue agitation until tank load is used.

If agitation is stopped for any reason it is essential to re-suspend the spray mixture by thorough agitation and stirring before commencing spraying.

Mixing and Filling – ETHOSAT 500 post-emergence

Start to fill the sprayer with clean water and check that the agitation is operating correctly.

Add the required quantity of ETHOSAT 500 to a small quantity of water in the tank and agitate until dispersed.

Add water to the required level and mix well by agitating or stirring. Continue agitation until tank load is used.

Important Note

- Read also carefully and follow the instructions on the label of the tank-mix partner.
- Rinse all completely used containers carefully and empty washings into the spray tank. The use of sprayer mounted pressure rinsing equipment is advised.
- Wash sprayer and other equipment thoroughly after use.
- The interval between preparation of the spray mixture and completion of spraying should be kept to a minimum, certainly no more than two hours. Any longer may result in crystallisation, particularly if the water temperature is below 5°C (41°F).

COMPATIBILITY IN BEET CROPS

ETHOSAT 500 is compatible with Goltix® 70 SC and Falcon®.

A 4 day interval should be left between the application of ETHOSAT 500 mixture and an insecticide treatment.

CONDITIONS OF SUPPLY

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

Marketed by:

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Other brand names referred to on this label are trademarks of other manufacturers in which proprietary rights may exist.

This Safety Data Sheet does not form part of the approved label. Following the instructions on the pesticide Product Label for the specified uses should ensure that the product is used safely and efficaciously for those uses.

SAFETY DATA SHEET

Safety Data Sheet according to Regulation (EC)
No. 1907/2006 (REACH) Annex II

Revised on / Version: 20.11.2013 / 0003

Replaces revision of / Version: 29.10.2013 / 0002

Valid from: 20.11.2013

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

1.1. Product identifier

Ethosat 500

500 g/l Ethofumesate CAS 26225-79-6

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

Relevant identified uses of the substance or mixture:

Herbicide

Uses advised against:

Not applicable

1.3 Details of the supplier of the safety data sheet

Adama Agricultural Solutions UK Ltd, Unit 15, Thatcham Business
Village, Colthrop Way, Thatcham, Berkshire RG19 4LW
Telephone: 01635 860555, Fax: 01635 861555
ukenquiries@adama.com

Qualified person's e-mail address: info@chemical-check.de,
k.schnurbusch@chemical-check.de. Please DO NOT use for
requesting Safety Data Sheets.

1.4 Emergency telephone

Emergency information services / official advisory body:
National Chemical Emergency Centre (UK): 01865 407333 (24 hrs)

Telephone number of the company in case of emergencies:
Tel.: 01635 860555

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
Aquatic Chronic	2	H411-Toxic to aquatic life with long lasting effects.

2.1.2 Classification according to Directives 67/548/EEC and 1999/45/EC (including amendments)

N, Dangerous for the environment, R51-53

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) 1272/2008 (CLP)



Hazard statement

H411-Toxic to aquatic life with long lasting effects.

P102-Keep out of reach of children.

Disposal

P501 - Dispose of contents/container to an approved waste disposal plant.

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

SP 1 - 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).

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006.

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Formulation: Suspension concentrate

3.1 Substance

n.a.

3.2 Mixture

Ethofumesate (ISO)	
Registration number (REACH)	---
Index	607-314-00-2
EINECS, ELINCS, NLP	247-525-3
CAS	CAS 26225-79-6
Content %	40-50
Classification according to Directive 67/548/EEC	Dangerous for the environment, N, R51 Dangerous for the environment, R53
Classification according to Regulation (EC) 1272/2008 (CLP)	Aquatic Chronic 2, H411

For the text of the R-phrases / H-phrases and classification codes (GHS/CLP), see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation

Remove person from danger area.

Supply person with fresh air and consult doctor according to symptoms.

Skin contact

Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Eye contact

Remove contact lenses.

Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

Ingestion

Rinse the mouth thoroughly with water.

Give copious water to drink - consult doctor immediately.

Never pour anything into the mouth of an unconscious person!

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in Section 11 and the absorption route in Section 4.1.

In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment

Antidote:

None known

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Water jet spray/foam/CO₂/dry extinguisher

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

Oxides of carbon

Oxides of nitrogen

Oxides of sulphur

Oxides of phosphorus

Hydrogen chloride

Toxic gases

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.

Protective respirator with independent air supply.

According to size of fire

Full protection, if necessary

Dispose of contaminated extinction water according to official regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure sufficient supply of air.

Avoid contact with eyes or skin.

If applicable, caution - risk of slipping

6.2 Environmental precautions

If leakage occurs, dam up.

Resolve leaks if this possible without risk.

Prevent surface and ground-water infiltration, as well as ground penetration.

Prevent from entering drainage system.

If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth, sawdust) and dispose of according to Section 13.

Fill the absorbed material into lockable containers.

6.4 Reference to other Sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: HANDLING AND STORAGE

In addition to information given in this Section, relevant information can also be found in Sections 6.1 and 8.

7.1 Precautions for safe handling

7.1.1 General recommendations

Ensure good ventilation.

Avoid contact with eyes or skin.

Eating, drinking, smoking, as well as food storage, is prohibited in workroom.

Observe directions on label and instructions for use.

Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.

Observe regulations for keeping separated.

Store product closed and only in original packaging.

Not to be stored in gangways or stair wells.

Under all circumstances prevent penetration into the soil.

Store at room temperature.

Do not store over 54°C.

7.3 Specific end use(s)

No information available at present.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Chemical name	Propane-1,2-diol	Content %:
WEL-TWA: 150 ppm (474 mg/m ³) (total, vapour and particulates), 10 mg/m ³ (particulates)	WEL-STEL: ---	---
BMGV: ---	Other information: ---	

WEL-TWA = Workplace Exposure Limit - Long term exposure limit (8 hour TWA (= time weighted average) reference period) EH40. AGW = 'Arbeitsplatzgrenzwert' (workplace limit value, Germany). | WEL-STEL = Workplace Exposure Limit - Short term exposure limit (15 minute reference period). | BMGV = Biological monitoring guidance value EH40. BGW = 'Biologischer Grenzwert' (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.

** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.

Propane-1,2-diol						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	168	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	10	mg/m ³	
Consumer	Human - dermal	Long term, systemic effects	DNEL	213	mg/kg	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	50	mg/m ³	
Consumer	Human - oral	Long term, systemic effects	DNEL	85	mg/kg	
Consumer	Human - inhalation	Long term, local effects	DNEL	10	mg/m ³	
	Environment - freshwater		PNEC	260	mg/l	
	Environment - marine		PNEC	26	mg/l	
	Environment - sewage treatment plant		PNEC	2000	mg/l	
	Environment - sediment, freshwater		PNEC	572	mg/kg	
	Environment - sediment, marine		PNEC	57,2	mg/kg	
	Environment - soil		PNEC	50	mg/kg	
	Environment - water, sporadic (intermittent) release		PNEC	183	mg/l	

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.

If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.

Applies only if maximum permissible exposure values are listed here.

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedings.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:

Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:

Chemical resistant protective gloves (EN 374) if applicable.

Protective Neoprene® / polychloroprene gloves (EN 374).

Protective nitrile gloves (EN 374)

Protective PVC gloves (EN 374)

Minimum layer thickness in mm: 0,5

Permeation time (penetration time) in minutes: 120

The breakthrough times determined in accordance with EN 374

Part III were not obtained under practical conditions.

The recommended maximum wearing time is 50% of breakthrough time.

Protective hand cream recommended.

Skin protection - Other:

Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments)

Respiratory protection:

Normally not necessary.

With formation of mist.

Filter A2 P2 (EN 14387), code colour brown, white

Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:

Not applicable

Additional information on hand protection - No tests have been performed.

In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents. Selection of materials derived from glove manufacturer's indications.

Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account. Selection of a suitable glove depends not only on the material, but also on other quality characteristics and varies from manufacturer to manufacturer.

In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.

The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Light, beige
Odour:	Sweet
Odour threshold:	Not determined
pH-value:	7,1 (CIPAC MT 75)
pH-value:	7,2 (1%, CIPAC MT 75)
Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	Not determined
Flash point:	Not determined
Evaporation rate:	Not determined
Flammability (solid, gas):	Not determined
Lower explosive limit:	n.a.
Upper explosive limit:	n.a.
Vapour pressure:	Not determined
Vapour density (air = 1):	Not determined
Density:	1,13 (Regulation (EC) 440/2008 A.3. (RELATIVE DENSITY), relative density)
Bulk density:	Not determined
Solubility(ies):	Not determined
Water solubility:	Not determined
Partition coefficient (n-octanol/water):	Not determined
Auto-ignition temperature:	480°C (Regulation (EC) 440/2008 A.15. (AUTO-IGNITION TEMPERATURE (LIQUIDS AND GASES)))
Decomposition temperature:	Not determined
Viscosity:	135 mPas (OECD 114 (Viscosity of Liquids), 25 s ⁻¹)
Viscosity:	42 mPas (OECD 114 (Viscosity of Liquids), 500 s ⁻¹)
Explosive properties:	Product is not explosive.
Oxidising properties:	No
9.2 Other information	
Miscibility:	Not determined
Fat solubility / solvent:	Not determined
Conductivity:	Not determined
Surface tension:	Not determined
Solvents content:	Not determined

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The product has not been tested.

10.2 Chemical stability

Stable with proper storage and handling.

10.3 Possibility of hazardous reactions

No dangerous reactions are known.

10.4 Conditions to avoid

See also Section 7.

Protect from frost.

Strong heat.

10.5 Incompatible materials

See also Section 7.

Avoid contact with strong oxidising agents.

Avoid contact with strong alkalis.

Avoid contact with strong acids.

10.6 Hazardous decomposition products

See also Section 5.2

No decomposition when used as directed.

SECTION 11: TOXICOLOGICAL INFORMATION

Possibly more information on health effects, see Section 2.1 (classification).

Ethosat 500						
Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>2000	mg/kg	Rat	OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method)	
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	LC50	>4,29	mg/l	Rat	OECD 403 (Acute Inhalation Toxicity)	Maximum achievable concentration.
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation Corrosion)	Not irritant
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Not sensitising
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Respiratory tract irritation:						n.d.a.
Repeated dose toxicity:						n.d.a.
Symptoms:						n.d.a.
Other information:						Classification based on toxicological analyses.

Ethofumesate (ISO)						
Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>7500	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LD50	>160	mg/m ³ /4h	Rat		
Skin corrosion/irritation:				Rabbit		Not irritant
Serious eye damage/irritation:				Rabbit		Not irritant
Respiratory or skin sensitisation:				Guinea pig		No (skin contact)
Germ cell mutagenicity:						Negative
Carcinogenicity:	NOAEL	8,3	mg/kg/d			100ppm (oral)
Reproductive toxicity:	NOAEL	5	mg/kg/d	Rat		100ppm
Repeated dose toxicity:	NOAEL	28	d	Rat		200ppm - 10mg/kg/d (oral)
Repeated dose toxicity:	NOAEL	90	d	Rat		200ppm - 10mg/kg/d (oral)
Symptoms:						ataxia, breathing difficulties, headaches, gastrointestinal disturbances, dizziness, nausea
Teratogenicity:	NOAEL	1000	mg/kg/d	Rabbit		
Teratogenicity:	NOAEL	1000	mg/kg/d	Rat		
Other information:	ADI	0,4	mg/kg			

Propane-1,2-diol						
Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>2000	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LC50	317,042	mg/l/2h	Rabbit		
Skin corrosion/irritation:				Rabbit	(Draize-Test)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant
Respiratory or skin sensitisation:				Guinea pig		Not sensitising
Respiratory or skin sensitisation:				Human being		Not sensitising
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity (in vitro):					OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Symptoms:						eyes, reddened, mucous membrane irritation, dizziness, watering eyes, nausea

SECTION 12: ECOLOGICAL INFORMATION

Possibly more information on environmental effects, see Section 2.1 (classification).

Ethosat 500							
Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:	LC50	96h	36,6	mg/l		OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to daphnia:	EC50	48h	70,5	mg/l		OECD 202 (Daphnia sp. Acute Immobilisation Test)	
Toxicity to daphnia:	NOEC/NOEL		11,1	mg/l			
Toxicity to algae:	EbC50	72h	6,65	mg/l		OECD 201 (Alga, Growth Inhibition Test)	
Toxicity to algae:	ErC50	72h	12,42	mg/l		OECD 201 (Alga, Growth Inhibition Test)	
Persistence and degradability:							n.d.a.
Bioaccumulative potential:							n.d.a.
Mobility in soil:							n.d.a.
Results of PBT and vPvB assessment:							n.d.a.
Other adverse effects:							n.d.a.

Ethofumesate (ISO)							
Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:	LC50	96h	26,5	mg/l	Oncorhynchus mykiss		
Toxicity to fish:	LC50	21d	18,8	mg/l	Oncorhynchus mykiss		
Toxicity to fish:	NOEC/NOEL		0,83	mg/l	Oncorhynchus mykiss		
Toxicity to fish:	NOEC/NOEL		9,7	mg/l	Oncorhynchus mykiss		
Toxicity to fish:	NOEC/NOEL		9,3	mg/l	Leuciscus idus		
Toxicity to fish:	LC50	96h	22	mg/l	Leuciscus idus		
Toxicity to daphnia:	LOEC/LOEL	21d	3,2	mg/l	Daphnia magna		
Toxicity to daphnia:	EC50	48h	28,1	mg/l	Daphnia magna		
Toxicity to daphnia:	NOEC/NOEL		13	mg/l			
Toxicity to daphnia:	NOEC/NOEL		1,0	mg/l			
Toxicity to algae:	EC50	72h	10	mg/l	Scenedesmus subspicatus		
Persistence and degradability:	DT50		84-407	d			(field)
Persistence and degradability:	DT50		10-122	d			(lab)
Persistence and degradability:	DT50		31	h			Active substance non-resistant to UV light.
Persistence and degradability:			<70	%			
Mobility in soil:	Koc		203				Low

Propane-1,2-diol							
Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:	LC50	96h	>1000	mg/l	Pimephales promelas	OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to daphnia:	EC50	48h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
Toxicity to algae:	EC50	72h	>1000	mg/l	Selenastrum capricornutum	OECD 201 (Alga, Growth Inhibition Test)	
Persistence and degradability:		28d	81	%		OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	
Persistence and degradability:		28d	87-92	%		OECD 301 C (Ready Biodegradability - Modified MITI Test (I))	
Bioaccumulative potential:	BCF		<100				
Results of PBT and vPvB assessment:							n.a.
Toxicity to bacteria:	EC50	3h	>1000	mg/l	activated sludge		
Toxicity to bacteria:	IC50	30min	>1000	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other information:	COD		1,585	mg/g			
Water solubility:							Mixable

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

For the substance/mixture/residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product.

Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances.

(2001/118/EC, 2001/119/EC, 2001/573/EC)

02 01 08 agrochemical waste containing dangerous substances

07 04 01 aqueous washing liquids and mother liquors

20 01 19 pesticides

Recommendation:

Pay attention to local and national official regulations.

Approved rubbish dump for special refuse e.g. suitable incineration plant, dispose at suitable refuse site.

For contaminated packing material

Pay attention to local and national official regulations.

Empty container completely.

Dispose of packaging that cannot be cleaned in the same manner as the substance.

15 01 02 plastic packaging

SECTION 14: TRANSPORT INFORMATION

General statements

UN number: 3082

Transport by road/by rail (ADR/RID)

UN proper shipping name:
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
LIQUID, N.O.S. (ETHOFUMESATE)
Transport hazard class(es): 9
Packing group: III
Classification code: M6
LQ (ADR 2013): 5 L
LQ (ADR 2009): 7
Environmental hazards: Environmentally hazardous
Tunnel restriction code: E

Transport by sea (IMDG-code)

UN proper shipping name:
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(ETHOFUMESATE)

Transport hazard class(es): 9
Packing group: III
EmS: F-A, S-F
Marine pollutant: Yes
Environmental hazards: Environmentally hazardous

Transport by air (IATA)

UN proper shipping name:
Environmentally hazardous substance, liquid, n.o.s.
(ETHOFUMESATE)

Transport hazard class(es): 9
Packing group: III
Environmental hazards: Environmentally hazardous

Special precautions for user

Persons employed in transporting dangerous goods must be trained.

All persons involved in transporting must observe safety regulations.

Precautions must be taken to prevent damage.



Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Freighted as packaged goods rather than in bulk, therefore not applicable.

Minimum amount regulations have not been taken into account.

Danger code and packing code on request.

SECTION 15: REGULATORY INFORMATION

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

For classification and labelling see Section 2.

Observe restrictions: Yes

Comply with trade association/occupational health regulations.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: OTHER INFORMATION

These details refer to the product as it is delivered.

Revised Sections: 1 - 16

Observe plant protection medium law.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Aquatic Chronic 2, H411	Classification according to calculation procedure.

The following phrases represent the posted R phrases / H phrases, Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Sections 2 and 3).

51 Toxic to aquatic organisms.

51/53 Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

53 May cause long term adverse effects in the aquatic environment.

H411 Toxic to aquatic life with long lasting effects.

Aquatic Chronic – Hazardous to the aquatic environment - chronic

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.

No responsibility.

These statements were made by:

Chemical Check GmbH, Chemical Check Platz 1-7, D-32839, Steinheim,

Tel.: +49 5233 94 17 0,

Fax: +49 5233 94 17 90

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ADAMA



Ethosat[®] 500

MAPP 13050

A suspension concentrate formulation containing 500 g/l (44.3 % w/w) ethofumesate.

SAFETY PRECAUTIONS

Operator Protection

WASH CONCENTRATE from skin or eyes immediately.

WASH HANDS AND EXPOSED SKIN before eating, drinking or smoking, and after work. DO NOT BREATHE SPRAY.

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.

DO NOT USE on grassland where treated grass may be consumed by livestock (either by direct grazing or consumption of grass cuttings).

Storage and Disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely. DO NOT RE-USE CONTAINER for any purpose.

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE

Crops	Maximum individual dose (litres product/ha)	Maximum total dose (litres product/ha/crop)	Latest time of application
Sugar beet, fodder beet, red beet, mangels	2.0	2.0	Before crop leaves meet between the rows
Grassland (seed crops)	2.0	2.0	-
Amenity grassland	2.0	2.0	-

Other specific restrictions:

On grassland and amenity grassland, the maximum total dose MUST NOT exceed 1.0 kg ethofumesate per hectare per year, or a total of 2.0 kg per hectare in any three year period. On land other than grassland and amenity grassland DO NOT apply more than 1 kg of ethofumesate per hectare in any three year period.

This product must not be used on grassland where treated grass may be consumed by livestock (either by direct grazing or consumption of grass cuttings).

The product must not be applied to red beet later than 84 days before harvest.

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.