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| <p style="text-align: center;"><b>MONSANTO Europe S.A.</b><br/>Safety Data Sheet<br/>Commercial Product</p> |
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## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name**

**Ecoplug Max**

**Product use**

Herbicide

**Chemical name**

Not applicable.

**Synonyms**

None.

**Company/(Sales office)**

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## 2. HAZARDS IDENTIFICATION

**EU label (manufacturer self-classification)** - Classification following the EU Dangerous Preparations' Directive 1999/45/EC.

Xi - Irritant, N - Dangerous for the environment

R41 Risk of serious damage to eyes.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**National classification** - U.K.

Xi - Irritant, N - Dangerous for the environment

R41 Risk of serious damage to eyes.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Potential health effects**

**Likely routes of exposure**

Skin contact

**Eye contact, short term**

Irreversible eye effects observed in laboratory animals.

Not expected to produce significant adverse eye effects as contact with the granule is unlikely when recommended use instructions are followed.

**Skin contact, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term**

Not expected to produce significant adverse effects when recommended use instructions are followed.

**Medical conditions aggravated by exposure**

Hypersensitivity to sulphiting agents.

**Note**

A very small percentage of particularly sensitive people may suffer skin or respiratory reactions.

**Potential environmental effects**

Toxic to aquatic organisms.

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

Refer to section 11 for toxicological and section 12 for environmental information.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Active ingredient

Ammonium salt of N-(phosphonomethyl)glycine; { Ammonium salt of glyphosate }

#### Composition

| Components                  | CAS No.     | EINECS/<br>ELINCS No. | % by weight<br>(approximate) | EU Symbols & R phrases<br>of components |
|-----------------------------|-------------|-----------------------|------------------------------|---|
| Ammonium salt of glyphosate | 114370-14-8 |                       | 75                           | N; R51/53; {b}                          |
| Surfactant                  | 61791-26-2  |                       | 21                           | Xi; R36; {a}                            |
| Sodium sulphite             | 7757-83-7   | 231-821-4             | <=0.5                        |   |
| Impurities                  |             |                       | 3.5                          |   |

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### 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

#### Eye contact

Immediately flush with plenty of water.  
Continue for at least 15 minutes.  
If easy to do, remove contact lenses.  
If there are persistent symptoms, obtain medical advice.

#### Skin contact

Take off contaminated clothing, wristwatch, jewellery.  
Wash affected skin with plenty of water.  
Wash clothes and clean shoes before re-use.

#### Inhalation

Remove to fresh air.

#### Ingestion

Rinse mouth thoroughly with water.  
Remove particles from mouth.  
Immediately offer water to drink.  
Do NOT induce vomiting unless directed by medical personnel.  
If symptoms occur, get medical attention.

#### Advice to doctors

This product is not an inhibitor of cholinesterase.

#### Antidote

Treatment with atropine and oximes is not indicated.

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### 5. FIRE-FIGHTING MEASURES

#### Flash point

Not applicable.  
Not classified as a flammable solid.

#### Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

#### Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.  
Environmental precautions: see section 6.

### **Hazardous products of combustion**

Carbon monoxide (CO), phosphorus oxides (P<sub>x</sub>O<sub>y</sub>), nitrogen oxides (NO<sub>x</sub>), ammonia (NH<sub>3</sub>)

### **Fire fighting equipment**

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

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## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions**

Use personal protection recommended in section 8.

### **Environmental precautions**

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimise spread.

Keep out of drains, sewers, ditches and water ways.

### **Methods for cleaning up**

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush spill area with water.

Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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## **7. HANDLING AND STORAGE**

Good industrial practice in housekeeping and personal hygiene should be followed.

### **Handling**

Avoid contact with eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.

Refer to section 13 of the safety data sheet for disposal of rinse water.

Wash contaminated clothing before re-use.

### **Storage**

Compatible materials for storage: stainless steel, fibreglass, plastic, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Keep container off wet floors.

Keep container dry.

Minimum shelf life: 2 years.

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Airborne exposure limits**

| <b>Components</b>           | <b>Exposure Guidelines</b>                                    |
|-----------------------------|---|
| Ammonium salt of glyphosate | No specific occupational exposure limit has been established. |
| Surfactant                  | No specific occupational exposure limit has been established. |

|                 |   |
|-----------------|---|
| Sodium sulphite | No specific occupational exposure limit has been established. |
| Impurities      | No specific occupational exposure limit has been established. |

#### Engineering controls

Have eye wash facilities immediately available at locations where eye contact can occur.

#### Eye protection

If there is potential for contact:  
 Wear dust goggles.

#### Skin protection

If repeated or prolonged contact:  
 Wear chemical resistant gloves.

#### Respiratory protection

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

|   |   |
|---|---|
| Colour/colour range:                            | Whitish - Yellowish                                   |
| Odour:  | Slight, amines  |
| Form:   | Granules, (free-flowing), (dust free), (hygroscopic)  |
| Physical form changes (melting, boiling, etc.): |   |
| Melting point:                                  | No data.  |
| Boiling point:                                  | Not applicable.                                       |
| Flash point:                                    | Not applicable., Not classified as a flammable solid. |
| Explosive properties:                           | No explosive properties                               |
| Auto ignition temperature:                      | Does not self-ignite.                                 |
| Specific gravity:                               | Not applicable.                                       |
| Particle size:                                  | 700 µm; (granule diameter)                            |
| Vapour pressure:                                | No significant volatility.                            |
| Vapour density:                                 | Not applicable.                                       |
| Evaporation rate:                               | No data.  |
| Dynamic viscosity:                              | Not applicable.                                       |
| Kinematic viscosity:                            | Not applicable.                                       |
| Density:  | 0.70 g/cm <sup>3</sup> ; (tap density)                |
| Solubility:                                     | Water: Soluble  |
| pH:   | 4.2 @ 20 °C @ 10 g/l                                  |
| Partition coefficient:                          | log Pow: < -3.2 @ 25 °C (glyphosate)                  |

## 10. STABILITY AND REACTIVITY

#### Stability

Stable under normal conditions of handling and storage.

#### Oxidizing properties

none

### **Materials to avoid/Reactivity**

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

### **Hazardous decomposition**

Thermal decomposition: Hazardous products of combustion: see section 5.

### **Self-accelerating decomposition temperature (SADT)**

No data.

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## **11. TOXICOLOGICAL INFORMATION**

This section is intended for use by toxicologists and other health professionals.

Data obtained on product, similar products and on components are summarized below.

### **Acute oral toxicity**

**Rat, LD50:** 2,814 mg/kg body weight

Target organs/systems: forestomach, gastro-intestinal tract, kidneys, liver, lung, spleen

Other effects: breathing difficulty, decreased activity, soft stools

### **Acute dermal toxicity**

**Rabbit, LD50:** > 5,000 mg/kg body weight

Target organs/systems: skin

Other effects: soft stools, decrease of food consumption

### **Skin irritation**

**Rabbit, 6 animals, OECD 404 test:**

Redness, mean EU score: 0.11

Swelling, mean EU score: 0.00

Days to heal: 3

### **Eye irritation**

**Rabbit, 6 animals, OECD 405 test:**

Conjunctival redness, mean EU score: 2.00

Conjunctival swelling, mean EU score: 2.50

Corneal opacity, mean EU score: 1.00

Iris lesions, mean EU score: 0.00

Days to heal: > 21

Other effects: tearing of iris, pannus

### **Skin sensitization**

**Guinea pig, 3-induction Buehler test:**

Positive incidence: 0 %

### **Analogous liquid formulation**

## **EXPERIENCE WITH HUMAN EXPOSURE**

### **Ingestion, excessive, intentional misuse:**

**Respiratory effects:** pneumonitis (aspiration)

**Gastro-intestinal effects:** nausea/vomiting, diarrhoea, abdominal pain, bloody vomiting (haematemesis)

**Cardiovascular effects:** abnormal heart rhythm (cardiac dysrhythmia), decreased heart output (myocardial depression)

**General/systemic effects:** disturbances of fluid and electrolyte regulation, abnormally decreased blood volume (hypovolaemia), elevated serum amylase, fluid loss (haemoconcentration), no cholinesterase inhibition

**Laboratory effects - blood chemistry:** elevated serum transaminases, mild acidosis

### **Eye contact, short term, epidemiological:**

**Note:** No cases of irreversible eye effects could be attributed to glyphosate formulations in an extensive epidemiological survey of reported accidental eye contact with these formulations.

### **N-(phosphonomethyl)glycine: {glyphosate}**

### **Mutagenicity**

**In vitro and in vivo mutagenicity test(s):**

Not mutagenic.

**Repeated dose toxicity**

**Rabbit, dermal, 21 days:**

NOAEL toxicity: > 5,000 mg/kg body weight/day

Target organs/systems: none

Other effects: none

**Rat, oral, 3 months:**

NOAEL toxicity: > 20,000 mg/kg diet

Target organs/systems: none

Other effects: none

**Chronic effects/carcinogenicity**

**Mouse, oral, 24 months:**

NOAEL toxicity: ~ 5,000 mg/kg diet

Target organs/systems: liver

Other effects: decrease of body weight gain, histopathologic effects

NOEL tumour: > 30,000 mg/kg diet

Tumours: none

**Rat, oral, 24 months:**

NOAEL toxicity: ~ 8,000 mg/kg diet

Target organs/systems: eyes

Other effects: decrease of body weight gain, histopathologic effects

NOEL tumour: > 20,000 mg/kg diet

Tumours: none

**Toxicity to reproduction/fertility**

**Rat, oral, 2 generations:**

NOAEL toxicity: 10,000 mg/kg diet

NOAEL reproduction: > 30,000 mg/kg diet

Target organs/systems in parents: none

Other effects in parents: decrease of body weight gain

Target organs/systems in pups: none

Other effects in pups: decrease of body weight gain

Effects on offspring only observed with maternal toxicity.

**Developmental toxicity/teratogenicity**

**Rat, oral, 6 - 19 days of gestation:**

NOAEL toxicity: 1,000 mg/kg body weight

NOAEL development: 1,000 mg/kg body weight

Other effects in mother animal: decrease of body weight gain, decrease of survival

Developmental effects: weight loss, post-implantation loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

**Rabbit, oral, 6 - 27 days of gestation:**

NOAEL toxicity: 175 mg/kg body weight

NOAEL development: 175 mg/kg body weight

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of survival

Developmental effects: none

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## 12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on product and components are summarized below.

**Aquatic toxicity, fish**

**Rainbow trout (*Oncorhynchus mykiss*):**

Acute toxicity, 96 hours, static, LC50: 20 mg/L

**Aquatic toxicity, invertebrates**

**Water flea (*Daphnia magna*):**

Acute toxicity, 48 hours, static, EC50: 42 mg/L

**Aquatic toxicity, algae/aquatic plants**

**Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 72 hours, ErC50 (growth rate): 6.0 mg/L

**Avian toxicity**

**Bobwhite quail (*Colinus virginianus*):**

Acute oral toxicity, LD50: 1,651 mg/kg body weight

**Arthropod toxicity**

**Honey bee (*Apis mellifera*):**

Oral/contact, 48 hours, LD50: > 146 µg/bee

**Soil organism toxicity, invertebrates**

**Earthworm (*Eisenia foetida*):**

Acute toxicity, 14 days, LC50: > 1,250 mg/kg dry soil

**Soil organism toxicity, microorganisms**

**Nitrogen and carbon transformation test:**

12.7 kg/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

**N-(phosphonomethyl)glycine: {glyphosate}**

**Avian toxicity**

**Bobwhite quail (*Colinus virginianus*):**

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet

**Mallard duck (*Anas platyrhynchos*):**

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet

**Bobwhite quail (*Colinus virginianus*):**

Acute oral toxicity, single dose, LD50: > 3,851 mg/kg body weight

**Bioaccumulation**

**Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

**Dissipation**

**Soil, field:**

Half life: 2 - 174 days

Koc: 884 - 60,000 L/kg

Adsorbs strongly to soil.

**Water, aerobic:**

Half life: < 7 days

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## 13. DISPOSAL CONSIDERATIONS

**Product**

- Keep out of drains, sewers, ditches and water ways.
- Recycle if appropriate facilities/equipment available.
- Dispose of as hazardous industrial waste.
- Burn in proper incinerator.
- Follow all local/regional/national/international regulations.

**Container**

- Dispose of as hazardous industrial waste.
- Burn in proper incinerator.
- Recycle if appropriate facilities/equipment available.
- Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.
- Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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## 14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

**ADR/RID**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (glyphosate, ethoxylated tallowamine)

UN No.: UN3077  
Class: 9  
Kemler: 90  
Packing Group: III

#### IMO

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (glyphosate, ethoxylated tallowamine)  
UN No.: UN3077  
Class: 9  
Packing Group: III

MARINE POLLUTANT

#### IATA/ICAO

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (glyphosate, ethoxylated tallowamine)  
UN No.: UN3077  
Class: 9  
Packing Group: III

MARINE POLLUTANT

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## 15. REGULATORY INFORMATION

**EU label (manufacturer self-classification)** - Classification following the EU Dangerous Preparations' Directive 1999/45/EC.

Xi - Irritant, N - Dangerous for the environment  
R41 Risk of serious damage to eyes.  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S35 This material and its container must be disposed of in a safe way.  
S39 Wear eye/face protection.  
S57 Use appropriate containment to avoid environmental contamination.

**National classification** - U.K.

Xi - Irritant, N - Dangerous for the environment  
R41 Risk of serious damage to eyes.  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S35 This material and its container must be disposed of in a safe way.  
S39 Wear eye/face protection.  
S57 Use appropriate containment to avoid environmental contamination.

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## 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data. Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

This Safety Data Sheet has been prepared following the EU Directive 91/155/EEC as last amended by EU Directive 2001/58/EC and according to EU Regulation 1907/2006.

In this document the British spelling was applied.

|| Significant changes versus previous edition.

#### EU Symbols & R phrases of components

| Components                  | EU Symbols & R phrases of components |
|-----------------------------|--------------------------------------|
| Ammonium salt of glyphosate | N - Dangerous for the environment    |



|                 |  |
|-----------------|--|
|                 | R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| Surfactant      | Xi - Irritant<br>R36 Irritating to eyes.   |
| Sodium sulphite |  |
| Impurities      |  |

Endnotes:

- {a} EU label (manufacturer self-classification)
- {b} EU label (Annex I)
- {c} National classification

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

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