

<p style="text-align: center;">MONSANTO Europe S.A. Safety Data Sheet Commercial Product</p>

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Roundup® 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

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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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

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

Composition

Components	CAS No.	EINECS/ ELINCS No.	% by weight (approximate)	EU Symbols & R phrases 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	

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.

5. FIRE-FIGHTING MEASURES

Flash point

Not applicable.
Not classified as a flammable solid.

Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO₂)

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_xO_y), nitrogen oxides (NO_x), ammonia (NH₃)

Fire fighting equipment

Self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

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.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
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 ³ ; (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.

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

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

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.

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

IATA/ICAO

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

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
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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.

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.

® Registered trademark.

|| 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 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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