

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

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Roundup® Gold 450

- 1.1.1. **Chemical name**
Not applicable for a mixture.
- 1.1.2. **Synonyms**
None.
- 1.1.3. **CLP Annex VI Index No.**
Not applicable.
- 1.1.4. **C&L ID No.**
Not available.
- 1.1.5. **EC No.**
Not applicable for a mixture.
- 1.1.6. **REACH Reg. No.**
Not applicable for a mixture.
- 1.1.7. **CAS No.**
Not applicable for a mixture.

1.2. Product use

Herbicide

1.3. Company/(Sales office)

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Antwerp, Belgium
Telephone: +32 (0)3 568 51 11
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1.4. Emergency numbers

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2. HAZARDS IDENTIFICATION

2.1. Classification

2.1.1. Classification according to Regulation (EC) No. 1272/2008 [CLP] (manufacturer self-classification)

Eye irritation - Category 2
H319 Causes serious eye irritation.

2.1.2. National classification - Ireland

Eye irritation - Category 2
H319 Causes serious eye irritation.

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

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S35 This material and its container must be disposed of in a safe way.

S57 Use appropriate containment to avoid environmental contamination.

National classification/labeling - Ireland

Xi - Irritant, N - Dangerous for the environment

R36 Irritating to eyes.

R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S2	Keep out of reach of children.
S13	Keep away from food, drink and animal feedingstuffs.
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.
	Wear suitable protective gloves when mixing the concentrate and during application.
	Do not contaminate ponds, waterways or ditches with chemical or used container.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

2.2.1. Hazard pictogram/pictograms



2.2.2. Signal word

Warning

2.2.3. Hazard statement/statements

H319 Causes serious eye irritation.

2.2.4. Precautionary statement/statements

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/eye protection.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313 If eye irritation persists: Get medical advice/attention.

2.2.5. Supplemental hazard information

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

2.2.6. Hazard pictogram/pictograms Ireland



2.2.7. Signal word Ireland

Warning

2.2.8. Hazard statement/statements Ireland

H319 Causes serious eye irritation.

2.2.9. Precautionary statement/statements Ireland

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/eye protection.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313 If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

0% of the mixture consists of ingredient/ingredients of unknown acute toxicity.
0% of the mixture consists of ingredient/ingredients of unknown hazards to the aquatic environment.

2.3.1. Potential environmental effects

Not a persistent, bioaccumulative or toxic (PBT) nor a very persistent, very bioaccumulative (vPvB) mixture.

2.4. Appearance and odour (colour/form/odour):

Yellow-Amber /Liquid / Slight, amines

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

3. COMPOSITION/INFORMATION ON INGREDIENTS**Active ingredient**

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

Composition

Components	CAS No.	EC No.	EU Index No. / REACH Reg. No. / C&L ID No.	% by weight (approximate)	Classification
Potassium salt of glyphosate	70901-12-1	933-437-9	015-184-00-8 / - / 02-2119694167-27- 0000	42	Aquatic Chronic - Category 2; H411; { c} N; R51/53; { b}
Etheralkylamine ethoxylate	68478-96-6		- / - / -	7	Acute toxicity - Category 4, Eye damage - Category 1, Aquatic Chronic - Category 2; H302, 318, 411; { d} Xn, Xi, N; R22, 41, 51/53; { a}
Water and minor formulating ingredients			- / - / -	51	

Full text of classification code: See section 16.

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

4.1. Description of first aid measures**4.1.1. Eye contact**

Immediately flush with plenty of water. If easy to do, remove contact lenses. If there are persistent symptoms, obtain medical advice.

4.1.2. Skin contact

Wash affected skin with plenty of water. Take off contaminated clothing, wristwatch, jewellery. Wash clothes and clean shoes before re-use. If there are persistent symptoms, obtain medical advice.

4.1.3. Inhalation

Remove to fresh air.

4.1.4. Ingestion

Immediately offer water to drink. Never give anything by mouth to an unconscious person. If symptoms occur, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed**4.2.1. Potential health effects****Likely routes of exposure:** Skin contact, eye contact, inhalation**Eye contact, short term:** Causes serious eye irritation.**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.

5. FIRE-FIGHTING MEASURES**5.1. Extinguishing media****5.1.1.** Recommended: Water, foam, dry chemical, carbon dioxide (CO₂)

5.2. Special hazards

5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.

Environmental precautions: see section 6.

5.2.2. Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (P_xO_y), nitrogen oxides (NO_x)

5.3. Fire fighting equipment

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

5.4. Flash point

Does not flash.

6. ACCIDENTAL RELEASE MEASURES

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

6.1. Personal precautions

Use personal protection recommended in section 8.

6.2. Environmental precautions

Minimise spread. Keep out of drains, sewers, ditches and water ways. Notify authorities.

6.3. Methods for cleaning up

Absorb in earth, sand or absorbent material. Dig up heavily contaminated soil. Refer to section 7 for types of containers. Collect in containers for disposal. Flush residues with small quantities of water.

Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

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

7.1. Precautions for safe handling

Avoid contact with eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Wash contaminated clothing before re-use.

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.

Emptied containers retain vapour and product residue.

FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

7.2. Conditions for safe storage

Minimum storage temperature: -15 °C

Maximum storage temperature: 50 °C

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

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep container tightly closed in a cool, well-ventilated place.

Keep only in the original container.

Minimum shelf life: 2 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Airborne exposure limits

Components	Exposure Guidelines
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Potassium salt of glyphosate	No specific occupational exposure limit has been established.
Etheralkylamine ethoxylate	No specific occupational exposure limit has been established.
Water and minor formulating ingredients	No specific occupational exposure limit has been established.

8.2. Engineering controls

No special requirement when used as recommended.

8.3. Recommendations for personal protective equipment

8.3.1. Eye protection:

If there is significant potential for contact: Wear chemical goggles.

8.3.2. Skin protection:

If repeated or prolonged contact:

Wear chemical resistant gloves.

Chemical resistant gloves include those made of waterproof materials such as nitrile, butyl, neoprene, polyvinyl chloride (PVC), natural rubber and/or barrier laminate.

8.3.3. 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:	Yellow - Amber
Odour:	Slight, amines
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No explosive properties
Auto ignition temperature:	448 °C
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1,308 @ 20 °C / 4 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	18,1 mPa·s @ 20 °C
Kinematic viscosity:	13,81 cSt @ 20 °C
Density:	1,308 g/cm ³ @ 20 °C
Solubility:	Water: Completely miscible.
pH:	4,8 @ 10 g/l
Partition coefficient:	log Pow: < -3,2 @ 25 °C (glyphosate)

10. STABILITY AND REACTIVITY

10.1. Reactivity

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

10.2. Stability

Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions

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

10.4. Incompatible materials

Incompatible materials for storage: galvanised steel, unlined mild steel
Compatible materials for storage: see section 7.2.

10.5. Hazardous decomposition

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

11. TOXICOLOGICAL INFORMATION

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

Likely routes of exposure: Skin contact, eye contact, inhalation

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

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: > 5,05 mg/L

Similar formulation

Skin sensitization

Guinea pig, 9-induction Buehler test:
Negative.

More concentrated formulation

Acute oral toxicity

Rat, LD50 (limit test): > 5.000 mg/kg body weight
Target organs/systems: none
No mortality.

Acute dermal toxicity

Rat, LD50 (limit test): > 5.000 mg/kg body weight
Target organs/systems: none
No mortality.

Skin irritation

Rabbit, 6 animals, OECD 404 test:
Redness, mean EU score: 0,5
Swelling, mean EU score: 0,0
Days to heal: 3

Eye irritation

Rabbit, 6 animals, OECD 405 test:
Conjunctival redness, mean EU score: 1,83
Conjunctival swelling, mean EU score: 1,44
Corneal opacity, mean EU score: 1,33
Iris lesions, mean EU score: 0,89
Days to heal: 14

N-(phosphonomethyl)glycine: { glyphosate}

Mutagenicity

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

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 ppm

Tumours: none

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: 10.000 ppm

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 similar products and on components are summarized below.

Similar formulation

Aquatic toxicity, fish

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, static, LC50: 28 mg/L

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 69 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 72 hours, static, ErC50 (growth rate): 14 mg/L

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 72 hours, static, NOEC: 2,0 mg/L

Arthropod toxicity

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 265 µg/bee

Honey bee (*Apis mellifera*):

Oral, 48 hours, LD50: > 285 µg/bee

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 2.700 mg/kg dry soil

Soil organism toxicity, microorganisms

Nitrogen and carbon transformation test:

48 L/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

13.1. Waste treatment methods

13.1.1. 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.

13.1.2. Container

Follow all local/regional/national/international regulations on waste disposal, packaging waste collection/disposal. Follow current edition of the General Waste, Landfill, and Burning of Hazardous Waste Directives; the EU List of Waste; and the Shipment of Waste Regulation. Do NOT re-use containers. Triple or pressure rinse empty containers. Pour rinse water into spray tank. Properly rinsed container can be disposed as a non hazardous industrial waste. Dispose of container as a hazardous waste if NOT properly rinsed. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Recycle the non-hazardous container only when a proper control on the end use of the recycled plastic is possible. Suitable for industrial grade recycling only. Do NOT recycle plastic that could end in any human or food contact application. This package meets the requirements for energy recovery. Disposal in a incinerator with energy recovery is recommended. Disposal as hazardous waste can only be done in an authority-approved hazardous waste incinerator.

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.

Not regulated for transport under ADR/RID, IMO, or IATA/ICAO Regulations

15. REGULATORY INFORMATION

15.1. Other Regulatory Information

SP1 Do not contaminate water with the product or its container.

15.2. Chemical Safety Assessment

A Chemical Safety Assessment per Regulation (EC) No. 1907/2006 is not required and has not been performed.

A Risk Assessment has been performed under Directive 91/414/EC.

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.

In this document the British spelling was applied.

|| Significant changes versus previous edition.

This Safety Data Sheet has been prepared following the Regulation (EC) No. 1907/2006 (Annex II) as last amended by Regulation (EC) No. 453/2010

Classification of components

Components	Classification
Potassium salt of glyphosate	Aquatic Chronic - Category 2 H411 Toxic to aquatic life with long lasting effects. N - Dangerous for the environment R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Etheralkylamine ethoxylate	Acute toxicity - Category 4 Eye damage - Category 1 Aquatic Chronic - Category 2 H302 Harmful if swallowed. H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects. Xn - Harmful Xi - Irritant N - Dangerous for the environment R22 Harmful if swallowed. R41 Risk of serious damage to eyes. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Water and minor formulating ingredients	

Endnotes:

- { a} EU label (manufacturer self-classification)
- { b} EU label (Annex I)
- { c} EU CLP classification (Annex VI)
- { d} EU CLP (manufacturer self-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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Safety Data Sheet (SDS) Annex

Chemical Safety Report:

Read and follow label instructions.

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