Bayer Agriculture BVBA

Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Roundup

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)

Bayer Agriculture BVBA
Haven 627, Scheldelaan 460, B-2040
Antwerp, Belgium
Telephone: +32 (0)3 568 51 11
Fax: +32 (0)3 568 50 90
E-mail: safety.datasheet@monsanto.com

1.4. Emergency numbers

Telephone: Belgium: +32 (0)3 568 51 23

2. HAZARDS IDENTIFICATION

2.1. Classification

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

Acute toxicity, inhalation - Category 4
Eye damage/irritation - Category 1
Aquatic Chronic - Category 1 (M=1)

H318	Causes serious eye damage.
H332	Harmful if inhaled.
H410	Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictogram/pictograms

Signal word

Danger

Hazard statement/statements

H318	Causes serious eye damage.
H332	Harmful if inhaled.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement/statements

P261	Avoid breathing vapours or spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/eye protection.
P340	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P351+338	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor.
P391	Collect spillage.
P501	Dispose of contents/container to an installation for the handling of hazardous waste approved by the competent authority.

Supplemental hazard information

EUH401	To avoid risks to human health and the environment, comply with the instructions for use.
	Composition: contains ethoxylated tallowamine

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

Very toxic to aquatic life with long lasting effects.

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

Pale amber-Pale brown /Liquid / Slight, amines

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance: Not applicable.

3.2 Mixture: Yes.

Composition/information on ingredients

Components	CAS No.	EC No.	EU Index No. / REACH Reg. No. / C&L ID No.	Concentration	Classification

Isopropylamine salt of glyphosate	38641-94-0	254-056-8	015-184-00-8 / - / 02-2119693876-15-0000	41,5 %	Aquatic Chronic - Category 2; H411; {c}
Ethoxylated tallowamine	61791-26-2	500-153-8	- / - / -	15,5 %	Acute toxicity, oral - Category 4, Acute toxicity, inhalation - Category 3, Eye damage/irritation - Category 1, Aquatic Chronic - Category 2; H302, 318, 331, 411
Water	7732-18-5	231-791-2	- / - / -	43,0 %	Not classified as dangerous.;

Active ingredient
Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

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. Continue for at least 15 minutes. If easy to do, remove contact lenses. If there are persistent symptoms, obtain medical advice.

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

4.1.3. Inhalation
Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical advice from a poison control center or doctor.

4.1.4. Ingestion
Immediately offer water to drink. Never give anything by mouth to an unconscious person. Do NOT induce vomiting unless directed by medical personnel. 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, ingestion
Eye contact, short term: Causes serious eye damage.
Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.
Inhalation, short term: Harmful if inhaled.
Single ingestion: Not expected to produce significant adverse effects when recommended use instructions are followed.

4.3. Indication of any immediate medical attention and special treatment needed

4.3.1. Advice to doctors
This product is not an inhibitor of cholinesterase.

4.3.2. Antidote
Treatment with atropine and oximes is not indicated.

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 (PxOy), Nitrogen oxides (NOx)

5.3. Advice for firefighters

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

5.4. Flash point

Does not flash.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions

Use handling recommendations in Section 7 and personal protection recommendations 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. Collect in containers for disposal. Refer to section 7 for types of containers. Minimise use of water to prevent environmental contamination. Do NOT flush away with water.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Good industrial practice in housekeeping and personal hygiene should be followed. 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.
Emptied containers retain vapour and product residue. FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

7.2. Conditions for safe storage, including any incompatibilities

Compatible materials for storage: stainless steel, fibreglass, plastic, glass lining
Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.
Minimum storage temperature: -15 °C
Maximum storage temperature: 50 °C
Keep out of reach of children. Keep away from food, drink and animal feed. Keep only in the original container. Partial crystallization may occur on prolonged storage below the minimum storage temperature. If frozen, place in warm room and shake frequently to put back into solution. Minimum shelf life: 5 years. Use appropriate containment to avoid environmental contamination. This formulation can be stored for 2 to 3 weeks at temperatures colder than -20°C without impact. If the temperature remains below -20°C for longer the water phase of the formulation may freeze. Should this occur allow the product to warm and it will return to its original homogeneous state. We recommend that customers follow the typical use instructions which state that the container should be agitated (shaken) prior to pouring.

7.3. Specific end use(s)

Not applicable.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Ethoxylated tallowamine	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

8.2. Exposure controls

Engineering controls

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

Eye protection:

If there is potential for contact: Wear chemical goggles.

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.

Respiratory protection:

If airborne exposure is excessive: Wear respirator.

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.

9.1 Information on basic physical and chemical properties

Colour/colour range:	Pale amber - Pale brown
Form:	Liquid
Odour:	Slight, amines

Odour threshold: DATA MUST BE ENTERED

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:	443 °C
Self-accelerating decomposition temperature (SADT):	No data.

Oxidizing properties:	No data.
Specific gravity:	1,172 @ 25 °C / 4 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Dynamic viscosity:	73,2 mPa·s
Kinematic viscosity:	62,47 cSt @ 20 °C
Density:	1,172 g/cm3 @ 25 °C
Solubility:	Water: Completely miscible.
pH:	5,1 @ 10 g/l
Partition coefficient:	log Pow: < -3,2 @ 25 °C (Glyphosate)

9.2 Other information

Evaporation rate:	No data.

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. Chemical 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. Conditions to avoid
None

10.5. Incompatible materials
Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.
Compatible materials for storage: see section 7.2.

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

11. TOXICOLOGICAL INFORMATION

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

11.1. Information on toxicological effects
Acute oral toxicity: Based on available data classification criteria are not met.
Acute dermal toxicity: Based on available data classification criteria are not met.
Acute inhalation toxicity: Category 4
Skin corrosion/irritation: Based on available data classification criteria are not met.
Eye corrosion/irritation: Category 1
Skin sensitization: Based on available data classification criteria are not met.
Respiratory sensitization: Based on available data classification criteria are not met.
Mutagenicity: Based on available data classification criteria are not met.
Carcinogenicity: Based on available data classification criteria are not met.
Reproductive/Developmental Toxicity: Based on available data classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure: Based on available data classification criteria are not met.
Specific Target Organ Toxicity - Repeated Exposure: Based on available data classification criteria are not met.
Aspiration hazard: Based on available data classification criteria are not met.

Most important symptoms and effects, both acute and delayed

Potential health effects
Likely routes of exposure: Skin contact, eye contact, inhalation, ingestion
Eye contact, short term: Causes serious eye damage.
Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.
Inhalation, short term: Harmful if inhaled.
Single ingestion: Not expected to produce significant adverse effects when recommended use instructions are followed.

Data obtained on product and components are summarized below.

Acute oral toxicity
Rat, LD50: 5.000 mg/kg body weight
Slightly toxic.

Acute dermal toxicity
Rabbit, LD50 (limit test): > 5.000 mg/kg body weight
Practically non-toxic. No mortality.

Acute inhalation toxicity **Rat, LC50 (limit test), 4 hours, aerosol**: 3,18 mg/L
Aerosol particle size (< 10 micron) much lower than the droplet size (> 100 micron) normally achieved during spraying operations.

Skin irritation
Rabbit, 6 animals, OECD 404 test:
Redness, mean EU score: 0,64
Swelling, mean EU score: 0,03
Days to heal: 3
Slight irritation.

Eye irritation
Rabbit, 6 animals, OECD 405 test:
Conjunctival redness, mean EU score: 1,17
Conjunctival swelling, mean EU score: 1,60
Corneal opacity, mean EU score: 0,57
Iris lesions, mean EU score: 0,50
Days to heal: > 28
Other effects: pannus, ulcer on surface of eye (ulceration of cornea)
Severe irritation.

Skin sensitization
Guinea pig, 9-induction Buehler test:
Positive incidence: 0 %
Negative.

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 acid}

Genotoxicity

Not genotoxic.

Carcinogenicity

Not carcinogenic in rats or mice.

Reproductive/Developmental Toxicity

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.
Reproductive effects in rats only in the presence of significant maternal toxicity.

12. ECOLOGICAL INFORMATION

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

Data obtained on product and components are summarized below.

12.1 Toxicity

Aquatic toxicity, fish

Bluegill sunfish (Lepomis macrochirus):
Acute toxicity, 96 hours, flowthrough, LC50: 5,8 mg/L

Rainbow trout (Oncorhynchus mykiss):
Acute toxicity, 96 hours, flowthrough, LC50: 8,2 mg/L

Rainbow trout (Oncorhynchus mykiss):
Prolonged exposure toxicity, 21 days, flowthrough, NOEC: 2,4 mg/L

Aquatic toxicity, invertebrates

Water flea (Daphnia magna):
Acute toxicity, 48 hours, static, EC50: 11 mg/L

Water flea (Daphnia magna):
Life cycle/reproduction test, 21 days, semi-static, NOEC: 3,2 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (Selenastrum capricornutum):
Acute toxicity, 72 hours, static, ErC50 (growth rate): 8,0 mg/L

Green algae (Selenastrum capricornutum):
Acute toxicity, 72 hours, static, NOEC (growth rate): 1,5 mg/L

Duckweed (Lemna minor):
Acute toxicity, 7 days, static, ErC50 (frond number): > 6 mg/L

Duckweed (Lemna minor):
Acute toxicity, 7 days, static, NOEC: 0,02 mg/L

Arthropod toxicity

Honey bee (Apis mellifera):
Oral, 48 hours, LD50: > 395 µg/bee

Honey bee (Apis mellifera):
Contact, 48 hours, LD50: > 338 µg/bee

Soil organism toxicity, invertebrates

Earthworm (Eisenia foetida):
Acute toxicity, 14 days, LC50: > 5.000 mg/kg dry soil

Soil organism toxicity, microorganisms

Nitrogen transformation test:
24,45 kg/ha, 28 days: No effect on nitrogen transformation. No effect on soil microorganisms.

12.2 Persistence and degradability
No data.

12.3 Bioaccumulative potential
Refer to section 9 for partition coefficient data.

12.4 Mobility in soil
No data.

12.5 Results of PBT and vPvB assessment
Not a persistent, bioaccumulative or toxic (PBT) nor a very persistent, very bioaccumulative (vPvB) mixture.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.

12.7 Additional information
If available, data obtained on similar products and/or on components are summarized below.

N-(phosphonomethyl)glycine; {glyphosate acid}

Avian toxicity
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

Ethoxylated tallowamine

Dissipation
Water/sediment, aerobic, 30 °C:
Half life: < 4 weeks
Soil, aerobic:
Half life: 1 - 7 days

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
13.1.1. Product
Keep out of drains, sewers, ditches and water ways. Follow all local/regional/national/international regulations on waste disposal. Follow current edition of the General Waste, Landfill, and Burning of Hazardous Waste Directives; and the Shipment of Waste Regulation. Disposal as hazardous waste can only be done in an authority-approved hazardous waste incinerator. Disposal in an industrial waste incinerator with energy recovery is recommended.
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; 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 an 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.

Note
This UN 3082 product when carried in a single or combination packaging containing a net quantity per single or inner packaging of 5 l or less, is not subject to any other provision of ADR/RID or IMDG as the packaging provided meet the general provisions of 4.1.1.1, 4.1.1.2, and 4.1.1.4 to 4.1.1.8

ADR/RID

14.1 **UN No.: UN 3082**
14.2 **Proper Shipping Name (Technical Name if required): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (glyphosate, ethoxylated tallowamine)**
14.3 **Transport hazard class: 9**
14.4 **Packing Group: III**
14.5 **Environmental hazards: MARINE POLLUTANT**
14.6 **Special precautions for the user:** Not applicable.
14.7 **Kemler: 90**

IMO

14.1 **UN No.: UN 3082**
14.2 **Proper Shipping Name (Technical Name if required): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (glyphosate, ethoxylated tallowamine)**
14.3 **Transport hazard class/(Subsidiary hazard/hazards): 9**
14.4 **Packing Group: III**
14.5 **Environmental hazards: MARINE POLLUTANT**
14.6 **Special precautions for the user:** Not applicable.
14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable.

Note: MARINE POLLUTANT

IATA/ICAO

14.1 **UN No.: UN 3082**
14.2 **Proper Shipping Name (Technical Name if required): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (glyphosate, ethoxylated tallowamine)**
14.3 **Transport hazard class/(Subsidiary hazard/hazards): 9**
14.4 **Packing Group: III**
14.5 **Environmental hazards: MARINE POLLUTANT**
14.6 **Special precautions for the user:** Not applicable.

15. REGULATORY INFORMATION

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

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 Regulation EC 1107/2009.

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 Regulation (EC) No. 1907/2006 (Annex II) as last amended by Regulation (EC) No. 2015/830
® Registered trademark.
In this document the British spelling was applied.
|| Significant changes versus previous edition.
Composition: contains ethoxylated tallowamine
Data provided in this Safety Data Sheet are for the product as supplied unless otherwise indicated.

Classification of components

Components	Classification
Isopropylamine salt of glyphosate	Aquatic Chronic - Category 2 H411 Toxic to aquatic life with long lasting effects.
Ethoxylated tallowamine	Acute toxicity, oral - Category 4 Acute toxicity, inhalation - Category 3 Eye damage/irritation - Category 1 Aquatic Chronic - Category 2 H302 Harmful if swallowed. H318 Causes serious eye damage. H331 Toxic if inhaled. H411 Toxic to aquatic life with long lasting effects.
Water	Not classified as dangerous.

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), STOT SE (Specific Target Organ Toxicity, Single Exposure), STOT RE (Specific Target Organ Toxicity, Repeated Exposure),TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

The information contained within this Safety Data Sheet is in accordance with the guidelines established by Regulation (EU) 1907/2006 and Regulation (EU) 2015/830 amending Regulation (EU)

No 1907/2006 and any subsequent amendments. This data sheet complements the user's instructions, but does not replace them. The information it contains is based on the knowledge available about the product concerned at the time it was compiled. Users are further reminded of the possible risks of using a product for purposes other than those for which it was intended. The required information complies with current EEC legislation. Addressees are requested to observe any additional national requirements.

Safety Data Sheet (SDS) Annex

Chemical Safety Report:
Read and follow label instructions.

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