MONSANTO Europe S.A.

Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name
Roundup® Biactive

Product use
Herbicide
Chemical name
Not applicable.
Synonyms
None.
Company/(Sales office)
MONSANTO Europe S.A.
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2. HAZARDS IDENTIFICATION

EU label (manufacturer self-classification) - Classification following the EU Dangerous Preparations' Directive 1999/45/EC.
Not classified as dangerous.

National classification - U.K.
Not classified as dangerous.

Potential health effects
Likely routes of exposure
Skin contact, eye contact
Eye contact, short term
Not expected to produce significant adverse effects 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.

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

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

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

Composition

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

Isopropylamine salt of glyphosate	38641-94-0	254-056-8	41.5	N; R51/53; {b}
Surfactant(s)			16	R53; {a}
Water	7732-18-5	231-791-2	42.5	

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

Eye contact
Immediately flush with plenty of water.
If easy to do, remove contact lenses.

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
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.

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
Does not flash.

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 (PxOy), nitrogen oxides (NOx)

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.
Notify authorities.

Methods for cleaning up
Place leaking containers in oversize leakproof drums for transport.
SMALL QUANTITIES:
Flush spill area with water.
LARGE QUANTITIES:
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.
Flush residues with small quantities of 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
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.

Storage
Minimum storage temperature: -15 °C
Maximum storage temperature: 50 °C
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.
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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Surfactant(s)	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

Engineering controls
No special requirement when used as recommended.

Eye protection
No special requirement when used as recommended.

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:	Yellowish - Brown
Odour:	amines
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	105.3 °C
Flash point:	Does not flash.
Explosive properties:	No explosive properties
Auto ignition temperature:	440 °C
Specific gravity:	1.166 @ 20 °C / 4 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	65 mPa·s @ 21 °C
Kinematic viscosity:	39.2 mm2/s @ 21 °C
Density:	1.166 g/cm3 @ 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

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 and components are summarized below.

Acute oral toxicity
Rat, LD50: > 5,000 mg/kg body weight
No mortality.
Acute dermal toxicity
Rat, LD50: > 5,000 mg/kg body weight
No mortality.
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: 1.11
Conjunctival swelling, mean EU score: 0.00
Corneal opacity, mean EU score: 0.00
Iris lesions, mean EU score: 0.00
Days to heal: 7
Skin sensitization
Guinea pig, 9-induction Buehler test:
Positive incidence: 0 %

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, flowthrough, LC50: > 989 mg/L

Common carp (Cyprinus carpio):
Acute toxicity, 96 hours, flowthrough, LC50: > 895 mg/L

Aquatic toxicity, invertebrates

Water flea (Daphnia magna):
Acute toxicity, 48 hours, flowthrough, EC50: 676 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (Selenastrum capricornutum):
Acute toxicity, 72 hours, static, ErC50 (growth rate): 284 mg/L

Duckweed (Lemna gibba):
Acute toxicity, 7 days, semi-static, EC50: 66.6 mg/L

Avian toxicity

Mallard duck (Anas platyrhynchos):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Bobwhite quail (Colinus virginianus):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Arthropod toxicity

Honey bee (Apis mellifera):
Oral, 48 hours, LD50: > 254 µg/bee

Honey bee (Apis mellifera):
Contact, 48 hours, LD50: > 330 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:
53 L/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

N-(phosphonomethyl)glycine; {glyphosate}

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

Container
Triple or pressure rinse empty containers.
Pour rinse water into spray tank.
Store for collection by approved waste disposal service.
Dispose of as non hazardous industrial waste.
Do NOT re-use containers.
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.

Not regulated for transport.

15. REGULATORY INFORMATION

EU label (manufacturer self-classification) - Classification following the EU Dangerous Preparations' Directive 1999/45/EC.
Not classified as dangerous.
S29 Do NOT empty into drains.
S49 Keep only in the original container.

National classification - U.K.
Not classified as dangerous.

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
Isopropylamine 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(s)	R53 May cause long-term adverse effects in the aquatic environment.
Water	

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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