

Thyborønvej 78 DK-7673 Harboøre Denmark

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CVR No. DK 12 76 00 43

Material group	45S/4581	Page 1 of 13
Product name	GLYPHOSATE 68 SG	
		May 2017
Safety data sheet	according to EU Reg. 1907/2006 as amended	Supersedes April 2016

SAFETY DATA SHEET GLYPHOSATE 68 SG

Revision: Sections containing a revision or new information are marked with a .

◆ SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING 1.1. Product identifier **GLYPHOSATE 68 SG** 1.2. Relevant identified uses of the substance or mixture and uses advised against Can be used as herbicide only. CHEMINOVA A/S, a subsidiary of FMC Corporation 1.3. Details of the supplier of the safety data sheet Thyborønvej 78 DK-7673 Harboøre Denmark SDS.Ronland@fmc.com 1.4. Emergency telephone number (+45) 97 83 53 53 (24 h; for emergencies only) <u>Company</u> **Medical emergencies:** Austria: +43 1 406 43 43 Netherlands: +31 30 274 88 88 Norway: +47 22 591300 Belgium: +32 70 245 245 Poland: +48 22 619 66 54 Bulgaria: +359 2 9154 409 +48 22 619 08 97 Cyprus: 1401 Portugal: 808 250 143 (in Portugal only) Czech Republic: +420 224 919 293 +351 21 330 3284 +420 224 915 402 Romania: +40 21318 3606 Denmark: +45 82 12 12 12 Slovakia: +421 2 54 77 4 166 France: +33 (0) 1 45 42 59 59 Slovenia: +386 41 650 500 Finland: +358 9 471 977 Hungary: +36 80 20 11 99 Spain: +34 91 562 04 20 Sweden: +46 08-331231 Greece: 30 210 77 93 777 112 Ireland (Republic): +352 1 809 2166 Switzerland: 145 Italy: +39 02 6610 1029 United Kingdom: 0870 600 6266 (in the UK only) Lithuania: +370 523 62052 U.S.A. & Canada: +1 800 / 331-3148 (PROSAR) +370 687 53378

♣ SECTION 2: HAZARDS IDENTIFICATION

Luxembourg: +352 8002 5500

2.1.	Classification of the substance or mixture	None
	WHO classification	Class U (Unlikely to present acute hazard in normal use)

All other countries: +1 651 / 632-6793 (PROSAR - Collect)



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Health hazards The product can cause mild irritation.

all green plants.

2.2. Label elements

According to EU Reg. 1272/2008 as amended

Product identifier Glyphosate 68 SG

Supplementary hazard statements

EUH210 Safety data sheet available on request.

instructions of use.

or vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances** The product is a mixture, not a substance.

The product contains 75% w/w of the pure active ingredient glyphosate-ammonium, equivalent to 68% of the free acid glyphosate.

Glyphosate Content: 68% by weight

CAS name Glycine, N-(phosphonomethyl)-

CAS no. 1071-83-6

 ISO name/EU name
 Glyphosate

 EC no. (EINECS no.)
 213-997-4

 EU index no.
 607-315-00-8

Classification of the ingredient Eye damage: Category 1 (H318)

Hazards to the aquatic environment, chronic: Category 2 (H411)

Structural formula

 $\begin{array}{c} O \\ \parallel \\ OH \\ OH \end{array}$

Glyphosate-ammonium Content: 75% by weight

CAS name Glycine, N-(phosphonomethyl)-, monoammonium salt



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IUPAC name

Glyphosate-ammonium ISO name

Other name(s) Glyphosate monoammonium salt

EC no. (EINECS no.) None

EU index no. 015-184-00-8

Classification of the ingredient Hazards to the aquatic environment, chronic: Category 2 (H411)

Structural formula

HOOCCH₂NHCH₂—P

Content CAS no. EC no. Classification Reportable ingredient

> (EINECS no.) (% w/w)

Tallow alkyl amines, hydrogenated,

ethoxylated

1 - 5 61790-82-7 None Aquatic Chronic 2 (H411)

***** SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation If experiencing any discomfort, immediately remove from exposure.

Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical

attention immediately or call for an ambulance.

Remove contaminated clothing and footwear. Flush skin with water. Skin contact

Wash with water and soap. See physician if irritation develops.

Immediately rinse eyes with much water or eyewash solution, Eye contact

> occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. Get

medical attention immediately.

Ingestion Immediately rinse mouth and drink milk or water. Do not induce

vomiting. If vomiting does occur, rinse mouth and drink fluids again.

Call a doctor or get medical attention.

4.2. Most important symptoms and

effects, both acute and delayed

Primarily irritation. On ingestion, the product may cause irritation of

gastrointestinal tract.

4.3. Indication of any immediate medical attention and special

treatment needed

Immediate medical attention is required in case of eye contact.

Note to physician The irritating effects of this product can be treated as usual against

effects of acids or acid fumes. Possible mucosal damage may

contraindicate the use of gastric lavage.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.



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5.2. Special hazards arising from the substance or mixture

The essential breakdown products are carbon monoxide, carbon dioxide, phosphorus pentoxide and nitrogen oxides

5.3. Advice for firefighters

Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels (not metal) for the collection of spills should be available.

In case of large spill (involving 10 tonnes of the product or more):

- 1. use personal protection equipment; see section 8
- 2. call emergency telephone no.; see section 1
- 3. alert authorities.

Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and boots.

Stop the source of the spill immediately if safe to do so. Avoid and reduce dust formation as much as possible, if appropriate by moistening. Remove sources of ignition.

6.2. Environmental precautions

Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

6.3. Methods and materials for containment and cleaning up

It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).

If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be swept up or preferably vacuumed up using equipment with high efficiency final filter. Transfer to suitable containers. Clean area with strong industrial detergent and much water. Absorb wash liquid onto a suitable absorbent such as hydrated lime, universal binder, bentonite or other absorbent clays and transfer to suitable containers. The used containers should be properly closed and labelled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.



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Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

6.4. **Reference to other sections** See subsec

See subsection 8.2. for personal protection.

See section 13 for disposal.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

The product or its spray solutions should be stored in stainless steel, aluminium, fiberglass, plastic or plastic-lined containers only. See subsection 10.5.

Do not discharge to the environment. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

7.2. Conditions for safe storage, including any incompatibilities

The product is stable for at least 5 years under normal conditions of warehouse storage.

Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

7.3.	Specific end use(s)	
,	Specific cira asc(s)	

This product is a registered pesticide, which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.



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♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

for glyphosate or any other component in this product. However, personal exposure limits defined by local regulations may exist and

must be observed.

Glyphosate free acid

DNEL, systemic 0.2 mg/kg bw/day

PNEC, aquatic 0.028 mg/l

8.2. **Exposure controls** When used in a closed system, personal protection equipment will not

be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-

hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be

recommended for spraying as well.

In cases of incidental high exposure, maximal personal protection may be necessary, such as respirator, face mask, chemical resistant

coveralls.

Respiratory protection

The product is not likely to present an airborne exposure concern during normal handling, but in the event of an accidental discharge of the material which produces a heavy vapour or dust, workers must put on officially approved respiratory protection equipment with a

universal filter type including particle filter.



Protective gloves

Wear heavy duty, natural rubber gloves. The breakthrough times of these gloves for glyphosate are unknown, but it is expected that they will give adequate protection. It is recommended to limit the work to

be done manually.



Eye protection

Wear safety glasses, goggles or face shield. It is recommended to have an eye wash fountain immediately available in the workplace when

there is a potential for eye contact.



Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of excessive or prolonged exposure, coveralls of barrier laminate may be required.



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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical and chemical properties

Appearance White solid, granulated

Odour Practically odourless to slight amine-like odour

Upper/lower flammability or

explosive limits Not determined

Vapour pressure For glyphosate free acid: 1.31 x 10⁻⁵ Pa at 25°C

Tap density: 0.73 g/cm³

Solubility (ies) Solubility of glyphosate-ammonium at 20°C in

 $\begin{array}{ll} methanol & : 57.5 \text{ mg/l} \\ acetone & : < 0.1 \text{ mg/l} \\ water & : 424 \text{ g/l} \end{array}$

Partition coefficient n-octanol/water Glyphosate free acid: $\log K_{ow} = -3.4$ at $20^{\circ}C$

Autoignition temperature None below 222°C

Decomposition temperature Decomposition starts at 190°C.

9.2. Other information

Miscibility The product is miscible with water.

SECTION 10: STABILITY AND REACTIVITY

10.1. **Reactivity** See below.

10.2. Chemical stability The product is stable during normal handling and storage at ambient

temperatures.

10.3. **Possibility of hazardous reactions** None known.

10.4. **Conditions to avoid** Heating of the product will produce harmful and irritant vapours.

> product may react with such containers to produce hydrogen gas which could flash or explode if ignited. Stainless steel may be used.

10.6. **Hazardous decomposition products** See subsection 5.2.



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SECTION 11: TOXICOLOGICAL INFORMATION

11.1. **Information on toxicological effects** * = Based on available data, the classification criteria are not met.

Product

Acute toxicity The product is practically non-toxic. * However, it should always be

treated with the usual care of handling chemicals.

No significant adverse health effects are expected if only small amounts (less than a mouthful) are swallowed. Ingestion of similar formulations has been reported to produce gastrointestinal discomfort with nausea, vomiting and diarrhoea. Ingestion of large quantities of a similar product has been reported to result in hypotension and lung oedema.

The acute toxicity of the product is measured as:

Route(s) of entry - ingestion LD_{50} , oral, rat: > 5000 mg/kg (method OECD 425)

- skin LD_{50} , dermal, rat: > 2000 mg/kg (method OECD 402)

- inhalation LC₅₀, inhalation, rat: not applicable

(a respirable aerosol in air could not be obtained)

Serious eye damage/irritation Mildly irritating to eyes (method OECD 405). *

Respiratory or skin sensitisation ... Not sensitising (method OECD 429). *

reproduction. *

exposure. *

STOT – repeated exposure The following has been measured on the active ingredient glyphosate:

In long-term studies with glyphosate free acid, the first minor effects (body weight and liver weight changes) were noted in rats at exposure levels of 60 - 100 mg glyphosate/kg bw/day. No signs of toxicity were found at any level, including the highest exposure level of 4800 mg

glyphosate/kg bw/day. *

Aspiration hazard The product does not present an aspiration hazard. *

Symptoms and effects, acute and

delayed Mild irritation.



Glyphosate-ammonium

Cheminova A/S

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Acute toxicity The substance is practically non-toxic. * The acute toxicity of the substance is measured as: Route(s) of entry - ingestion LD_{50} , oral, rat: > 2000 mg/kg (method OECD 401) LD₅₀, dermal, rat: > 4000 mg/kg (method OECD 402) - skin - inhalation LC₅₀, inhalation, rat: not applicable (a respirable aerosol in air could not be obtained) Not irritating to skin (method OECD 404). * Skin corrosion/irritation Serious eye damage/irritation Not irritating to eyes (method OECD 405). * Respiratory or skin sensitisation ... Not sensitising (method OECD 406). * *Glyphosate* Toxicokinetics, metabolism and After oral intake, glyphosate is rapidly absorbed but only to a limited distribution extent (approx. 30%). Metabolism is very limited and excretion is rapid and nearly complete. Distribution is generally low with residues occurring in all tissues. There is no evidence of accumulation. The substance is practically non-toxic. * The acute toxicity of the Acute toxicity substance is measured as: Route(s) of entry - ingestion LD_{50} , oral, rat: > 5000 mg/kg (method OECD 401) - skin LD_{50} , dermal, rat: > 2000 mg/kg (method OECD 402) - inhalation LC₅₀, inhalation, rat: > 5 mg/l/4 h (method OECD 403) (no signs of toxicity at this concentration) Skin corrosion/irritation Not irritating to skin (method FIFRA 81.05). * Serious eye damage/irritation Irritating to eyes (method FIFRA 81.04).

Tallow alkyl amines, hydrogenated, ethoxylated

Respiratory or skin sensitisation ...

Carcinogenicity

have been reported. *

carcinogenic effects.

Not sensitising (method OECD 406). No allergic effects on humans

No indications of carcinogenic effects were found in 8 studies on glyphosate and no study on glyphosate itself has shown possible

measured as

Route(s) of entry - ingestion LD_{50} , oral: > 5000 mg/kg

- skin LD₅₀, dermal: not available

- inhalation LC_{50} , inhalation: not available



Skin corrosion/irritation

12.4. **Mobility in soil**

12.6. Other adverse effects

assessment

12.5. Results of PBT and vPvB

Cheminova A/S

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Not irritating to skin. *

Serious eye damage/irritation Not irritating to eyes. * SECTION 12: ECOLOGICAL INFORMATION The product is a herbicide and therefore expected to be toxic to all 12.1. **Toxicity** green plants. The product is not considered as harmful to fish, aquatic invertebrates, birds, insects and soil micro- and macro-organisms. The ecotoxicity of the product is measured as: - Fish - Invertebrates - Algae - Plants 7-day NOEC: 12.5 mg/l - Earthworms - Bees 48-h LD₅₀, contact: $> 100 \mu g/bee$ 12.2. Persistence and degradability Glyphosate is not readily biodegradable. It undergoes slow degradation in the environment and in waste water treatment plants. No adverse effects are found at concentrations up to 100 mg/l in waste water treatment plants. Degradation is mainly microbiological and aerobic, but anaerobic degradation does also occur. Primary degradation half-lives in the environment vary much with circumstances, but are usually around 3 - 30 days in aerobic soil and water. The product contains minor amounts of not readily biodegradable ingredients, which may not be degradable in a waste water treatment plant. See section 9 for octanol-water partition coefficient. 12.3. **Bioaccumulative potential** **Glyphosate** is not expected to bioaccumulate. In several studies on bioaccumulation of glyphosate, both in marine and freshwater

to soil.

systems, only low bioaccumulation factors were found.

In the environment **glyphosate** is not mobile, but is rapidly

deactivated by adsorption to clay particles. Glyphosate binds strongly

The substance does not meet the criteria for being PBT or vPvB.

Other relevant hazardous effects in the environment are not known.



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SECTION 13: DISPOSAL CONSIDERATIONS

13.1. **Waste treatment methods** Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.

Disposal of waste and packagings must always be in accordance with all applicable local regulations.

possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with

flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or

disposal. Do not discharge to sewer systems.

Disposal of packaging It is recommended to consider possible ways of disposal in the

following order:

1. Reuse or recycling should first be considered. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.

2. Controlled incineration with flue gas scrubbing is possible for

combustible packaging materials.

3. Delivery of the packaging to a licensed service for disposal of

hazardous waste.

4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke

purposes. If burned, stay out of smoke.

SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

	14.1.	UN number		Not cl	assified as	hazardous	material	for transport
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14.2. **UN proper shipping name** Not applicable

14.3. **Transport hazard class(es)** Not applicable

14.4. **Packing group** Not applicable

14.6. **Special precautions for user** Avoid any unnecessary contact with the product. Do not discharge to

the environment.



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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the

IBC code The product is not transported in bulk by ship.

SECTION 15: REGULATORY INFORMATION

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

To our knowledge, no specific regulations apply.

All ingredients are covered by EU chemical legislation.

A chemical safety assessment is not required to be included for this 15.2. Chemical safety assessment

product.

SECTION 16: OTHER INFORMATION

Relevant changes in the safety data Minor corrections only. sheet CAS Chemical Abstracts Service List of abbreviations Dir. Directive **DNEL** Derived No Effect Level EC **European Community** EC_{50} 50% Effect Concentration EINECS European INventory of Existing Commercial Chemical Substances **FIFRA** Federal Insecticide, Fungicide and Rodenticide Act Globally Harmonized classification and labelling System of GHS

chemicals, Fifth revised edition 2013 **IBC** International Bulk Chemical code

International Organisation for Standardization ISO **IUPAC** International Union of Pure and Applied Chemistry

 LC_{50} 50% Lethal Concentration 50% Lethal Dose LD_{50}

MARPOL Set of rules from the International Maritime Organisation

(IMO) for prevention of sea pollution **NOEC** No Observed Effect Concentration

OECD Organisation for Economic Cooperation and Development

PBT Persistent, Bioaccumulative, Toxic **PNEC** Predicted No Effect Concentration

Reg. Regulation

SG Water Soluble Granules STOT Specific Target Organ Toxicity vPvB very Persistent, very Bioaccumulative

World Health Organisation WHO

References Data measured on the formulation and acute toxicity data measured on

the active ingredient are unpublished company data. Data on other ingredients are available from published literature and can be found

several places.

Method for classification Test data



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The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB