STARKEM 600 WG

SAFETY DATA SHEET
Revision date: April, 2024

SECTION 1 - IDENTIFICATION

1.1 Product identifier

Product name: STARKEM 600 WG

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Herbicide.

1.3 Details of the supplier of the Safety Data Sheet

DVA CHEMICALS SOUTH AFRICA (Pty) Ltd
Reg. no. 2006/000931/07
26 Quantum street, Unit 20. Block D, Carpe Diem Building, Techno Park,
(7600) Stellenbosch, South Africa
P: +27 044 692 0552. F: +27 044 695 0640.

1.4 Emergency telephone number

Emergency phone (24 hours): **Poison Information Centre: 082 446 8946**
Tygerberg Hospital: (021) 931 6129
Poison Emergency Enquiries: (021) 689 5227
In case of Spillage - HAZMAT: 0800 147 112

SECTION 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to the Globally Harmonized System
Serious eye damage / Eye irritation (Category 1)
Long-term (chronic) aquatic hazard (Category 1)

2.2 Label elements

Pictogram:

Signal word: DANGER

Hazard statements:
H318 - Causes serious eye damage.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P264+P265 - Wash hands and face thoroughly after handling. Do not touch eyes.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P305+P354+P338, P317 - IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get emergency medical help.
P391 - Collect spillage.

2.3 Other hazards

There are no other additional hazards of consideration in the classification.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Does not apply.

3.2 Mixtures

IDENTIFICATION NAME	CAS No.	CONCENTRATION	CLASSIFICATION
Metsulfuron methyl	74223-64-6	60	Aquatic Acute 1; Aquatic Chronic 1 (M=1000)
Inerts and adjuvants	-	s.q.f. 100	Not classified

SECTION 4 – FIRST-AID MEASURES

4.1 Description of first aid measures

General advice: Avoid exposure to the product and take appropriate protective measures. Consult your doctor with the safety data sheet.

Inhalation: Move victim to an area with clean air. Keep her at rest. If not breathing, apply CPR. Call the doctor.

Skin contact: Immediately wash skin with plenty of soap and water for at least 15 minutes.

Eye contact: Immediately flush eyes with water for at least 15 minutes, keeping eyelids open. If you have contact lenses, remove them after 5 minutes and continue rinsing eyes. Consult the doctor.

Ingestion: DO NOT INDUCE VOMITING. Rinse mouth with water. If the victim is unconscious, call a doctor immediately, and turn her on her side to reduce the risk of aspiration. Do not give the victim anything to drink or eat.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: may cause discomfort due to inhalation of dust.
Skin contact: may cause dry skin.
Eye contact: may cause serious eye irritation.
Ingestion: may cause nausea, vomiting and stomach upset.

4.3 Indication of any immediate medical attention and special treatment needed

Medical advice: Perform symptomatic treatment. For more information, consult a Poison Center.

SECTION 5 – FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use dry chemical, foam, sand or carbon dioxide (CO_2). Use the product according to surrounding materials. DO NOT USE water jets as it may spread fire.

5.2 Special hazards arising from the substance or mixture

The product and its packaging can burn, but do not ignite easily. Under certain conditions, any dust in the air can be a risk of explosion.

5.3 Advice for firefighters

5.3.1 Firefighting instructions

Spray the packaging with water to avoid ignition or to keep them cool if exposed to excessive heat or fire.
Remove the packages if they have not yet been reached by the flames, and you can do so without risk.
Cool containers with water until the fire is extinguished, removing the remains until the embers are cold.
Prevent water used for fire control or dilution from entering watercourses, drains or springs.

5.3.2 Protective clothing

Wear positive pressure self-contained breathing apparatus and fire-fighting protective clothing (includes fire-fighting helmet, jacket, pants, boots, and gloves). Avoid contact with the product during operations. For non-fire spills or post-fire cleanup phase, wear chemical protective clothing specifically recommended by the manufacturer.

5.3.3 Hazardous combustion products

In case of fire, it may release irritating and/or toxic fumes and gases, such as carbon monoxide, nitrogen oxides, sulfur oxides, and other substances derived from incomplete combustion.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Evacuate personnel to a ventilated area.

6.1.2 For emergency responders

In large spills wear protective clothing against chemicals. It may provide no thermal protection. Eliminate all sources of ignition (no smoking, flares, sparks or open flames in danger area). Evacuate people to a ventilated area. Ventilate immediately, avoiding the generation of dust clouds. Do not allow reuse of spilled product.

6.2 Environmental precautions

Contain solid and cover to prevent dispersion. Prevent the product in reaching waterways. This product may be toxic to the environment, especially if released in large quantities.

6.3 Methods and material for containment and cleaning up

Collect the product with a shovel and place it in an appropriate container. Clean the affected area completely. Dispose of the water and collected waste in marked containers for disposal as chemical waste.

6.4 Reference to other sections

See Section 8 - Exposure Controls and Personal Protection, and Section 13 – Disposal considerations.

SECTION 7 – HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not eat, drink or smoke while handling. Avoid contact with eyes, skin and clothing. Wash your hands after handling this product. Use gloves and the personal protection elements recommended on the label.

7.2 Conditions for safe storage, including any incompatibilities

Store in a clean, dry, well-ventilated area. Keep containers closed. Store in the original container with label visible. Keep out of the reach of untrained people. Do not store together with food and feed, seeds or utensils to handle them.

Packaging materials:	Supplied by the manufacturer.
Incompatibilities:	Keep away from Strong oxidizing agents, strong acids or bases.

7.3 Specific end use(s)

Herbicide.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

TLV-TWA (ACGIH, USA):	10 mg/m³, PNOS, inh. 3 mg/m³, PNOS, resp.
TLV-STEL (ACGIH, USA):	N/D

PEL (OSHA):	15 mg/m³, PNOS, total 5 mg/m³, PNOS, resp.
REL:	10 mg/m³, PNEOF, total
REL-STEL (USA):	N/D
IDLH (NIOSH, USA):	N/D

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Keep workplace ventilated. The normal routine ventilation is usually adequate. Local hoods should be used for operations that produce or release large amounts of product. In low or confined areas should be provided mechanical ventilation. Provide showers and eyewash stations.

8.2.2. Individual protection measures, such as personal protective equipment

Eye and face protection:	When necessary, wear chemical splash-proof safety glasses (complying with EN 166).
Skin protection:	When necessary, wear impermeable protective PVC, nitrile or butyl gloves (complying with standards EN 374), clothes and safety footwear resistant to chemicals.
Respiratory protection:	When necessary, wear an dust and particles (P1) respirator. Special attention to oxygen levels in the air should be paid. If large releases occur, wear self-contained breathing apparatus (SCBA).

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Powder.
Colour:	N/D
Odour:	N/D
Odour threshold:	N/D
pH:	N/D
Melting point:	N/D
Boiling point:	N/D
Evaporation rate:	Not volatile.
Flammability:	The product is a combustible powder.
Flash point:	Does not apply to powders.
Explosive limits:	Danger of dust explosion.
Auto-ignition temperature:	N/D
Decomposition temperature:	N/D

Vapour pressure (20°C):	The product is a powder.
Vapour density (air=1):	Not volatile.
Relative density (20°C):	N/D
Solubility (25°C):	N/D
Partition coefficient (logKo/w):	-1,87 [a.i.]
Viscosity (40°C):	Does not apply to powders.
Henry constant (20°C):	Does not apply, because it is not volatile.
Explosive properties:	Dust in the air can generate potentially explosiv
Oxidizing properties:	This study is not necessary because the substances present in the product, due to their chemical structures, are incapable of reacting exothermically with combustible materials.

9.2 Other information

Other properties:	None.

SECTION 10 – STABILITY AND REACTIVITY

10.1. Reactivity

It is not expected that product reactions or decomposition may occur under normal storage conditions. It does not contain organic peroxides. It is not corrosive to metals. It does not react with water.

10.2. Chemical stability

The product is chemically stable and it does not require stabilizers.

10.3. Possibility of hazardous reactions

No hazardous polymerization is expected.

10.4. Conditions to avoid

Avoid high temperatures. Avoid dispersion of dust.

10.5. Incompatible materials

Keep away from Strong oxidizing agents, strong acids or bases.

10.6. Hazardous decomposition products

When heated, it may release toxic and irritating vapors. In case of fire, see section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

There is no information about the toxicity of the product, but acute toxicity estimations are presented.
ATE-LD50 oral (calc.): > 2000 mg/kg
ATE-LD50 der (calc.): > 2000 mg/kg
ATE-LC50 inh. (4 hs., calc): > 5 mg/l
Skin irr. (rabbit, estim.): not irritant
Eye irr. (rabbit, estim.): severe eye damage
Skin sens (Guinea pig, estim.): not sensitizing
Resp. sens (Guinea pig, estim.): not sensitizing

Carcinogenicity, mutagenicity, reproductive toxicity and other effects:

Carcinogenicity: No information is available on any component of this product, present at levels greater than or equal to 0.1%, that is classified as probable, possible or confirmed human carcinogen by IARC (International Agency for Research on Cancer).
Mutagenicity: There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as mutagens according to the GHS.
Tox. Repr .: There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as hazardous for reproduction according to the GHS.
Teratogenicity: There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as a teratogen.
STOT-SE: There are no components of this product, present at a concentration greater than or equal to 1%, that they classify as toxic to target organs according to the GHS.
STOT-RE: There are no components of this product, present at a concentration greater than or equal to 1%, that they classify as toxic to target organs according to the GHS.
Aspiration: There are no components of this product, present at a concentration greater than or equal to 10%, that classify as toxic by aspiration according to the GHS.

Acute effects:

Routes of exposure: Inhalation, skin and eye contact.
Inhalation: may cause discomfort due to inhalation of dust.
Skin contact: may cause dry skin.
Eye contact: may cause serious eye irritation.
Ingestion: may cause nausea, vomiting and stomach upset.

SECTION 12 – ECOLOGICAL INFORMATION

12.1. Toxicity

Very toxic for aquatic organisms. It can cause long-term negative effects on the aquatic environment.
PNEC (fresh water): N/D
PNEC (sea): N/D
PNEC-STP: N/D

12.2. Persistence and degradability

BIODEGRADABILITY (not indicated): In the field the half-life is 180 to 240 days.

12.3. Bioaccumulative potential

Log $K_{o/w}$: -1,87 [a.i.]

BIOCONCENTRATION FACTOR - BCF (OCDE 305): N/D. Because the n-octanol/water distribution coefficient (log Pow) is less than 3, significant bioaccumulation in organisms is not expected.

12.4. Mobility in soil

HENRY CONSTANT (20°C): Does not apply, because it is not volatile.
LogKoc: N/D

12.5. Results of PBT and vPvB assessment

This product does not meet the PBT criteria of Annex XIII of REACH. This product does not meet the vPvB criteria in Annex XIII of REACH.

12.6. Other adverse effects

AOX and metal containing: Does not contain organic halogens nor metals.

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of excess product and empty containers in accordance with current environmental protection legislation. Classify and dispose of waste with an authorized company. Disposal procedure: incineration.

SECTION 14 – TRANSPORT INFORMATION

14.1 Transport by land

Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains metsulfuron methyl)
UN/ID Number:	3077
Hazard class:	9
Packing group:	III
Hazard identification number:	90
Excepted and limited quantity:	5 kg / E1
Special provisions:	274, 335, 371, 601

14.2 Air transport (ICAO/IATA)

Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains metsulfuron methyl)
UN/ID Number:	3077
Hazard class:	9
Packing group:	III
PAX and Cargo Packing instructions:	Y956; 30 kgG / 956; 400kg
Cargo Packing instructions:	956; 400 kg

ERC:	9L
Special provisions:	A97; A158; A179

14.3 Sea transport (IMO)

IMDG Code

Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains metsulfuron methyl)
UN/ID N°:	3077
Hazard class:	9
Packing group:	III
EMS:	F-A, S-F
Stowage and manipulation:	Category A; SW23
Segregation:	-
Marine pollutant:	YES

Proper Shipping Name: UN3077; ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains metsulfuron methyl); Class 9; PG III; MARINE POLLUTANT

SECTION 15 – REGULATORY INFORMATION

Not dangerous for the ozone layer.
Volatile organic compounds (VOC's): N/D
NFPA: 2 1 0 - EPP: E

Regulation

Globally Harmonized System of Classification and Labelling of Chemicals, fifth revised edition, 2013 (GHS 2013 - 'ST / SG / AC 10/30 / Rev.5'). The fifth edition is taken into consideration because it is the one valid for Argentina according to Resolution 801/2015 of the SRT. In any case, the information is contrasted with Revision 7 ('ST / SG / AC 10/30 / Rev.7') and clarification is made if required.
Agreement on Transport of Dangerous Products within the MERCOSUR, MERCOSUR\CMC\DEC N° 2/94.
European Agreement on the International Carriage of Dangerous Goods by Road (ADR) and amendments.
International Maritime Dangerous Goods Code (IMDG), International Maritime Organization (IMO).
Regulations of the International Air Transport Association (IATA) on the transport of dangerous goods by air.

SECTION 16 – OTHER INFORMATION

16.1 Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists.
ATE: Acute toxicity estimate.
AOX: Halogenated organic compounds
BCF: Bioconcentration factor.
CAS: Chemical Abstracts Service.

Calc.: calculated values.
EC: effect concentration.
EC50: Average Effective Concentration.
EMS: Emergency management sheet.
ERC: Emergency response card.
Estim: Estimated values.
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
IARC: International Agency for Research on cancer.
IATA: International Air Transport Association.
ICAO: International Civil Aviation Organization.
IDLH: Immediately dangerous to life or health
IMDG: International Maritime Dangerous Goods.
IMO: International Maritime Organization.
LC: Lethal concentration.
LD: Lethal dose.
Log Ko/w: octanol-water partition coefficient.
Log Koc: organic carbon to water partition coefficient.
N/A: not applicable.
N/D: no data available.
NFPA: National Fire Protection Association.
NIOSH: National Institute for Occupational Safety and Health
NOEC: No observed effect concentration.
OECD: Organisation for Economic Co-operation and Development.
OSHA: Occupational Safety and Health Administration.
PAX: Passengers.
PBT: persistent, bioaccumulative or toxic criteria.
PEL: Permissible Exposure Limit.
PMCC: Pensky Martens closed cup
PNEC: Predicted No Effect Concentration
PNEC-STP: Predicted No Effect Concentration – sewage treatment plant.
PPE: Personal protection equipment.
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals - Europa.
REL: Recommended Exposure Limit.
STEL: Short Term Exposure.
STOT-RE: Specific target organ toxicity - repeated exposure
STOT-SE: Specific target organ toxicity - single exposure
STP: sewage treatment plant
TLV: Threshold Limit Value.
Tox. Repr.: toxicity for reproduction
UN: United Nations.
VOC: Volatile organic compounds
vPvB: very persistent or very bioaccumulative

Denomination of GHS classes
Aer.: aerosols
Oxid. Gas: oxidizing gas
Compressed gas: compressed gas
Dissolved gas: dissolved gas
Flam. Gas: flammable gas
Liquefied Refr. Gas: refrigerated liquefied gas
Liquefied gas: liquefied gas
Oxid. Liquid: oxidizing liquid
Flam. Liquid: flammable liquid
Met. Corr.: corrosive for metals
Org. Perox.: organic peroxide
Water React. Flam. Gas: substance reactive with water, which emits flammable gases
Oxid. Solid: oxidizing solid
Flam. Solid: flammable solid
Asp Tox.: aspiration toxicity
Carc.: carcinogenicity
Skin Corr. / Irrit.: Corrosion / skin irritation
Eye Damage / Irrit .: Serious eye damage / eye irritation
Lac.: toxic for reproduction - lactation
Muta.: mutagenicity
Repr.: toxic for reproduction
Skin Sens.: skin sensitizer
Resp. Sens.: respiratory sensitizer
STOT Rep. Exp.: Specific target organ toxicity - repeated exposure
STOT Single Exp.: Specific target organ toxicity - single exposure
Acute Tox.: Acute toxicity
Aquatic Acute: Hazardous to the aquatic environment - acute danger
Aquatic Chronic: Dangerous for the aquatic environment - chronic danger
Ozo.: Dangerous for the ozone layer.

16.2 Key literature references and sources for data

International Agency for Research on Cancer (IARC), classification of carcinogens.

European Chemicals Agency – ECHA
GESTIS-Stoffdatenbank, IFA, DGUV, Germany
Annex VI of Regulation (EC) No. 1272/2008, on classification, labeling and packaging of substances and mixtures (CLP Regulation)
US National Library of Medicine - PUBCHEM
eChem Portal, OECD

16.3 Classification and procedure used to derive the classification for mixtures

The classification was performed based on chemical analogues and product information compiled by CIQUIME.
SECTION 2: classification by hazard extrapolation and based on product data.
SECTION 9: product data.
SECTION 11 and 12: calculation of acute toxicity estimation according to GHS, product data and bibliographic data.

Change's control: v.1 - Adaptation to the GHS.

16.4 Disclaimer

This information only concerns the above-mentioned product and is not to be valid for other (s) product (s) or in any process. This safety data sheet provides health and safety information. The information is to our best knowledge, correct and complete. It is given in good faith but without warranty. The product should be used in applications consistent with our product literature. Individuals handling this product should be in-formed of the recommended safety precautions and should have access to this information. For any other use, exposure should be evaluated so that they can implement appropriate handling practices and training programs to ensure safe operations in the workplace.
It remains the user's own responsibility that this information is appropriate and complete for the special use of this product.