SAFETY DATA SHEET

Prepared on Commission Regulation (EU) no. 453/2010

1. Identification of the substance/mixture and of the company/undertaking

Product/substance name	Gladiator 160 ME		***Revision Date:*** 23/05/2022 ***Publish Date:*** 23/05/2022
Product/substance name Herbicide	**CAS Number**	**EINECS Number**	**Index Number**
	Fluroxypyr: 81406-37-3 Picloram: 6753-47-5	Fluroxypyr: 279-752-9 Picloram: 229-815-1	Fluroxypyr: 607-272-00-5 Picloram: -
Supplier	Future Farm & Forest Services & Supplies (Pty) Ltd Johannesburg Epsom Downs Office Park 13 Sloane Street, Bryanston 2194 EMERGENCY CONTACT Tel: (+27) 11 463 5842		
Regd. Office:	Future Farm & Forest Services & Supplies (Pty) Ltd Johannesburg Epsom Downs Office Park 13 Sloane Street, Bryanston 2194 EMERGENCY CONTACT Tel: (+27) 11 463 5842		
Emergency telephone number	Transport accident: 086 100 0366 Treatment for poisoning cases: 082 446 8946		

2. Hazards identification

Classification of the substance or mixture

Serious eye damage	Category 1: (H318)
Serious eye irritation	Category 2: (H319)
Acute aquatic hazard	Category 1; (H400)
Long-term (chronic) aquatic hazard	Category 2: (H411)

Label Elements

Hazard pictograms

Signal word	DANGER
Hazard statements	H318 - Causes serious eye damage. H319 - Causes serious eye irritation. H400 - Very toxic to aquatic life H411 - Toxic to aquatic life with long lasting effects.
Precautionary statements	P203 - Obtain, read, and follow all safety instructions before use. P264 + P265 - Wash hands thoroughly after handling. Do not touch eyes. P273 - Avoid release to the environment. *– if this is not the intended use*. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P311 - If exposed or concerned: Call a POISON CENTER/doctor. P318 - IF exposed or concerned, get medical advice. P337 + P317 - If eye irritation persists: Get medical help. P391 - Collect spillage. P405 - Store locked up. P501 - Dispose of contents/container in accordance with applicable regulations.
Supplemental information	EUH401 - To avoid risks to human health and the environment, comply with the instructions for use. EUH208 - Contains: Picloram triisopropanolamine salt. May produce an allergic reaction.
Contains	Ethoxylated Alcohols, C12 to C15; Hydrocarbons, C10-C13, aromatics.
Other Hazards	No information available

3. Composition/information on ingredients

Mixture

Chemical Name	Weight (%)	CAS No	EC No
Picloram triisopropanolamine salt	13.24%	6753-47-5	229-815-1
Fluroxypyr 1-methylheptyl ester	10.65%	81406-37-3	279-752-9
*Other ingredients (inert) total	76.12%		
Triisopropanolamine		000122-20-3	
Aromatic Solvent		064742-94-8	
* Other ingredients not precisely identified are proprietary and non-hazardous.			

4. First aid measures

First aid measures

General advice

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
First aider: Pay attention to self-protection!
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation

Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth-to-mouth use rescuer protection (pocket mask, etc.).
Call a poison control center or doctor for treatment advice.

Skin contact

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact

Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion

Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of

immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

5. Firefighting measures

Extinguishing media

Suitable extinguishing media	To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.
Unsuitable extinguishing media	No data available

Special hazards arising from the substance or mixture

Hazardous combustion products	Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards	This material will not burn until the water has evaporated. Residue can burn. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

Advice for firefighters

Fire Fighting Procedures	Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.

Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

Special protective equipment for firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate area. Refer to section 7, Handling and storage, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls/ personal protection.
Environmental precautions	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up
Contain spilled material if possible.

Small spills:	Absorb with materials such as: clay, dirt, sand. Sweep up and collect in suitable and properly labeled containers.
Large spills:	Contact Ecoguard Biosciences for clean-up assistance.

See Section 13, Disposal Considerations, for additional information.

7. Handling and storage

Precautions for safe handling

Advice on safe handling	Avoid contact with skin and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling.

Keep container closed.
Use with adequate ventilation.

General Hygiene Considerations Keep out of reach of children.
Do not get in eyes.
Do not swallow.
Regular cleaning of equipment, work area and clothing is recommended.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

See Section 8, Exposure Controls/ personal protection.

Conditions for safe storage, including any incompatibilities

Conditions for safe storage: Store in a dry place.
Store in original container.
Keep container tightly closed when not in use.
Do not store near food, foodstuffs, drugs or potable water supplies.

Specific end use(s)

Risk Management Methods (RMM)
The information required is contained in this Safety Data Sheet.

8. Exposure controls/personal protection

National occupational exposure limits

If exposure limits exist, they are listed below.
If no exposure limits are displayed, then no values are applicable.

Recommendations in this section are for manufacturing, commercial blending, and packaging workers. Applicators and handlers should see the product label for proper personal protective equipment and clothing.

Exposure controls

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection Tight sealing safety goggles.

Hand Protection	Chemical resistant gloves under Standard EN374: Protective gloves against chemicals and micro-organisms.
Body Protection	Antistatic footwear, Wear fire/flame resistant/retardant clothing, Gloves made of plastic or rubber, Suitable protective clothing, Apron.
Respiratory protection	Use only with adequate ventilation.
General Hygiene Considerations	When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

9. Physical and chemical properties

Physical and Chemical Properties

Property		Values	Methods	Remarks
Appearance				
Physical state	:	Liquid		
Color	:	Tan to brown		
Odor	:	Amine		
Odor threshold	:	No test data available		
pH	:	7.4		
Melting point/freezing point (°C)	:	No test data available		
Boiling point/boiling range (°C)	:	No test data available		
Flash point (°C)	:	> 100 °C		
Evaporation rate	:	No test data available		
Flammability (solid, gas)	:	No test data available		
Upper/lower flammability or explosive limits	:	No test data available		
Vapor pressure (kPa)	:	No test data available		
Vapor density	:	No test data available		
Relative density	:	1.083 at 20 °C		
Solubility(ies) (mg/l)	:	emulsifiable		
Partition Coefficient (n-octanol/water) Log Pow:	:	No test data available		
Autoignition temperature (°C)	:	No test data available		
Decomposition temperature (°C)	:	No test data available		
Dynamic viscosity (mm2/s 40 °C)	:	77.2 mPa.s at 20 °C		
Kinematic viscosity (mm2/s 40 °C)		No test data available		
Explosive properties	:	No test data available		
Oxidizing properties	:	No test data available		

Other Information

Liquid density (g/cm)	:	1.083 g/cm^3 at 20 °C
Surface tension (g/ml)	:	No data available

10. Stability and reactivity

Reactivity	No dangerous reaction known under conditions of normal use.
Chemical stability	Stable under recommended storage conditions. See Storage, Section 7.

Possibility of Hazardous Reactions

Hazardous polymerization	Hazardous polymerization does not occur. None under normal processing.
Conditions to avoid	Can coagulate if frozen. Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.
Incompatible materials	Avoid contact with oxidizers. Addition of chemicals may cause phase separation.
Hazardous decomposition products	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: carbon monoxide, carbon dioxide, hydrogen chloride and nitrogen oxides. Toxic gases are released during decomposition.

11. Toxicological information

Information on toxicological effects

Acute toxicity		**Values**	**Species**	**Remarks**
Oral (LD50 mg/kg)	:	> 5000	Rat	Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.
Dermal (LD50 mg/kg)	:	> 5000	Rat	Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation (LC50 mg/l/4h)	:	> 5.56	Rat	Prolonged exposure is not expected to cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.
Skin corrosion/irritation	:	Possible skin irritation		Brief contact may cause slight

				skin irritation with local redness. May cause drying and flaking of the skin.
Serious eye damage/eye irritation	:	May cause severe irritating to the eyes		Chemical burns may occur.
Respiratory/skin sensitization	:	Did not cause any allergic skin reactions	Guinea pig	No relevant information found for respiratory sensitization

Chronic toxicity

Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT - single exposure	:	Not STOT single exposure
STOT - repeated exposure		Effects have been reported on the following organs: Liver. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Aspiration hazard	:	Not available

12. Ecological information

Toxicity

Aquatic toxicity

Acute toxicity		**Values**	**Species**	**Method**	**Remarks**
Fish (96-hour LC50 mg/l)	:	> 0.0866	*Cyprinodon variegatus* (sheepshead minnow)	OECD 203	Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).
Crustacea (48-hour EC50 mg/l)	:	> 0.183	*Daphnia magna*	OECD 202	
Algae (72-hour EC50 mg/l)	:	0.24	*Navicula* spp.		
Other plants (EC50 mg/l)	:				

Terrestrial Toxicity

Birds Oral LD50 (mg/kg)	:	> 2250	*Coturnix japonica* (Japanese quail)		Material is practically non-toxic to birds on an acute basis
Bees Oral LD50 (µg/bee)	:	> 200	*Apis mellifera*		

Persistence and degradability

Abiotic Degradation

Water DT50 days	:	454			
Soil DT50 days	:				
Biodegradation	:	32%		OECD Test Guideline 301D	Material is not readily biodegradable

Bioaccumulative potential

Partition Coefficient (n-octanol/water) : 5.04

Partition Coefficient (n-octanol/water) Log Pow			
Bioconcentration factor (BCF)	:	26	*Oncorhynchus mykiss* (rainbow trout)

Mobility in soil

Adsorption/Desorption	:	0 to 50	Potential for mobility in soil is very high (Koc between 0 and 50).

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging: Improper disposal or reuse of this container may be dangerous and illegal.

Other Information: Waste codes should be assigned by the user based on the application for which the product was used.

14. Transport information

Classification for ROAD and Rail transport:

Proper shipping name	Environmentally hazardous substance, liquid, N.O.S. (fluroxypyr, picloram)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Fluroxypyr, Picloram

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Classification for SEA transport (IMO-IMDG):

Proper shipping name	Environmentally hazardous substance, liquid, N.O.S. (fluroxypyr, picloram)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Fluroxypyr, Picloram

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code
Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO)

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Fluroxypyr, Picloram)
UN number	UN 3082
Class	9
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/ information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory information

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

National legislation:
· Regulations For Hazardous Chemical Agents, 2021 as Amended by Notice R 11266 in GG 44366 of 31 March 2021 Republic Of South Africa.
· Occupational Health and Safety Act (Act No. 85 of 1993) as amended.
· Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947) as amended. Registration No. L6802 Department of Agriculture, Land Reform and Rural Development.

16. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Contact:
Future Farm & Forest Services & Supplies (Pty) Ltd
P.O. BOX 98165
SLOANE PARK
2152

Abbreviations and acronyms:

ADR:	Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID:	Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG:	International Maritime Code for Dangerous Goods
IATA:	International Air Transport Association (IATA)
ICAO:	International Civil Aviation Organization
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS:	Globally Harmonized System of Classification and Labelling of Chemicals
EINECS:	European Inventory of Existing Commercial Chemical Substances
CAS:	Chemical Abstracts Service (division of the American Chemical Society)
LC50:	Lethal concentration, 50 percent
LD50:	Lethal dose, 50 percent

This Safety Data Sheet (SDS) complies with basic South African and EU regulatory requirements for SDS on the date of publication and is intended for translation and adaptation into European National documents. This document should NOT be relied upon for compliance with the laws and regulations of individual countries without the appropriate local translations and adaptations. It is your responsibility to ensure that any SDS taken or adapted from this system for re-distribution or use complies with all the laws and regulations which apply to any such use or re-distribution.