SAFETY DATA SHEET

Linagan SC

Revision Date 20-Dec-2018 **Version** 1 **Product No** HRB00893-27
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Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Linagan SC

Pure substance/mixture Mixture

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

Recommended Use Herbicide
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address ADAMA SOUTH AFRICA (PTY) LTD
Ground Floor, Simeka House
The Vineyards Office Estate
99 Jip de Jager Drive
Bellville 7530

For further information, please contact

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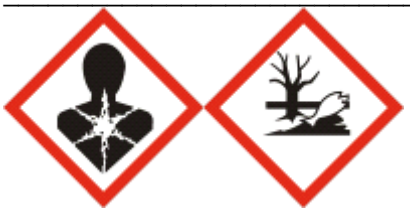
Section 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Acute toxicity - Oral	Category 5 - (H303)
Carcinogenicity	Category 2 - (H351)
Reproductive toxicity	Category 1B - (H360)
Specific target organ toxicity (repeated exposure)	Category 2 - (H373)
Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

Label Elements

Hazard pictograms



Signal word Danger

Hazard Statements

H303 - May be harmful if swallowed
H351 - Suspected of causing cancer
H360 - May damage fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

P102 - Keep out of reach of children
P201 - Obtain special instructions before use
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P501 - Dispose of contents/ container to an approved waste disposal plant

Other Hazards

No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	Weight-%	CAS No	EC No	GHS Classification	M-Factor
Linuron	39-44	330-55-2	206-356-5	Acute Tox. 4 (H302) Repr. 1B (H360) Carc. 2 (H351) STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	 M=100 M=10
Monoethylene glycol	3-5	107-21-1	203-473-3	Acute Tox. 4 (H302) STOT RE 2 (H373)	

Section 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!.

Inhalation Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if necessary.

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Ingestion Rinse mouth. Drink plenty of water. If symptoms persist, call a physician.

Self-protection of the first aider Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms None known

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
No information available.

Special hazards arising from the substance or mixture

No specific hazard known.

Advice for firefighters

In the event of fire, wear self-contained breathing apparatus
In the event of fire and/or explosion do not breathe fumes.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

For emergency responders
Use personal protection recommended in Section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for cleaning up
Take up mechanically, placing in appropriate containers for disposal.

Reference to other sections

Other Information
See also section 8,13

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Use with local exhaust ventilation.

General Hygiene Considerations
When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

Specific end use(s)

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

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

National occupational exposure limits

Chemical Name	European Union	United Kingdom	France	Spain	Germany
Monoethylene glycol 107-21-1	S* TWA 20 ppm TWA 52 mg/m³ STEL 40 ppm STEL 104 mg/m³	STEL: 40 ppm STEL: 104 mg/m³ STEL: 30 mg/m³ TWA: 20 ppm TWA: 52 mg/m³ TWA: 10 mg/m³ Skin	TWA: 20 ppm TWA: 52 mg/m³ STEL: 40 ppm STEL: 104 mg/m³	S* STEL: 40 ppm STEL: 104 mg/m³ TWA: 20 ppm TWA: 52 mg/m³	TWA: 10 ppm TWA: 26 mg/m³ Ceiling / Peak: 20 ppm Ceiling / Peak: 52 mg/m³ Skin
Chemical Name	**Italy**	**Portugal**	**Netherlands**	**Finland**	**Denmark**
Monoethylene glycol 107-21-1	TWA: 20 ppm TWA: 52 mg/m³ STEL: 40 ppm STEL: 104 mg/m³ Skin	Ceiling: 100 mg/m³	Skin STEL: 104 mg/m³ TWA: 52 mg/m³ TWA: 10 mg/m³	TWA: 20 ppm TWA: 50 mg/m³ STEL: 40 ppm STEL: 100 mg/m³ Skin	TWA: 10 ppm TWA: 26 mg/m³ TWA: 10 mg/m³ Skin
Chemical Name	**Austria**	**Switzerland**	**Poland**	**Norway**	**Ireland**
Monoethylene glycol 107-21-1	Skin STEL 20 ppm STEL 52 mg/m³ TWA: 10 ppm TWA: 26 mg/m³	Skin STEL: 20 ppm STEL: 52 mg/m³ TWA: 10 ppm TWA: 26 mg/m³	STEL: 50 mg/m³ TWA: 15 mg/m³	TWA: 10 mg/m³ TWA: 20 ppm TWA: 52 mg/m³ Skin Ceiling: 25 ppm STEL: 104 mg/m³ STEL: 40 ppm	TWA: 10 mg/m³ TWA: 20 ppm TWA: 52 mg/m³ STEL: 40 ppm STEL: 104 mg/m³ Skin

Exposure controls

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection Tight sealing safety goggles.

Hand Protection Gloves made of plastic or rubber.

Body Protection Gloves made of plastic or rubber, Suitable protective clothing, Rubber boots, Apron, Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

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. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained. Prevent product from entering drains.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Property		Values	Method	Remarks
Appearance				
Physical state	:	Liquid		
Color	:	beige		
Odor	:	Urea		
Odor threshold	:	No data available		
pH	:	7.5 - 8.5	CIPAC MT 75.3	solution (1 %)
Melting point/freezing point °C	:	----		Not Applicable
Boiling point/boiling range °C	:	No data available		
Flash point °C	:	> 79	CIPAC MT 12.2	
Evaporation rate	:	Not Applicable		
Flammability (solid, gas)	:	Not applicable for liquids		
Upper/lower flammability or explosive limits	:	No data available		
Vapor pressure kPa	:	----		Not Applicable
Vapor density	:	No data available		
Relative density	:	1.13 - 1.23	CIPAC MT 3.3.2	20 °C
Solubility(ies) mg/l	:	----		Not Applicable
Partition Coefficient (n-octanol/water) Log Pow	:			See Section 12 for more information
Autoignition temperature °C	:	560	EEC A.15	
Decomposition temperature °C	:	No data available		
Kinematic viscosity mm2/s 40 °C	:	493	OECD 114	
Explosive properties	:	Not an explosive		
Oxidizing properties	:	No data available		

Other Information

Bulk density g/ml	:	----		Not Applicable
Surface tension mN/m	:	----		No data available

Section 10: STABILITY AND REACTIVITY

Reactivity

Not available.

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Heat, flames and sparks.

Incompatible Materials

No information available

Hazardous Decomposition Products

None under normal use conditions.

Section 11: TOXICOLOGY INFORMATION

Information on toxicological effects

Acute toxicity

		Values	Species	Method	Remarks
Oral LD50 mg/kg	:	5000	Rat	OECD 401	
Dermal LD50 mg/kg	:	> 2000	Rabbit	OECD 402	
Inhalation LC50 mg/l/4h	:	> 4.66	Rat	OECD 403	Maximum attainable concentration
Skin corrosion/irritation	:	Non-irritating to the skin	Rabbit	OECD 404	
Serious eye damage/eye irritation	:	Not irritating to eyes	Rabbit	OECD 405	
Respiratory/skin sensitization	:	Not a skin sensitizer	Guinea pig	OECD 406	

Chronic toxicity

Germ cell mutagenicity
Chemical Name
Linuron : Not classified

Carcinogenicity .
Chemical Name
Linuron : Suspected of causing cancer

Reproductive toxicity .
Chemical Name
Linuron : H360Df - May damage the unborn child. Suspected of damaging fertility

STOT - single exposure
Chemical Name
Linuron : No data available

STOT - repeated exposure
Chemical Name
Linuron : May cause damage to organs through prolonged or repeated exposure

Aspiration hazard
Chemical Name
Linuron : Not available

Section 12: ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity

Acute toxicity		Values	Species	Method	Remarks
Fish 96-hour LC50 mg/l	:	15.4	Rainbow trout	OECD 203	
Crustacea 48-hour EC50 mg/l	:	15	Daphnia magna	OECD 202	
Algae 72-hour EC50 mg/l	:	0.065	S. subspicatus	OECD 201	
Other plants EC50 mg/l	:	0.12	Lemna minor	OECD 221	7 days

Terrestrial Toxicity
Birds Oral LD50 mg/kg
Chemical Name

Linuron	: 314	Bobwhite quail	

Bees Oral LD50 µg/bee
Chemical Name

Linuron	: > 112

Persistence and degradability

Abiotic Degradation	**Values**	**Method**	**Remarks**
Water DT50 days			
Chemical Name			
Linuron	: 9.9	EPA-FIFRA 162-4	
Soil DT50 days			
Chemical Name			
Linuron	: 38 - 135		15-25 °C
Biodegradation			
Chemical Name			
Linuron	: No data available		

Bioaccumulative potential

Partition Coefficient	**Values**	**Method**	**Remarks**
(n-octanol/water) Partition Coefficient (n-octanol/water) Log Pow			
Chemical Name			
Linuron	: 3.0	EPA-FIFRA 63-11	23 °C
Bioconcentration factor (BCF)			
Chemical Name			
Linuron	: 38		0.95 mg/l

Mobility in soil

Adsorption/Desorption	**Values**	**Method**	**Remarks**
Chemical Name			
Linuron	: 743	OECD 106	Koc

Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB

Other adverse effects

No information available.

Section 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.

Section 14: TRANSPORTATION INFORMATION

IMDG/IMO

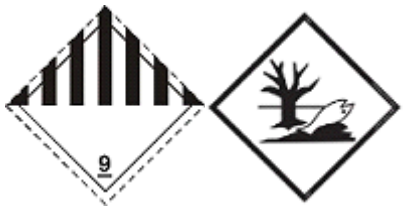
UN/ID No *	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Linuron)
Hazard Class	9
Packing Group	III
Marine pollutant	Yes
Special precautions for user	

RID/ADR

UN/ID No *	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Linuron)
Hazard Class	9
Packing Group	III
Environmental hazard	Yes
Special precautions for user	

ICAO/IATA

UN/ID No *	3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Linuron)
Hazard Class	9
Packing Group	III
Environmental hazard	Yes
Special precautions for user	
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not Applicable



* Note: UN3077 & UN3082 – These products may be transported as non-dangerous goods under the special provisions of IMDG Code 2.10.2.7; ADR SP375 and ICAO/IATA A197 when packed in single or inner packaging of up to 5L for liquids or 5 kg or less for solids.

Section 15: REGULATORY INFORMATION

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

Section 16: OTHER INFORMATION

Revision Note Changes made to the last version are labeled with this sign ***.

List of Acronyms

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CAS Number - Chemical Abstracts Service number
EC Number - EINECS and ELINCS Number
EINECS - European Inventory of Existing Commercial Substances

ELINCS - European List of notified Chemical Substances
IATA - International Air Transport Association
ICAO-TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG - International Maritime Dangerous Goods
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
OECD - Organization for Economic Co-operation and Development
PBT - Persistent, Bioaccumulative and Toxic substance
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
STOT - Specific Target Organ Toxicity
vPvB - Very Persistent and Very Bioaccumulative

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet