SAFETY DATA SHEET

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) Annex II

Tower

Revision Date 26-Apr-2020 **Version** 1 **Product No** HRB00863-44

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Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Tower

Pure substance/mixture Mixture

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

Recommended Use Herbicide
Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Supplier Address

ADAMA Agricultural Solutions UK Ltd
Third Floor East
1410 Arlington Business Park
Theale
READING
RG7 4SA
Tel: 01635 860555
Fax: 01635 861555

For further information, please contact

Email address ukenquiries@adama.com

1.4. Emergency telephone number

Emergency Telephone

National Chemical Emergency Centre (UK):
Tel: 01865 407333 (24 hours)
National Poisons Information Centre (Republic of Ireland)
Tel: 01 809 2166 (8am – 10pm 7 days a week)

Section 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

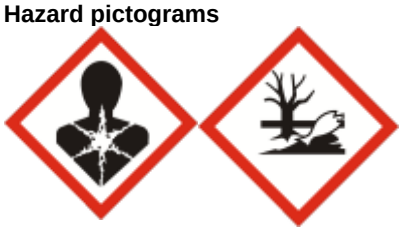
Carcinogenicity Category 2 - (H351)
Reproductive Toxicity Category 2 - (H361d)
Acute aquatic toxicity Category 1 - (H400)

Hazardous to the Aquatic Environment - Chronic Hazard Category 1 - (H410)

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Signal word Warning

Hazard Statements
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
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
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P501 - Dispose of contents/ container to an approved waste disposal plant

EU Specific Hazard Statements
EUH208 - Contains Pendimethalin AND 1,2-Benzisothiazolin-3-one. May produce an allergic reaction.
EUH401 - To avoid risks to human health and the environment, comply with the instructions for use

Additional phrases for PPP
SP1 - Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).

2.3. Other hazards
No information available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Chemical Name	Weight-%	CAS No	EC No	Index No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	M-Factor	REACH Registration Number
Pendimethalin	24-28	40487-42-1	254-938-2	609-042-00-X	Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	M = 100 M= 10	-
Chlorotoluron	19-24	15545-48-9	239-592-2	616-105-00-5	Carc. 2 (H351) Repr. 2 (H361d) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	M=10 M=1	-
Diflufenican	2-5	83164-33-4	617-446-2	616-032-00-9	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	M=10000 M=1000	-
Poly(oxy-1,2-ethanediyl), .alpha.-[tris(1-phenylethyl)phenyl]-.omega.-hydroxy-	3-6	99734-09-5	619-457-8	-	Aquatic Chronic 3 (H412)		-
1,2-Benzisothiazolin-3-	< 0.05	2634-33-5	220-120-9	613-088-00-6	Acute Tox. 4 (H302)		-

one					Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1 (H317) Aquatic Acute 1 (H400)		

Full text of H- and EUH-phrases: see section 16

Section 4: FIRST AID MEASURES

4.1. Description of 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.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms None known.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

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

Unsuitable Extinguishing Media
No information available.

5.2. Special hazards arising from the substance or mixture

No specific hazard known.

5.3. 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

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

For emergency responders
Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal.

6.4. Reference to other sections

Other Information
See also section 8,13

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

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

General Hygiene Considerations
When using do not eat, drink or smoke. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. 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

8.1. Control parameters

8.2. Exposure controls

Engineering Controls	Ensure adequate ventilation, especially in confined areas.
Personal protective equipment	
Eye/face protection	Tight sealing safety goggles.
Hand Protection	Suitable chemical resistant gloves (EN 374) also with prolonged, direct contact (recommendation: protection index 6, corresponding > 480 minutes Permeability time (permeation) according to EN 374): e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm).
Body Protection	Use suitable protective clothing and equipment if required, such as safety goggles certified to EN 166, gloves certified to EN 374, protective boots certified to EN 13832, and/or a water repellent woven coverall with 65% polyester and 35 % cotton.

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
General Hygiene Considerations	When using do not eat, drink or smoke. Wash contaminated clothing before reuse.
Environmental exposure controls	Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Property		Values	Method	Remarks
Appearance				
Physical state	:	Liquid		
Color	:	yellow-orange		
Odor	:	Organic		
Odor threshold	:	No data available		
pH	:	5 - 7	CIPAC MT 75.3	solution (1 %)
Melting point/freezing point °C	:	----		Not Applicable
Boiling point/boiling range °C	:	No data available		
Flash point °C	:	> 100	EEC A.9	
Evaporation rate	:	----		No data available
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	:	1.1-1.2	EEC A.3	
Solubility(ies) mg/l	:	----		Not Applicable
Partition Coefficient (n-octanol/water) Log Pow	:			See Section 12 for more information
Autoignition temperature °C	:	425	EEC A.15	
Decomposition temperature °C	:	No data available		
Kinematic viscosity mm2/s 40 °C	:	0.144 - 5.2	OECD 114	
Explosive properties	:	Not an explosive		
Oxidizing properties	:	Not oxidizing		

9.2. Other information

Bulk density g/ml	:	----		Not Applicable
Surface tension mN/m	:	36.8	EEC A.5	

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None under normal processing.

10.4. Conditions to avoid

Heat, flames and sparks.

10.5. Incompatible materials

No information available

10.6. Hazardous decomposition products

None under normal use conditions.

Section 11: TOXICOLOGY INFORMATION

11.1. Information on toxicological effects

Acute toxicity

		Values	Species	Method	Remarks
Oral LD50 mg/kg	:	> 2000	Rat	OECD 423	
Dermal LD50 mg/kg	:	> 2000	Rat	OECD 402	
Inhalation LC50 mg/l/4h	:	----			No data available
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	
Pendimethalin	: Not classified
Chlorotoluron	: Not classified
Diflufenican	: Not classified

Carcinogenicity .

Chemical Name	
Pendimethalin	: Not Carcinogenic
Chlorotoluron	: Suspected of causing cancer
Diflufenican	: Not Carcinogenic

Reproductive toxicity .

Chemical Name	
Pendimethalin	: Not toxic for the reproductive system
Chlorotoluron	: Suspected of damaging fertility or the unborn child
Diflufenican	: Not toxic for the reproductive system

STOT - single exposure

Chemical Name	
Pendimethalin	: No data available
Chlorotoluron	: No data available
Diflufenican	: No data available

STOT - repeated exposure

Chemical Name	
Pendimethalin	: No data available
Chlorotoluron	: No data available
Diflufenican	: No data available

Aspiration hazard

Chemical Name	
Pendimethalin	: No data available
Chlorotoluron	: No data available
Diflufenican	: No data available

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Aquatic toxicity

Acute toxicity		**Values**	**Species**	**Method**	**Remarks**
Fish 96-hour LC50 mg/l	:	5.91	Oncorhynchus mykiss	OECD 203	
Crustacea 48-hour EC50 mg/l	:	89.7	Daphnia magna	OECD 202	
Algae 72-hour EC50 mg/l	:	0.0277	D. Subspicatus	OECD 201	
Other plants EC50 mg/l	:	1.79	M. spicatum		14 days

Chronic aquatic toxicity		**Values**	**Species**	**Method**	**Remarks**
Fish NOEC mg/l	:	2.9	Rainbow trout	OECD 203	
Crustacea NOEC mg/l	:	25.8	Daphnia magna	OECD 202	
Algae NOEC mg/l	:	0.00128	D. Subspicatus	OECD 201	
Other plants NOEC mg/l	:	0.455	Myriophyllum spicatum		

Terrestrial Toxicity

Birds Oral LD50 mg/kg **Chemical Name**				
Pendimethalin	:	1421	Mallard duck	
Chlorotoluron	:	272	Japanese quail	EPA-FIFRA 71-1
Diflufenican	:	> 2150	Bobwhite quail	

Bees Oral LD50 µg/bee **Chemical Name**				
Pendimethalin	:	> 101.2		
Chlorotoluron	:	> 20		
Diflufenican	:	> 100	Apis mellifera	EPPO 170

12.2. Persistence and degradability

Abiotic Degradation **Water DT50 days** **Chemical Name**		**Values**	**Method**	**Remarks**
Pendimethalin	:	31.8		
Chlorotoluron	:	> 200		pH 7; 30 ◦ C
Diflufenican	:	1-5	BBA IV: 5-1	

Soil DT50 days **Chemical Name**			
Pendimethalin	:	182	SETAC
Chlorotoluron	:	8.5 - 92.5	
Diflufenican	:	128	EPA / SETAC

Biodegradation **Chemical Name**			
Pendimethalin	:	No information available	
Chlorotoluron	:	Not readily biodegradable	OECD 301 B
Diflufenican	:	No information available	

12.3. Bioaccumulative potential

Partition Coefficient (n-octanol/water) Log Pow **Chemical Name**		**Values**	**Method**	**Remarks**
Pendimethalin	:	5.2		pH 7
Chlorotoluron	:	2.5	OECD 107	20◦ C
Diflufenican	:	4.2	OECD 117	20 ◦ C

Bioconcentration factor (BCF)
Chemical Name

Pendimethalin	: 1536		
Chlorotoluron	:		No data available
Diflufenican	: 1276 - 1596	OECD 305	

12.4. Mobility in soil

Adsorption/Desorption	**Values**	**Method**	**Remarks**
Chemical Name			
Pendimethalin	: 13792		KOC
Chlorotoluron	: 108 - 384	OECD 106	KOC
Diflufenican	: 3417		KOC

12.5. Results of PBT and vPvB assessment

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

12.6. Other adverse effects

No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1. 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

14.1 UN/ID No *	3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Pendimethalin; Chlorotoluron;)
14.3 Hazard Class	9
14.4 Packing Group	III
14.5 Marine pollutant	Yes
14.6 Special precautions for user	

RID/ADR

14.1 UN/ID No *	3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Pendimethalin; Chlorotoluron;)
14.3 Hazard Class	9
14.4 Packing Group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	
14.7 Tunnel restriction code	**-**

ICAO/IATA

14.1 UN/ID No *	3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Pendimethalin; Chlorotoluron;)
14.3 Hazard Class	9
14.4 Packing Group	III
14.5 Environmental hazard	Yes

14.6 Special precautions for user
14.7 Transport in bulk according to Not Applicable
Annex II of MARPOL 73/78 and the
IBC Code

* 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

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

Trade name	Registration number	Registration date
Not Applicable	Not Applicable	Not Applicable

15.2. Chemical safety assessment
A chemical safety assessment according to regulation (EC) No. 1907/2006 is not required. A risk assessment was performed according to directive (EC) No. 91/414 or according to regulation (EC) No. 1107/2009.

Section 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H351 - Suspected of causing cancer if inhaled
H361d - Suspected of damaging the unborn child
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
H412 - Harmful to aquatic life with long lasting effects

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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

Process of classification evaluation in accordance with CLP regulation.

Classification of the mixture	Classification procedure
H351 - Suspected of causing cancer	Classification based on Calculation method
H361d - Suspected of damaging the unborn child	Classification based on Calculation method
H400 - Very toxic to aquatic life	Classification based on test data
H410 - Very toxic to aquatic life with long lasting effects	Classification based on Calculation method

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