


SAFETY DATA SHEET

Section 1: IDENTIFICATION

Product Name:	TENACITY Turf Herbicide
Design Code:	A12738A
Recommended Use:	Herbicide
Company Details:	Syngenta Crop Protection Limited
Address:	Level 4, 60 Parnell Road, Parnell AUCKLAND 1052 NEW ZEALAND
Telephone number:	(weekdays) 09 306 1500
Emergency Telephone number:	(24 Hours) 0800 734 607
National Poisons & Hazchem Information Centre :	0800 POISON (0800 764 766)

Section 2: HAZARDS IDENTIFICATION

GHS classification:	
Eye irritation:	Category 2
Specific target organ toxicity, repeated exposure:	Category 1
Hazardous to the aquatic environment, acute:	Category 1
Hazardous to the aquatic environment, chronic:	Category 1
Hazardous to soil organisms	
GHS label elements:	
Hazard pictogram:	
Signal word:	Danger
Hazard statements:	H319 Causes serious eye irritation. H372 Causes damage to organs (Kidney) through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements:	Prevention: P260 Do not breathe mist or vapours. P264 Wash hands and face thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/ eye protection/ face protection. Response: P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. P314 Get medical advice/attention if you feel unwell. P391 Collect spillage. Disposal: P501 Dispose of contents/ container in accordance with local/regional/national regulations.
Other hazards which do not result in classification:	None known

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Mixture:

Chemical Identity of ingredients:

Ingredient	CAS no.	Content (% w/v)
Mesotrione (technical grade)	104206-82-8	40
Ethane-1,2-diol	107-21-1	10 - 15
Other ingredients determined not to be hazardous	-	to 100%

Section 4: FIRST AID MEASURES

Description of First Aid measures:

General Advice:

For advice contact the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth to nose rather than mouth to mouth. Obtain medical attention.

If inhaled:

Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest.
Call a Doctor or the Poisons Information Centre immediately.

In case of skin contact:

Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a doctor.
Wash contaminated clothing before re-use.

In case of eye contact:

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses (if present).
Immediate medical attention is required.

If swallowed:

If swallowed seek medical advice immediately and show the container or label.
DO NOT induce vomiting.

Important symptoms and effects, both acute and delayed:

Symptoms:

Nonspecific.
No symptoms known.

Indication of any immediate medical attention and special treatment needed:

There is no specific antidote available.
Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media:

Small fires:
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Large Fires:
Alcohol resistant foam or water spray.

Unsuitable extinguishing media:

Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture:

Specific hazards during fire-fighting:

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10)
Exposure to decomposition products may be a hazard to health.

Advice for firefighters:
Special protective equipment for firefighters: Wear full protective clothing and self-contained breathing apparatus.
Further information: Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.
Hazchem Code: 2X

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Refer to protective measures listed in Sections 7 and 8.

Environmental Precautions:
Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and material for containment and cleaning up:
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Clean contaminated surface thoroughly.
Clean with detergents. Avoid solvents.
Retain and dispose of contaminated wash water.

Reference to other sections:
Refer to disposal considerations listed in Section 13.
Refer to protective measures listed in sections 7 and 8.

Section 7: HANDLING AND STORAGE

Precautions for Safe handling:
Advice on safe handling: No special protective measures against fire required.
Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
For personal protection see section 8.

Conditions for safe storage, including any incompatibilities:
Requirements for storage area and containers: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.

Specific end use(s)
Specific use(s) For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits:

Components	CAS No	Value type (form of exposure)	Control parameters	Basis
Mesotrione	104206-82-8	8 h TWA	5 mg/m ³	Syngenta
Ethane-1,2-diol	107-21-1	8 h TWA	50 ppm, 127 mg/m ³ (Vapour and mist)	WES

Exposure controls	
Engineering measures:	<p>Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.</p> <p>The extent of these protection measures depends on the actual risks in use.</p> <p>Maintain air concentrations below occupational exposure standards.</p> <p>Where necessary, seek additional occupational hygiene advice.</p>
Personal Protective Protection:	
Eye protection:	<p>Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.</p>
Hand protection:	
Material:	Chemical resistant, such as nitrile rubber
Break through time:	>480 min
Glove thickness:	0.5 mm
Remarks:	<p>Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.</p> <p>Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.</p> <p>Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.</p>
Skin and body protection:	<p>Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.</p> <p>Remove and wash contaminated clothing before re-use.</p> <p>Wear as appropriate: Protective clothing.</p>
Respiratory protection:	<p>No personal respiratory protective equipment normally required.</p> <p>When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.</p>
Protective measures:	<p>The use of technical measures should always have priority over the use of personal protective equipment.</p> <p>When selecting personal protective equipment, seek appropriate professional advice.</p> <p>Personal protective equipment should be certified to appropriate standards.</p>

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Appearance:	Liquid dispersion
Colour:	Beige to brown
Odour:	Faint pleasant
Odour threshold:	No data
pH value	1 – 5 (25°C), concentration: 1% w/v 2.4 – 2.8 (20°C), concentration: 100% w/v
Melting point / freezing point:	No data
Initial boiling point and boiling range:	No data
Flash point:	Does not flash
Flammability:	The product is not flammable
Upper flammability / explosive limits:	No data

Lower flammability / explosive limits	No data
Vapour pressure:	No data
Vapour Density:	No data
Relative Density:	1.348 - 1.363 g/cm ³ (20°C)
Solubility:	Miscible in water
Partition co-efficient: n-octanol / water:	No data
Autoignition temperature	No data
Decomposition temperature:	No data
Dynamic viscosity:	2,760 mPa.s at 20°C 2,100 mPa.s at 40°C
Explosive properties:	Not explosive
Oxidising properties:	Not oxidising
Surface tension	44.6 mN/m, 20 °C

Section 10: STABILITY AND REACTIVITY

Reactivity: See Section: "Possibility of Hazardous Reactions".
Chemical Stability: The product is stable when used in normal conditions.
Possibility of Hazardous Reactions: No dangerous reaction known under conditions of normal use.
Conditions to Avoid No decomposition if used as directed.
Incompatible Materials: No substances are known which lead to the formation of hazardous substances or thermal reactions.
Hazardous Decomposition Products: Combustion or thermal decomposition will evolve toxic and irritant vapours.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity (product)	
Swallowed:	LD ₅₀ >5000 mg/kg (rat, male and female)
Dermal absorption:	LD ₅₀ >5000 mg/kg (rat, male and female))
Inhaled:	LC ₅₀ (4 h) > 5.19 mg/L (rat, male and female)
Aspiration hazard:	Not classified
Respiratory irritation:	Not classified
Skin corrosion / irritation:	NON-IRRITANT (rabbit)
Eye damage / irritation:	EYE IRRITATION (category 2)
Respiratory or Skin Sensitisation:	NOT A SENSITISER
Chronic / Long Term Effects (active ingredient)	
Germ cell mutagenicity:	Animal testing did not show any mutagenic effects.
Carcinogenicity:	No evidence of carcinogenicity in animal studies.
Reproductive toxicity:	Animal testing did not show any effects on fertility.
Specific Organ toxicity:	Repeated exposure: ethanediol: Target Organs: Kidney Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.
Narcotic Effects:	Not classified.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity Effects - Aquatic (product)	
Acute toxicity to fish:	LC ₅₀ (96 h) = >180 mg/L (<i>Oncorhynchus mykiss</i> (rainbow trout))
Toxicity to daphnia and other aquatic invertebrates:	EC ₅₀ (48h) = >180 mg/L (<i>Daphnia magna</i> (water flea))
Toxicity to algae:	E _r C ₅₀ (72 h) = 26 mg/L (<i>Pseudokirchneriella subcapitata</i> (green algae))
Toxicity to aquatic plants:	EC ₅₀ Frond growth (14 d) = 12 µg/L (<i>Lemna gibba</i> (duckweed))
Ecotoxicity Effects – Terrestrial	
Toxicity to Birds:	LD ₅₀ >2000 mg/kg (Bobwhite quail) (mesotrione)
Toxicity to soil dwelling organisms:	LC ₅₀ (14 days) = >1000 mg/kg (earthworms) (product)
Toxicity to Bees:	LD ₅₀ (oral) = >105 µg/bee (product) LD ₅₀ (contact) = >125 µg/bee (product)
Persistence and degradability:	
Biodegradability:	Not readily biodegradable
Stability in water:	Degradation half-life: >30 d (25°C) Persistent in water.
Bioaccumulative potential:	
Bioaccumulation:	Low potential for bioaccumulation
Mobility in soil:	
Distribution among environmental compartments:	Mesotrione has medium to high mobility in soil
Stability in soil:	DT ₅₀ : 6 - 105 d Percentage dissipation: 50% Not persistent in soil.
Other adverse effects:	
Results of PBT and vPvB assessment (product):	This substance 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.

Section 13: DISPOSAL CONSIDERATIONS

Product Disposal:	DO NOT contaminate ponds, waterways or ditches with chemical or used containers. DO NOT dispose of waste into sewer. Dispose of this product only by using according to the label. Otherwise, dispose of waste at an approved landfill or other approved facility that will ensure the substance does not exceed the tolerable exposure limit (TEL) or environmental exposure limit (EEL), where relevant, or will treat the substance so that it is rendered no longer hazardous.
Container Disposal:	Ensure the container is empty. Triple rinse empty container and add rinsate to the spray tank. Recycle empty container through Agrecovery (0800 247 326, www.agrecovery.co.nz). Otherwise crush and bury in a suitable landfill. DO NOT reuse this container for any other purpose.

Section 14: TRANSPORT INFORMATION

Rail / Road (NZS 5433)	UN-No:	3082
	Class:	9
	Packing Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MESOTRIONE)
Sea (IMDG-Code)	UN-No:	3082
	Class:	9
	Packing Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MESOTRIONE)
	EmS Code:	F-A, S-F
	MARINE POLLUTANT:	Yes
Air (IATA)	UN-No:	3082
	Class:	9
	Packing Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MESOTRIONE)
	Packing instruction:	964 (cargo and passenger aircraft)
	Packing instruction (LQ):	Y964 (cargo and passenger aircraft)

Section 15: REGULATORY INFORMATION

HSNO Approval Number:	HSR002475
Tolerable Exposure Limit or Environmental Exposure Limit:	The following EELs are set for mesotrione: EEL _{surface deposition} = 0.0037 mg/m ² EEL _{soil} = 0.0001 mg/kg dw soil EEL _{water} = 0.0008 mg/L
Required Regulatory Controls:	
Certified handler:	Yes
Tracking:	No
Record Keeping:	Yes, as per Clause 48 of the Hazardous Property Controls Notice 2017.
ACVM Registration:	Not applicable
ACVM Controls:	Not applicable
International Agreements related to the substance (eg, Montreal Protocol, Stockholm Convention or Rotterdam Convention):	Not applicable

Section 16: OTHER INFORMATION

Date of SDS Preparation / Review:	16 August 2023		
Version number of SDS:	3.0		
Key / Legend to abbreviations and acronyms used:			
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose);</p> </td> <td style="width: 50%; vertical-align: top;"> <p>MARPOL - International Convention for the Prevention of Pollution from Ships; N.O.S. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WES - Workplace Exposure Standard (Worksafe NZ); WHMIS - Workplace Hazardous Materials Information System</p> </td> </tr> </table>		<p>AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; 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<p>The information provided in this 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 test.</p>			
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