

SAFETY DATA SHEET

Section 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product Name:	TENACITY Turf Herbicide
Design Code:	A12738A
Recommended Use:	For the selective contact and residual control of weeds in Turf as per the Directions for Use.
Company Details:	Syngenta Crop Protection Limited
Address:	Tower II, Level 7, 110 Symonds Street Private Bag 92618, Symonds Street AUCKLAND 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)
Date of Preparation:	28 January, 2015

Section 2: HAZARDS IDENTIFICATION

Hazard classification:	6.4A, 6.9A, 9.1A, 9.2A
Priority Identifier:	WARNING KEEP OUT OF REACH OF CHILDREN
Secondary Identifiers:	6.4A = May cause eye irritation. 6.9A = May cause organ damage from repeated oral exposure at high doses. 9.1A = Very toxic to aquatic organisms. 9.2A = Very toxic to the soil environment.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

<i>Pure Substance:</i>	
Common Name:	Mesotrione
Synonyms:	ZA1296

<i>Mixture:</i>		
Chemical Identity of ingredients:		
Ingredient	CAS no.	Content (% w/w)
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

Necessary First Aid measures:	<p>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.</p> <p>Swallowed: If swallowed DO NOT induce vomiting. Rinse mouth and immediately contact the National Poisons Centre 0800 POISON (0800 764 766) or a doctor.</p> <p>Eye: If concentrate or spray solution enters the eyes rinse cautiously with water for several minutes, remove contact lenses if safe to do so, continue rinsing. If eye irritation persists get medical advice..</p> <p>Skin: If skin contact occurs remove contaminated clothing and wash affected areas thoroughly with running water.</p> <p>Inhaled: If inhaled move the victim to fresh air immediately and keep at rest in a position comfortable for breathing.</p>
Poisoning symptoms:	<p>No case of human poisoning due to this product is on record. The poisoning symptoms observed for laboratory mammals were non-specific.</p>
Workplace facilities:	<p>No specific facilities required. Standard emergency equipment must be available.</p>
Hygiene Practices:	<p>Avoid contact with skin and eyes and inhalation of dust from concentrate or spray mist.</p> <p>DO NOT eat, drink or smoke while using.</p> <p>When mixing, loading or applying, or when entering an application site within the restricted entry period, wear full protective clothing, such as chemical resistant coveralls, chemical resistant gloves, chemical resistant footwear plus socks, protective eyewear and chemical resistant headgear for overhead exposures.</p> <p>If clothing becomes contaminated with product, remove clothing immediately. Wash splashes of concentrate from skin or eyes immediately.</p> <p>Remove protective clothing and wash hands and face thoroughly with soap and water before meals and after work.</p> <p>Wash protective clothing daily after work. Contaminated clothing should not be allowed out of the workplace.</p>
Notes for Medical Personnel:	<p>No specific antidote is available.</p> <p>If poisoning is suspected apply symptomatic therapy.</p>

Section 5: FIRE-FIGHTING MEASURES

Type of Hazard:	Not flammable
Fire Hazard Properties:	During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
Regulatory Requirements:	not required
Extinguishing Media and methods:	<p>Extinguishing media for small fires: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.</p> <p>Extinguishing media for large fires: Alcohol-resistant foam or water spray</p> <p>DO NOT use a solid water stream as it may scatter and spread fire.</p> <p>Cool closed containers exposed to fire with water spray.</p>
Hazchem Code:	2X
Recommended Protective Clothing:	When fighting a major fire wear full protective clothing and self-contained breathing apparatus.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	<p>Emergency Procedures: Ensure suitable personal protection during removal of spillages. This means wearing eye protection, chemical resistant gloves, chemical resistant boots and overalls.</p>
Environmental Precautions:	DO NOT allow run-off from fire fighting to enter drains or water courses.
Procedure for spill:	<ol style="list-style-type: none">(1) Keep all bystanders away.(2) Wear goggles, half face-piece respirator with combined dust and vapour cartridge, full length clothing and chemical resistant gloves.(3) Reposition any leaking containers so as to minimise further leakage.(4) Dam and absorb spill with an absorbent material (e.g. sand or soil).(5) Shovel the absorbed spill into drums.(6) Decontaminate the spill area with detergent and water and rinse with the smallest volume of water practicable.
Procedure for Disposal:	<p>Disposal of the absorbed material will depend upon the extent of the spill. Contaminated material must be disposed of in accordance with all local authority requirements.</p> <p>It is suggested:</p> <ul style="list-style-type: none">• For quantities up to 50 L of product bury in a secure approved landfill site.• For quantities greater than 50 L seek advice from the manufacturer (use emergency contact number below) before attempting disposal. Contain in a secure location until disposal method is established.

Section 7: HANDLING AND STORAGE

<i>Handling:</i>	
Precautions for safe handling:	No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. In case of heavy exposure, wear half face-piece respirator with combined dust and vapour cartridge, chemical resistant gloves and heavy duty cotton overalls.
Regulatory Requirements:	None required
Handling practices:	Avoid contact with skin and eyes and inhalation of dust from concentrate or spray mist. DO NOT eat, drink or smoke while using. When mixing, loading or applying, or when entering an application site within the restricted entry period, wear full protective clothing, such as chemical resistant coveralls, chemical resistant gloves, chemical resistant footwear plus socks, protective eyewear and chemical resistant headgear for overhead exposures. If clothing becomes contaminated with product, remove clothing immediately. Wash splashes of concentrate from skin or eyes immediately. Remove protective clothing and wash hands and face thoroughly with soap and water before meals and after work. Wash protective clothing daily after work. Contaminated clothing should not be allowed out of the workplace.
Approved Handlers:	This product must be under the control of an Approved Handler
<i>Storage:</i>	
Conditions for Safe Storage:	Keep out of reach of children. Keep in original containers and tightly closed. Keep away from food, drink and animal feeding stuffs. Store in a cool, dry, well ventilated place and protect from sunlight.
Store Site Requirements:	Signage and secondary containment will be required at sites holding 100 L or more of any product classified as 9.1A (eg TENACITY)
Packaging:	Store in original container, tightly closed, away from foodstuffs.

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

ALWAYS READ AND FOLLOW THE LABEL INSTRUCTIONS AND WARNINGS

Workplace Exposure Guidelines:				
Workplace Exposure Standards:	Components	Exposure limits	Type of exposure limit	Source
	Mesotrione	10 mg/m ³	8 h TWA	Syngenta
	Ethane-1,2-diol	10 mg/m ³ (Particulates)	8 h TWA	UK HSE
		20 ppm, 52 mg/m ³ (Vapour)	8 h TWA	UK HSE
		104 ppm, 104 mg/m ³ (Skin)	short term exposure limit	UK HSE
		20 ppm, 52 mg/m ³ (Skin)	8 h TWA	IOELV
		40 ppm, 104 mg/m ³	15 min STEL	IOELV
Application in the workplace:	Not required			
Exposure standards outside the workplace:	Not required			
Engineering controls:	<p>No special requirements. Product is used outdoors. Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use.</p> <p>If airborne mists or vapours are generated, use local exhaust ventilation controls.</p> <p>Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.</p> <p>Follow precaution statements on the label and the use and safety directions in Code of Practice for the Management of Agrichemical NZS8409.</p>			
Personal Protection:	<p>The use of technical measures should always have priority over the use personal protective equipment.</p> <p>Use only protective equipment bearing the mark of the Standards Association with Australia/ New Zealand. In case of heavy exposure, wear half face-piece respirator with combined dust and vapour cartridge, chemical resistant gloves and heavy duty cotton overalls.</p>			
General Hygiene:	<p>Change work clothes daily. Avoid contact with eyes and skin. Do not inhale dust or spray mist. If product gets on skin immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water.</p>			

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Beige to brown dispersion liquid
Odour:	Faint pleasant
pH:	1 – 5 at 1% w/v 25°C (as a dispersion) 2.2 – 2.6 at 100% w/v (20°C)
Flash point:	>92°C
Flammability (solid, gas):	This product is not flammable.
Density:	1.19 g/mL at 20°C
Solubility in other solvents:	Miscible in water
Viscosity, dynamic:	2,760 mPa.s at 20°C 2,110 mPa.s at 40°C
Explosive properties:	Not explosive
Oxidizing properties:	Not oxidising
Surface tension:	44.6 mN/m at 20°C

Section 10: STABILITY AND REACTIVITY

Stability of the Substance:	Stable under standard conditions.
Conditions to Avoid:	No information available.
Material to Avoid:	No information available.
Hazardous decomposition products	Combustion or thermal decomposition will evolve toxic and irritant vapours.
Hazardous polymerisation	Does not occur
Specific Data	not applicable

Section 11: TOXICOLOGICAL INFORMATION

HSNO Classifications:

6.4A = Causes eye irritation.

6.9A = May cause organ damage from repeated oral exposure at high doses.

Acute Effects (Undiluted product)	
Swallowed:	LD ₅₀ >5000 mg/kg (male and female rat)
Dermal absorption:	LD ₅₀ >5000 mg/kg (male and female rat)
Inhaled:	LC ₅₀ (4 h) >5.19 mg/L (male and female rat)
Irritation	
Eye:	Slight IRRITANT (rabbit)
Skin:	NOT AN IRRITANT (rabbit)
Sensitization	NOT A SENSITISER (guinea pigs)

Chronic / Long Term Effects (Mesotrione)

Mutagenicity	Did not show mutagenic effects in animal experiments.
Carcinogenicity	Did not show carcinogenic effects in animal experiments.
Reproductive Toxicity	Did not show reproductive toxicity effects in animal experiments.
STOT – repeated exposure	No adverse effect has been observed in chronic toxicity tests.

Section 12: ENVIRONMENTAL INFORMATION

HSNO Classifications:

9.1A = Very toxic to aquatic organisms.

9.2A = Very toxic to the soil environment.

Environmental Risk and Safety Phrases:	Avoid contamination of any water supply with chemical or empty container
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The information presented below is for either the product or the active ingredient (ai), mesotrione. A thorough review of environmental information is not possible in this document.

Ecotoxicity Effects

Acute toxicity to fish:	LC ₅₀ (96 h) = >180 mg/L (Rainbow trout)
Toxicity to aquatic Invertebrates:	LC ₅₀ (48h) = >180 mg/L (<i>Daphnia magna</i> (water flea)); 48 h
Toxicity to aquatic plants:	E _b C ₅₀ (72 h)= 8.8 mg/L (green algae) E _r C ₅₀ (72 h) = 26 mg/L (green algae) EC ₅₀ Frond growth (14 d) = 12µg/L (<i>Lemna gibba</i> (duckweed))
Toxicity to soil dwelling organisms:	LC ₅₀ (14 days) = >2643 mg/kg (NOEC) (earthworms)
Toxicity to Birds:	LD ₅₀ = >2000 mg ai/kg (Bobwhite quail)
Toxicity to Bees:	LD ₅₀ (48h) oral = >105 µg/bee (product) LD ₅₀ (48h) (Contact) = >125 µg/bee (product)

Environmental Fate

The information presented here is for the active ingredient, mesotrione.

Stability in water:	Degradation half life: >30d at 25°C. Mesotrione is persistent in water.
Stability in soil:	Degradation half life: 6 - 105 d. Mesotrione is not persistent in soil.
Mobility in Soil:	Mesotrione has medium to high mobility in soil.
Bioaccumulative Potential:	Mesotrione has low potential for bioaccumulation.
Results of PBT and vPvB assessment:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT) This substance is not considered to be very persistent nor very bioaccumulating (vPvB)

Section 13: DISPOSAL CONSIDERATIONS

Product Disposal:	Dispose of this product only by using according to the label, or at an approved landfill or other approved facility.
Container Disposal:	Ensure the container is empty. Triple rinse empty container and add rinsate to the spray tank. Recycle empty container without caps through Agrecovery (0800 247 326, www.agrecovery.co.nz). DO NOT reuse this container for any other purpose.

Section 14: TRANSPORT INFORMATION

Rail / Road (RID/ADR)	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MESOTRIONE)
Sea (IMDG-Code)	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MESOTRIONE)
	MARINE POLLUTANT:	Yes
Air (ICAO/IATA)	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MESOTRIONE)

Section 15: REGULATORY INFORMATION

HSNO Approval Number:	HSR002475
HSNO Controls (inc. Tracking and Record Keeping):	See http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx for controls.
ACVM Registration:	Not applicable. Turf products are exempt from registration under the ACVM Act.
ACVM Controls:	exempt

Section 16: OTHER INFORMATION

Note: This product is a registered agricultural chemical and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

CONTACT POINT: Business Manager - Crop Protection: (09) 306 1503
24 HOURS EMERGENCY CONTACT: 0800 734 607

This Material Safety Data Sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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DISCLAIMER

This product complies with the specifications in its statutory registration. Implied terms and warranties are excluded. Syngenta's liability for breach of the express or any non-excludable implied warranty is limited to product replacement or purchase price refund. The purchaser must determine suitability for intended purpose and take all proper precautions in the handling, storage and use of the product including those on the label and/or safety data sheet failing which Syngenta shall have no liability.