



ECOZEN *Plant Growth Enhancer

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Safety Data Sheet Version 1.1

Prepared Date

Australian Poisons Information (24 hours / 7 days) ☎ 13 11 26

1.0 Identification

Product Identifier	ECOZEN
Other Means of Identification	Ecozen Plant Growth Enhancer
Recommended Use and Restrictions on use	Liquid Fertiliser; Growth enhancer excluded from requirement to be registered with APVMA.
Details of Importer	APTUS PLANT TECH Australia Unit 1/11 Didswith St, East Brisbane QLD 4169
Emergency Phone Number	Australian Poisons Information (24 hours / 7 days) ☎ 13 11 26

2.0 GHS Hazard identification

Classification of The Hazardous Chemical	Category 1
Signal Word	DANGER
Hazard Statement	May cause allergy or asthma symptoms or breathing difficulties if inhaled Causes damage to organs through prolonged or repeated exposure through inhalation and oral routes
Precautionary Statements	Avoid breathing spray. In case of inadequate ventilation wear respiratory protection.
GHS Pictograms	

3.0 Ingredients / Composition %w/w

Ingredient Name/Nature	<2	2>10	>10	>20	>30	>40	>50	>60	>70	>80	>90	>100
Proprietary Ingredients determined to be hazardous at that concentration												
Cellulase enzymes CAS 62213-14-3, 9012-54-8												
Manganese Sulfate CAS 10034-96-5												

4.0 First Aid Measures

First Aid Instructions	Danger? Response? Yes ⇒ Make comfortable, monitor ⇒ No Send for Help. Airway? Breathing? No ⇒ CPR (30 compress: 2 breathes). Defibrillation. ⇒ Yes (Recovery Position & Monitor)
Swallowed	Rinse mouth and SPIT, if conscious give a glass of water. For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; or a doctor.
Eye	Rinse cautiously with running water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.
Skin	Wash with plenty of water. If skin irritation occurs: Get medical advice/attention.
Inhaled	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER 13 11 26 or doctor or ambulance
Symptoms caused by exposure	Local irritation effects can be anticipated due to enzyme-mediated corrosion.
Medical Attention / Special Treatment	Washing exposed skin area with weak EDTA solution is likely to neutralise enzymic action and chelate manganese.

5.0 Fire Fighting Measures

Extinguishing media	As merited by packaging &/or surrounding materials, including Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Specific Hazards arising from the chemical	None identified
Special protective equipment and precautions for fire fighters HAZCHEM	None identified

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**6.0 Accidental Release Measures**

Personal precautions, protective equipment and emergency procedures	Keep only in original container. Obtain special instructions before use, Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling
Environmental precautions	Concentrate as supplied should not enter to drinking water.
Methods and materials for containment and cleaning up	Absorb liquid onto inert absorbent and dispose as solid waste. Dilute residue and contain where possible. Take off contaminated clothing and wash it before reuse.

7.0 Storage and Handling

Precautions for Safe Handling	No chemical segregation is merited.
Safe Storage Practice	Do not store diluted product.
- Avoid	Unnecessary contact, may increase risk of future sensitisation.
- Control	Mists should not be inhaled.
- Maintain	Keep in original container.
- Other	Keep out of reach of children.

8.0 Exposure Controls / Personal Protection

National Exposure Standards	No data				
Control Banding	Band Zero – Household or Consumer Use	Band 1 – good industrial hygiene practice	Band 2 – use local exhaust ventilation	Band 3 – enclose the process	Other
Engineering Controls	As merited by workplace conditions.				
PPE	Wear protective gloves/protective clothing/eye protection/face protection				

9.0 Physical & Chemical Properties

Appearance	Beige Liquid	Partition Co-efficient n-Octanol/water	Not established
Odour	mild	Solubility	water soluble
pH	pH 6- 7	Vapour Pressure	Not established
Melting / Freezing Pt	Protect from freezing	Vapour Density	Not established
Boiling Point	~100°C	Relative Density	~ 1.1 g/mL
Flash Point	Not established	Auto-ignition Temp	Not established
Evaporation Rate	Not established	Decomposition Temp	Not established
Flammability	Not classified as flammable	Viscosity	Not established
Explosive Limits	Not established	Other	Not established

10.0 Stability & Reactivity

Reactivity	Unlikely to be reactive, segregated chemical storage not merited.
Chemical Stability	Chemically stable, enzymes may degrade with improper or extended storage.
Possibility of Hazardous Reactions	None identified
Conditions to avoid	None identified
In compatible materials	None identified
Hazardous Decomposition Products	None identified

11.1 Known Toxicological Information (Enzymes ~5% 62213-14-3 Beta-glucanase, ~5% 9012-54-8 Cellulase)

Ingredient Name / Type	Data
Acute Toxicity	No data
Skin Corrosion / Irritation	Irritation may be anticipated, no specific data
Serious Eye Damage Irritation	Irritation may be anticipated, no specific data
Respiratory or skin sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Germ cell mutagenicity	No data (unlikely, rapidly degrades)
Carcinogenicity	No data (unlikely, rapidly degrades)
Reproductive toxicity	No data (unlikely, rapidly degrades)

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Specific Target Organ Toxicity – single & repeated exposure	Limited data indicates no adverse effects anticipated
Aspiration hazard.	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin - Acute	Limited data indicates mild anticipated
Inhaled - Acute	Repeated inhalation of enzyme dust or aerosols resulting from improper handling may induce sensitization and may cause allergic type 1 reactions in sensitized individuals
Swallowed - Acute	Limited data indicates no adverse effects anticipated
Eye - Acute	Limited data indicates mild effects anticipated
Early Onset Symptoms	Shortness of breath, wheezing and coughing; The effect of inhalation may be delayed
Delayed Health Effects from exposure	May cause allergic type 1 reactions in sensitized individuals
Exposure Level & Health Effects	No data
Interactive effects	No data
Other	Enzymic reaction degrades target carbohydrates and requires moisture and divalent cations.

11.2 Known Toxicological Information (<0.5% Manganese Sulfate CAS 10034-96-5)

Ingredient Name / Type	Data
Acute Toxicity	Low oral toxicity, lethal dose (LD50) was reported to be 9 g/kg bw in rats
Skin Corrosion / Irritation	Not classified as corrosive
Serious Eye Damage Irritation	Moderate eye irritant. In an eye irritation study (OECD TG 405), one male NZW rabbit was exposed to approximately 80 mg of manganese sulphate for up to 72 hours. The maximum mean total score was 36/110 at 48 hours post-exposure. Lesions were not reversible by seven days post-exposure.
Respiratory or skin sensitisation	Not classified as sensitising
Germ cell mutagenicity	No data
Carcinogenicity	Based on limited data, not carcinogenic.
Reproductive toxicity	Based on limited data, not a reproductive toxin.
Specific Target Organ Toxicity – single & repeated exposure	REPEAT EXPOSURE: Long-term exposure to the chemical (as dust or manganese ions in drinking water) caused neurological symptoms in humans. Long-term occupational inhalation exposure to low levels of chemical dust (0.07–0.97 mg manganese/m ³) resulted in impaired motor and cognitive function (e.g. poorer hand-eye coordination, hand steadiness and postural stability; reduced reaction time), as well as altered mood in workers. The proportion of manganese in the chemical dusts ranged from <20–80 % of total dust levels. In three separate cross-sectional studies in children (age range = 8–11 or 6–15 years), decreasing intelligence (e.g. poor functioning at school, impaired cognition) or increased hostility and hyperactivity were reported with increasing manganese levels in drinking water. In three separate case studies in children aged five (female), six (female) and 10 (male), manganism-like neurotoxicity symptoms were reported and linked to elevated manganese in drinking water
Aspiration hazard.	As with any liquid
Skin - Acute	Unlikely to result in adverse effects
Inhaled - Acute	Unlikely to result in adverse effects
Swallowed - Acute	Unlikely to result in adverse effects from infrequent exposure
Eye - Acute	May cause irritation,
Early Onset Symptoms	No data
Delayed Health Effects from exposure	No data
Exposure Level & Health Effects	Adverse effects are the result of long-term, frequent exposure via oral/inhalation route and are unlikely to perpetuate from routine use as intended
Interactive effects	Synergizes enzymes action.
Other	no data

12.0 Ecological Information

Ecotoxicity (as supplied)	Not anticipated to be hazardous
Persistence & Biodegradability	Biodegradable
Bioaccumulative Potential	Avoid allowing excess to enter drinking water supplies.
Mobility in soil	No data
Other effects	No data

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**13.0 Disposal Considerations**

Disposal Containers & Methods	Rinse container; dispose as permitted by local jurisdiction.
Physical/chemical properties that may affect disposal options.	None identified
Effects of sewage disposal.	Diluted solutions are unlikely to contribute to issues of concern
Special precautions for incineration or land fill.	Diluted solutions are unlikely to contribute to issues of concern

14.0 Transport Information

UN Number	Proper Shipping Name / Technical Name	Transport Hazard Class	Packaging Group
na	na	na	na
Environmental Hazards for Transport Purposes		Special Precautions for user	
na		na	

15.0 Regulatory Information

Montreal Protocol	Stockholm Convention	Rotterdam Convention	Basel Convention	MARPOL
Not applicable	Not included	Not Included	Not Included	Not Included
SUSMP	Not scheduled			
Prohibitions / Licensing Restrictions	Enzymes in this preparation are excluded from the requirements of BICON by source. No restrictions identified.			
APVMA	Excluded by purpose			
NICNAS	All ingredients are included in AICS			

16.0 Other Information**16.1 Consumer & General Usage Information**

Directions for use	Dilute and apply as directed on the label.
Directions for Removal	Rinse under running water.
Nano Materials	None identified

16.2 SDS Preparation

Date Prepared	22 nd May 2018.
Changes Made	First edition for Australia
Reference Standards	Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice February 2016. ISBN 978-0-642-33311-7. GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Fourth revised edition
Resources Relied upon include	Hazardous Substances Data Bank (HSDB) https://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB Suppliers' SDS; RTECS Toxicity Database; IRAC; CDC NIOSH, HSIS, Safework Australia GHS Hazardous Chemical Information List. Information provided by manufacturer(s).

Disclaimer: This SDS provides safety data only for the product and circumstances of use nominated. The SDS summarises our best knowledge of the specific, well-known and equivocally demonstrated health and safety hazard information pertaining to workplace use of the nominated substance(s) however the author expressly disclaims that the SDS is complete, is a representation or is a guarantee. Published and other resources have been relied upon, and in some cases conflicting information has been identified. Each user should read the SDS and consider the information in the context of their specific conditions and circumstances, and in conjunction with other products. If clarification is required or further information sought in order to make a risk assessment the user should contact the nominated sponsor company. The responsibility for products sold is subject to our standard terms and conditions that are available on request.

16.3 Key abbreviations or acronyms used

%	Percent (parts per hundred)
*C or °C	degrees Celsius
<	less than
>	greater than
ACCC	Australian Competition and Consumer Commission
ADG	Australian Dangerous Goods
AICS	Australian Inventory of Chemical Substances
APVMA	Australian Pesticides and Veterinary Medicines Authority
AS	Australian Standard

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ASCC	Australian Society of Cosmetic Chemists
bw	Body weight (nominally a human adult of 60kg is applied)
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (Registry Number)
cc	cubic centimetres (equivalent to mL)
COD	Chemical Oxygen Demand
CMR	CMR substances: Article 15 of the EU Cosmetics Regulation 1223/2009 contains provisions on the use of CMR in cosmetic products. Typically substances classified as CMR substances Cat 1A, 1B, or 2 under Part 3 of Annex IV Regulation (EC) No 1272/2008 are banned for use in cosmetic products
COSING	The European Commission database with information on Cosmetic Ingredients & Substances Dangerous Goods
EINECS	European Inventory of Existing Commercial Chemical Substances (Identifying Number)
dw	Dry weight
DNEL	Derived No effect level
EU	Europe / European
FSANZ	Food Standards Australia New Zealand
g	gram
GHS	Globally Harmonised System (safety symbols and labelling)
GMO	Genetically modified organism
h or hr	Hour
HAZCHEM	Emergency action code of numbers and letters that provide information to emergency services especially fire fighters
HSIS	The Safe Work Australia Hazardous Substances Information System
IATA	The International Air Transport Association
IMAP	NICNAS Inventory Multi-tiered Assessment and Prioritisation
ICAO	The International Civil Aviation Organization
IFA	The International Fragrance Association
INCI	The International Nomenclature of Cosmetic Ingredients
kg	kilogram
L	Litre
LC₅₀	LC ₅₀ is the average concentration of a material (by a defined route) that causes the death of 50% (one half) of a group of (defined) test animals. Normally quoted in mg/kg body weight.
LD₅₀	LD ₅₀ is the average dose of a material, given all at once, which causes the death of 50% of a group of (defined) test animals. Normally quoted in mg/kg body weight. Products with a LD ₅₀ of less than 5000mg/kg are scheduled poisons in Australia (see SUSMP)
LD_{Lo}	Lethal Dose Low, is the minimum amount of a material shown to be lethal to a specified type of animal. Typically quoted in mg/kg body weight.
m or min	minute
m³	cubic metre
Max or max	maximum
mg	milligram
Min or min	minimum
mL	millilitre
mm	millimetre
mm Hg	millimetre of Mercury
MOS	Margin of Safety
MRL	Maximum Residue Limit
MSDS	Material Safety Data Sheet (see also SDS)
Nano	Nano(sized) material / Nano Technology; ...industrial materials (including a cosmetic ingredient) comprising 10% or more by composition that has been intentionally produced, manufactured or engineered to have either an internal or external property that is a size range typically between 1 nm and 100 nm.
ng	nanogram
NICNAS	The National Industrial Chemicals Notification and Assessment Scheme (AUSTRALIA)
NIOSH	The National Institute for Occupational Safety and Health (USA)
NOAEL	No observed Adverse Effects Limit
NOHSC	National Occupational Health and Safety Commission (AUSTRALIA)
NOS	Not otherwise specified
NZS	New Zealand Standard
OECD	Organization for Economic Co-operation and Development (Test Method number)
OSHA	The Occupational Safety and Health Administration (USA)
Perm.	Permethrin (Active ingredient of this formulation)
PEL	Permissible Exposure Limit

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pH	(pH) A measure of acidic (less than 7) or alkalinity (above 7); extreme values represent extreme acidic or alkaline conditions. Typically products with a pH less than three or greater than 11 are scheduled poisons (SUSMP)
PNEC	Predicted no effect concentration
ppb	parts per billion
PPE	Personal Protective Equipment
ppm	parts per million
RTECS	The Registry of Toxic Effects of Chemical Substances
S2	Schedule 2, SUSMP Pharmacy Medicine – Substances, the safe use of which may require advice from a pharmacist and which should be available from a pharmacy or, where a pharmacy service is not available, from a licensed person.
S3	Schedule 3, SUSMP Pharmacist Only Medicine – Substances, the safe use of which requires professional advice but which should be available to the public from a pharmacist without a prescription.
S4	Schedule 4, SUSMP Prescription Only Medicine , or Prescription Animal Remedy – Substances, the use or supply of which should be by or on the order of persons permitted by State or Territory legislation to prescribe and should be available from a pharmacist on prescription.
S5	Schedule 5, SUSMP Caution – Substances with a low potential for causing harm, the extent of which can be reduced through the use of appropriate packaging with simple warnings and safety directions on the label.
S6	Schedule 6, SUSMP Poison – Substances with a moderate potential for causing harm, the extent of which can be reduced through the use of distinctive packaging with strong warnings and safety directions on the label.
S7	Schedule 7, SUSMP Dangerous Poison – Substances with a high potential for causing harm at low exposure and which require special precautions during manufacture, handling or use. These poisons should be available only to specialised or authorised users who have the skills necessary to handle them safely. Special regulations restricting their availability, possession, storage or use may apply.
S8	Schedule 8, SUSMP Controlled Drug – Substances which should be available for use but require restriction of manufacture, supply, distribution, possession and use to reduce abuse, misuse and physical or psychological dependence.
S9	Schedule 9, SUSMP Prohibited Substance – Substances which may be abused or misused, the manufacture, possession, sale or use of which should be prohibited by law except when required for medical or scientific research, or for analytical, teaching or training purposes with approval of Commonwealth and/or State or Territory Health Authorities.
S10	Schedule 10, SUSMP Substances of such danger to health as to warrant prohibition of sale, supply and use - Substances which are prohibited for the purpose or purposes listed for each poison.
SCCP	Scientific Committee on Cosmetic Products and Non-Food Products (EUROPE)
SDS	Safety Data Sheet, (previously called MSDS) now SDS under GHS
STEL	Short Term Exposure Limit
SUSMP	Standard for the Uniform Scheduling of Medicine & Poisons (AUSTRALIA) also Poisons Standard. Poisons are not scheduled on the basis of a universal scale of toxicity. Although toxicity is one of the factors considered, and is itself a complex of factors, the decision to include a substance in a particular Schedule also takes into account many other criteria such as the purpose of use, potential for abuse, safety in use and the need for the substance.
T1 or TI	NICNAS IMPA Framework Low risk; chemicals that are not expected to pose a concern to workers, public health or the environment
T2 or TII	NICNAS IMPA Framework Assessable risk; products not classified as T1 risk information on a substance-by-substance or chemical category-by-category
TGA	Therapeutic Goods Administration (AUSTRALIA)
TLV	Threshold Limit Value
TWA	Time Weighted Average
ug	microgram
uL	microlitre
UN	United Nations (number)
US or USA	The United States of America

End of SDS