SAFETY DATA SHEET

1. Identification

Product identifier **COUNTER® 150G Granular Soil Insecticide/Nematicide**

Other means of identification

Product registration number 33300

SDS No. 361

Recommended use of the chemical and restrictions on use

Recommended use Insecticide/nematicide of the organophosphate chemical group, recommended for systemic pest control. See label for a complete list of uses.

Restrictions on use No other uses are advised.
Keep out of the Reach of Children!

Details of manufacturer or importer

Manufacturer

Company name	AgNova Technologies Pty Ltd	
Address	Unit 4, 482 Kingsford Smith Drive Hamilton, Queensland 4007 Australia	
Telephone	AgNova Technologies Pty Ltd	03 9899 8100 (office hours)
Website	agnova.com.au	
E-mail	info@agnova.com.au	
Emergency phone number	IXOM ERS	1800 033 111 (24 hours)
	Poisons Information Centre	13 11 26

2. Hazard(s) identification

Classification of the hazardous chemical

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 2
	Acute toxicity, dermal	Category 2
	Acute toxicity, inhalation	Category 1
	Serious eye damage/eye irritation	Category 2
	Carcinogenicity	Category 1A
	Specific target organ toxicity following repeated exposure	Category 2
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1

Label elements, including precautionary statements

Hazard symbol(s)

Skull and crossbones | Health hazard | Environment

Signal word Danger

Hazard statement(s)	Fatal if swallowed. Fatal in contact with skin. Fatal if inhaled. Causes eye irritation. May cause cancer by inhalation. May cause damage to organs through prolonged or repeated exposure by inhalation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wash thoroughly after handling.
Response	IF SWALLOWED: Immediately call a POISON CENTRE/doctor. Rinse mouth. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTRE/doctor. IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTRE/doctor. Take off immediately all contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. Collect spillage.
Storage	Store locked up.
Disposal	Refer to manufacturer or supplier for information on recovery or recycling. Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards which do not result in classification	None known.
Supplemental information	This is a pesticide product registered in Australia under the Australian Pesticides and Veterinary Medicines Authority (APVMA) and is subject to certain labeling requirements. These requirements may differ from the classification criteria and hazard information required for GHS compliant safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.

3. Composition/information on ingredients

Mixture

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Terbufos S-(((1,1-Dimethylethyl)thio)methyl) O,O-diethyl phosphorodithioate	13071-79-9	150 g/kg
Crystalline silica	14808-60-7	< 7%

4. First aid measures

Description of necessary first aid measures

Inhalation	Call a physician or Poisons Information Centre immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Be sure the contact areas are clean to prevent contamination of the rescuer.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or Poisons Information Centre immediately. Wash contaminated clothing before reuse.
Eye contact	Call a physician or Poisons Information Centre immediately. Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If there will be a delay in getting medical attention, rinse the eyes an additional 15 minutes.
Ingestion	Call a physician or Poisons Information Centre immediately. Do not induce vomiting without advice from Poisons Information Centre. Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Personal protection for first aid responders	If exposed or concerned, call The Poisons Information Centre. The number is 13 11 26 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call. Take off immediately all contaminated clothing. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Symptoms caused by exposure	This is a cholinesterase inhibiting organophosphorous pesticide. Acute cholinesterase depression may be evidenced by headache, nausea, vomiting, diarrhea, abdominal cramps, excessive sweating, salivation and tearing, constricted pupils, blurred vision, tightness in chest, weakness, muscle twitching and confusion; in extreme cases unconsciousness, convulsions, severe respiratory depression and death may occur. Repeated exposures to small doses of organophosphates may lower the cholinesterase to levels where the above symptoms of acute overexposure are observed.
Medical attention and special treatment	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. In the case of cholinergic symptomatology the specific antagonist is atropine sulfate. If a large amount of product has been ingested, and if there was no vomiting, gastric emptying can be done within 2 hours after ingestion. Precautions should be taken to prevent pulmonary aspiration. Activated carbon can be used. Administer atropine sulfate at a dose of 1 to 2 mg every 15 or 20 minutes until the reversal of the cholinergic symptoms, at which time the maintenance dose should be adapted to maintain a condition free of symptoms of intoxication and with no atropine signals. Atropine should not be administered in the absence of cholinergic symptoms, neither should it be administered by a lay person. Measures such as the correction of electrolyte disorders and of the acid-base balance should be adopted. Maintain the patient under cardiac monitoring and with respiratory support if necessary.

5. Firefighting measures

Extinguishing media

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO_2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. This product may emit hazardous fumes of hydrogen chloride, carbon oxides and unidentified organic compounds when it is heated excessively or burned.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Firefighting equipment/instructions	Use water spray to cool unopened containers. Clean all clothing before reuse. Severely contaminated clothing cannot be adequately decontaminated, and must be disposed as a hazardous waste. Shower with soap and water after contact with this product.
Hazchem code	2X
General fire hazards	No unusual fire or explosion hazards noted.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Evacuate the area promptly. Keep upwind. Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
For emergency responders	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Do not breathe dust. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.
Methods and materials for containment and cleaning up	Wear appropriate protective equipment and clothing during clean-up. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Shovel the material into waste container. Decontaminate the area and equipment with dilute alkali or ammonia (less than 5%) and detergent. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for reuse. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities Store locked up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls and personal protection

Control parameters Follow standard monitoring procedures.

Occupational exposure limits

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value	Form
Crystalline silica (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Crystalline silica (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.
Terbufos (CAS 13071-79-9)	TWA	0.01 mg/m3	Inhalable fraction and vapour.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Crystalline silica (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable.

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

US ACGIH Threshold Limit Values: Skin designation

Terbufos (CAS 13071-79-9) Danger of cutaneous absorption

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. Provide eyewash station.

Individual protection measures, for example personal protective equipment (PPE)

Eye/face protection Wear safety glasses with side shields (or goggles). Use tight fitting goggles if dust is generated.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Nitrile gloves are recommended.

Other Wear suitable protective clothing. Long-sleeved shirt and long pants or coveralls, socks and closed toe shoes are recommended. The label should be consulted for more detailed instructions on appropriate PPE.

Respiratory protection Wear respirator with dust filter. The label should be consulted for more specific information with regards to respiratatory protection.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Granular.

Colour Gray to brown.

Odour Mild mercaptan-like odour.

Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not flammable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	34.6 mPa (Terbufos).
Vapour density	Heavier than air.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	4.5 mg/l (Terbufos).
Solubility (solvents)	Terbufos is readily soluble in most organic solvents.
Partition coefficient (n-octanol/water)	4.52 (Terbufos).
Auto-ignition temperature	Not available.
Decomposition temperature	> 120 °C (> 248 °F) (Terbufos).
Viscosity	Not available.
Other physical and chemical parameters	
Bulk density	0.72 - 0.8 g/cm³
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. Avoid high temperatures.
Incompatible materials	Alkaline compounds. Strong acids. Strong oxidising agents.
Hazardous decomposition products	Possible thermal decomposition products included hydrogen sulfide, carbon dioxide, carbon monoxide, mercaptans, thiophosphates, dialkylsulfides, phosphorus oxides, and sulfur oxides. Decomposition begins at 120°C.

11. Toxicological information

Information on possible routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Fatal in contact with skin. Dust or powder may irritate the skin.
Eye contact	Causes eye irritation.
Ingestion	Fatal if swallowed.

Symptoms related to exposure This is a cholinesterase inhibiting organophosphorous pesticide.

Acute cholinesterase depression may be evidenced by headache, nausea, vomiting, diarrhea, abdominal cramps, excessive sweating, salivation and tearing, constricted pupils, blurred vision, tightness in chest, weakness, muscle twitching and confusion; in extreme cases, unconsciousness, convulsions, severe respiratory depression and death may occur.

Repeated exposures to small doses of organophosphates may lower the cholinesterase to levels where the above symptoms of acute overexposure are observed.

Acute toxicity Fatal if inhaled. Fatal in contact with skin. Fatal if swallowed.

Product	Species	Test Results
COUNTER® 150G Granular Soil Insecticide/Nematicide		
Acute		
Dermal		
LD50	female rat	71 mg/kg
	male rat	123 mg/kg
Inhalation		
Dust		
LC50	female rat	0.015 mg/l
	male rat	0.017 mg/l
Oral		
LD50	female rat	8 mg/kg
	male rat	13 mg/kg

Skin corrosion/irritation Non irritating to slightly irritating to skin.

Serious eye damage/irritation Causes eye irritation.

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitiser.

Skin sensitisation This product is not expected to cause skin sensitisation.

Germ cell mutagenicity No evidence of mutagenicity has been observed in animal testing using Terbufos.

Carcinogenicity Respirable crystalline silica is listed as being carcinogenic by IARC. It is present in the product, based on the carrier. Due to a combination of factors, including the toxicity of the product by respiration and the methods used for applying the product, it is highly unlikely exposure to this product will lead to cancer.

No carcinogenic effect was observed in long-term studies in rats and mice when Terbufos was given in the feed.

ACGIH Carcinogens

Crystalline silica (CAS 14808-60-7)	A2 Suspected human carcinogen.
Terbufos (CAS 13071-79-9)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Crystalline silica (CAS 14808-60-7)	1 Carcinogenic to humans.

Reproductive toxicity No evidence of reproductive toxicity has been observed in animal studies using Terbufos.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Due to the presence of respirable crystalline silica in the carrier for this product, there may be damage to the lungs through prolonged or repeated exposure by inhalation. However, because of the acute toxicity of the product through inhalation, it is unlikely damage to the lungs from repeated exposure to the crystalline silica will occur.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Product		Species	Test Results
COUNTER® 150G Granular Soil Insecticide/Nematicide			
Acute			
	EC50	Selenastrum capricornutum (new name Pseudokirchneriella subcapitata)	12.3 mg/l, 96 hours (test data from similar formulation)
Other	LD50	Bobwhite quail	305 mg/kg
Aquatic			
Acute			
Fish	LC50	Rainbow trout (Oncorhynchus mykiss)	0.08 mg/l, 96 hours

Components		Species	Test Results
Terbufos (CAS 13071-79-9)			
Other	LD50	Duck	62 ppm (Mallard)
Aquatic			
Algae	LC50	Algae	2.1 mg/l, 96 hours
Crustacea	EC50	Water flea (Daphnia magna)	0.31 ppb, 48 hours
Fish	LC50	Rainbow trout (Oncorhynchus mykiss)	0.01 mg/l, 96 hours

Persistence and degradability Terbufos: Terbufos degradation occurs in both aerobic and anaerobic conditions. In aerobic conditions in a sand-clay soil, the biological half-life was found to be 5 days with a remnant of only 0.02 ppm after one year.

Bioaccumulative potential Terbufos: For the evaluation a radiolabeled extract of aged soil treated with the active ingredient was placed in water under static conditions. The study results suggest that, in the event of residue of the soil containing the active ingredient being washed into the water of lakes through erosion, the total residue of the active ingredient related to the product expected to be found in the edible tissues of fish will be less than 0.02 ppm, and any fish mortality is likely to occur a few days after contamination.

Mobility in soil Terbufos: Terbufos has a negligible mobility due to its strong adsorption by clays; it is relatively immobile in soil under leaching and non-leaching conditions.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal methods Empty returnable containers should be returned to AgNova Technologies Pty Ltd per instructions provided. See the label on the container for more complete information.

Residual waste Dispose of in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal methods/information). Depleted returnable containers should be returned to AgNova Technologies Pty Ltd per instructions provided, according to all applicable local, regional, national, and international regulations.

Contaminated packaging Depleted returnable containers should be returned to AgNova Technologies Pty Ltd per instructions provided, according to all applicable local, regional, national, and international regulations. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

ADG

UN number 2783
UN proper shipping name ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (Terbufos)
Transport hazard class(es)
Class 6.1
Subsidiary risk -
Packing group II
Environmental hazards No
Hazchem code 2X
Special precautions for user Not available.

RID

UN number 2783
UN proper shipping name ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (Terbufos)
Transport hazard class(es)
Class 6.1
Subsidiary risk -

Label(s)	6.1
Packing group	II
Environmental hazards	Yes
Special precautions for user	Not available.

IATA

UN number	2783
UN proper shipping name	Organophosphorus pesticide, solid, toxic (Terbufos)
Transport hazard class(es)	
Class	6.1
Subsidiary risk	-
Packing group	II
Environmental hazards	No
ERG Code	6L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	2783
UN proper shipping name	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (Terbufos), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-A
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

ADG

IATA; IMDG; RID

Marine pollutant

General information IMDG Regulated Marine Pollutant.
The classification of this product is based on the fact that the product as manufactured and transported will not meet dust criteria for inhalation of dusts and therefore the Inhalation LC50 is not applicable.

15. Regulatory information

Safety, health and environmental regulations

National regulations This Safety Data Sheet was prepared in accordance with Australia Model Code of Practice for the preparation of Safety Data Sheets for Hazardous Chemicals.

Australia Medicines & Poisons Appendix A
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix B
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix D
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix E
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix F
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix G
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix H
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix I
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix J
Poisons schedule number not allocated.
Australia Medicines & Poisons Appendix K
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 10
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 2
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 3
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 4
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 5
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 6
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 7
Terbufos (CAS 13071-79-9)
Australia Medicines & Poisons Schedule 8
Poisons schedule number not allocated.
Australia Medicines & Poisons Schedule 9
Poisons schedule number not allocated.
High Volume Industrial Chemicals (HVIC)

Crystalline silica (CAS 14808-60-7)	100000 - 999999 TONNES See the regulation for additional information.

Importation of Ozone Deleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)

Not listed.

National Pollutant Inventory (NPI) substance reporting list

Not listed.

Prohibited Carcinogenic Substances

Not regulated.

Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)

Not listed.

Restricted Carcinogenic Substances

Not regulated.

Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)

Not listed.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 18-October-2022

Revision date 18-October-2022

Disclaimer This information is provided for the limited guidance to the user. While AgNova Technologies Pty Ltd believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

AgNova Technologies Pty Ltd cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.