SAFETY DATA SHEET

Section 1 - Identification

Product identifier **Depleted Phorate**

Other means of identification

SDS No. 808

Recommended use of the chemical and restrictions on use

Recommended use Unusable depleted product in a returnable container for return to AgNova Technologies Pty Ltd.

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

Section 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 2B
	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 (Lungs) 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. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Avoid release to the environment. Wash thoroughly after handling.
Response	Specific treatment is urgent (see this label). IF SWALLOWED: Immediately call a POISON CENTRE/doctor. Rinse mouth. 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 INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTRE/doctor. 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 in a well-ventilated place. Keep container tightly closed. 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.

Supplemental information	These containers contain small amounts of granules and are being returned to the manufacturer for removal of the granules under specific safety processes. Due to the presence of the granules, all safety information on this SDS is applicable. The containers will be reused by AgNova Technologies Pty Ltd.
Other hazards which do not result in classification	None known.

Section 3 - Composition and information on ingredients

Mixture

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Phorate Thimet® O,O-Diethyl S-(ethylthio)methylphosphorodithioate	298-02-2	200 g/kg

Additional components

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Inert Ingredients (May contain clay which may contain >0.1% crystalline silica)	N/A	to 100%

Section 4 - First aid measures

Description of necessary first aid measures

Inhalation	Move to fresh air. If breathing stops, provide artificial respiration. 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. Call a physician or poison control centre immediately.
Skin contact	Remove contaminated clothing. Rinse skin with water/shower. Get medical attention immediately. Wash contaminated clothing before reuse.
Eye contact	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. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison centre immediately. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control centre. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

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. First aider: Pay attention to self-protection. Keep victim under observation.

Symptoms caused by exposure	Causes eye irritation. 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	Treat symptomatically. Keep victim under observation. Symptoms may be delayed. This product is an Organophosphate (OP) Insecticide. Do not handle the patient without the following protective equipment in place: chemical resistant gloves and apron (preferably nitrile). Remove contaminated clothing and do not reuse without thorough cleaning with detergent and hot water. Do not wait for laboratory confirmation to treat patients with strong clinical evidence of poisoning. Contact your local or national poison control centre for more information. Establish airway and oxygenation. IV Atropine sulphate is the antidote of choice against parasympathetic nervous stimulation. If there are signs of parasympathetic stimulation, Atropine sulphate should be injected at 10 minute intervals in doses of 1 to 2 milligrams until complete atropinisation has occurred. Pralidoxime chloride (2-PAM chloride) may also be used as an effective antidote in addition to and while maintaining full atropinisation. In adults, an initial dose of 1 gram of 2-PAM should be injected, preferably as an infusion, in 250 cc of saline over a 15 to 20 minute period. If this is not practical, 2-PAM may be administered slowly by intravenous injection as a 5% solution in water over not less than 2 minutes. After about an hour, a second dose of 1 gram of 2-PAM will be indicated if muscle weakness has not been relieved. For infants and children, the dose of 2-PAM is 0.25 grams. Avoid morphine, aminophylline, phenothiazine, reserpine, furosemide and ethacrynic acid. Clear chest by postural drainage. Oxygen administration may be necessary. Observe patient continuously for 48 hours. Repeated exposure to cholinesterase inhibitors may, without warning, cause prolonged susceptibility to very small doses of any cholinesterase inhibitor. Allow no further exposure until time for cholinesterase regeneration has been attained as determined by a blood test. Bathe and shampoo contaminated skin and hair. If ingested, empty stomach; activated charcoal is useful to further limit absorption. If victim is alert, Syrup of Ipecac (2 tablespoons in adults, 1 tablespoon in small children) is indicated. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage should be considered following intubation with a cuffed endotracheal tube.

Section 5 - Firefighting measures

Extinguishing media

Suitable extinguishing equipment	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO_2).
Unsuitable extinguishing equipment	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Fire fighting equipment/instructions	Use water spray to cool unopened containers.
Hazchem code	2X

Section 6 - Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep upwind. Avoid inhalation of dust.
For emergency responders	Keep unnecessary personnel away. Ensure adequate ventilation. Keep upwind. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Shovel up and place in a container for salvage or disposal. Avoid the generation of dusts during clean-up. Prevent entry into waterways, sewer, basements or confined areas. Decontaminate the area and equipment with dilute alkali or ammonia (less than 5%) and detergent.

Section 7 - Handling and storage

Precautions for safe handling	Minimise dust generation and accumulation. 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. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wash contaminated clothing before reuse.

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

Section 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
Phorate (CAS 298-02-2)	STEL	0.2 mg/m3	
	TWA	0.05 mg/m3	
Propylene glycol (CAS 57-55-6)	TWA	474 mg/m3	Total vapour and particulates.
		10 mg/m3	Particulate.
		150 ppm	Total vapour and particulates.

Additional components	Type	Value	Form
Crystalline silica (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.
Nuisance Dust	TWA	10 mg/m3	Inhalable dust.

US. ACGIH Threshold Limit Values (TLV)

Additional components	Type	Value	Form
Crystalline silica (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Components	Type	Value	Form
Propylene glycol (CAS 57-55-6)	TWA	474 mg/m3	Total vapour and particulates.
		10 mg/m3	Particulate.
		150 ppm	Total vapour and particulates.

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

Biological limit values

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling Time
Phorate (CAS 298-02-2)	70 %	Acetylcholinesterase	Reduction from individual baseline activity in red blood cells	*

* - For sampling details, please see the source document.

ACGIH Biological Exposure Indices (BEI)

Components	Value	Determinant	Specimen	Sampling Time
Phorate (CAS 298-02-2)	70 %	Acetylcholinesterase activity	Reduction from individual baseline activity in red blood cells	*
	60 %	Butyrylcholinesterase activity	Serum or Plasma	*

* - For sampling details, please see the source document.

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

Phorate (CAS 298-02-2)	Danger of cutaneous absorption

Control banding Not available.

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 material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. The label should be consulted for ventilation requirements for the end user.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection Wear safety glasses with side shields (or goggles). Chemical goggles are recommended. Refer to the product label for more complete information about variations required that depend on the circumstances.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Nitrile gloves are recommended (minimum thickness 0.40 mm). Wash when contaminated. Dispose of gloves when contaminated inside, when perforated or when contamination outside cannot be removed. Always wash hands before eating, drinking, smoking or using the toilet.

Other Avoid contact with the skin. Wear appropriate chemical resistant clothing.

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

Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit. The label should be consulted for more specific information with regards to respiratory protection.

Thermal hazards Not available.

Hygiene measures 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.

Section 9 - Physical and chemical properties

Physical state Solid.

Form Granular.

Colour Grey to brown.

Odour Mild mercaptan-like odour.

Odour threshold Not available.

pH 4 - 7 (slurry)

Melting point/freezing point Not available.

Boiling point and boiling range 38 - 45 °C (100.4 - 113 °F) @ 0.005 mmHg (a.i.)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower explosive limits

Explosion limit - lower (%) Not available.

Explosion limit - upper (%) Not available.

Vapour pressure 6.40E-04 torr @ 25°C (a.i.)

Vapour density Heavier than air

Relative density Not available.

Solubility

Solubility (water) 4.5 mg/l (a.i.).

Solubility (other) The a.i. is miscible in aromatic and aliphatic hydrocarbons, alcohols, ketones, ethers, esters, chlorinated solvents and vegetable oils.

Partition coefficient: n-octanol/water Not available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity	Not available.
Particle characteristics	Not available.
Data relevant with regard to physical hazard classes	No relevant additional information available.

Other physical and chemical parameters

Bulk density	0.8 - 0.9 g/cm³

Section 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	Alkali metals. Isocyanates.
Hazardous decomposition products	Possible thermal decomposition products included hydrogen sulphide, carbon dioxide, carbon monoxide, mercaptans, thiophosphates, dialkylsulphides, phosphorus oxides, and sulphur oxides. Decomposition begins at 120°C.

Section 11 - Toxicological information

Information on possible routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Fatal in contact with skin.
Eye contact	Causes eye irritation.
Ingestion	Fatal if swallowed.
Early onset 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.
Delayed health effects from exposure	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 swallowed. Fatal in contact with skin. Fatal if inhaled.

Product	Species	Test Results
Depleted Phorate		
Acute		
Dermal		
LD50	Rabbit	113 mg/kg (male)
		86 mg/kg (female)
Inhalation		
Dust		
LC50	Rat	0.06 mg/l, 1 h (male, nose only, a.i. only)
		0.011 mg/l, 1 h (female, nose only, a.i. only)
Oral		
LC50	Rat	5.1 mg/kg (female)
LD50	Rat	13.5 mg/kg (male)

Skin corrosion/irritation	Non irritating to slightly irritating to skin.
Serious eye damage/irritation	Causes eye irritation.

Respiratory or skin sensitisation

Respiratory sensitisation	Based on available data, the classification criteria are not met.
Skin sensitisation	Not a skin sensitiser.
Germ cell mutagenicity	No evidence of mutagenicity has been observed in animal testing using Phorate.

Carcinogenicity In long-term studies in rats and mice where Phorate was given by feed, a carcinogenic effect was not observed. Respirable crystalline silica is listed as being carcinogenic by both IARC and NTP. It is present in the product, based on the carrier.

ACGIH Carcinogens

Crystalline silica (CAS 14808-60-7)	A2 Suspected human carcinogen.
Phorate (CAS 298-02-2)	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 Phorate.

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

Section 12 - Ecological information

Ecotoxicity Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Phorate (CAS 298-02-2)			
	EC50	Paratanytarsus parhenogenical larvae	0.041 mg/l, 48 hours
	LC50	Mayfly nymphs	0.065 mg/l, 96 hours
Aquatic			
Crustacea	EC50	Daphnia magna	0.031 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	0.012 mg/l, 96 hours
		Catfish	2.2 mg/l, 96 hours
		Rainbow trout	0.045 mg/l, 96 hours
		Sheepshead minnow	0.0082 mg/l, 96 hours
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	0.012 - 0.031 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	0.0015 - 0.0025 mg/l, 96 hours

Persistence and degradability Active Ingredient (a.i.): The aerobic soil metabolism half-life is 3 days.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)	
Phorate	3.92

Mobility in soil Not available.

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.

Section 13 - Disposal considerations

Disposal methods Depleted returnable containers should be returned to AgNova Technologies Pty Ltd per instructions provided, according to all applicable local, regional, national, and international regulations. To return, contact AgNova Technologies Pty Ltd directly using the information provided in Section 1.

Residual waste Depleted returnable containers should be returned to AgNova Technologies Pty Ltd per instructions provided, according to all applicable local, regional, national, and international regulations. To return, contact AgNova Technologies Pty Ltd directly using the information provided in Section 1.

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. To return, contact AgNova Technologies Pty Ltd directly using the information provided in Section 1.

Section 14 - Transport information

ADG

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

RID

UN number	2783
UN proper shipping name	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC (Phorate)
Transport hazard class(es)	
Class	6.1
Subsidiary risk	-
Label(s)	6.1
Packing group	II
Environmental hazards	Yes
Special precautions for user	Not assigned.

IATA

UN number	2783
UN proper shipping name	Organophosphorus pesticide, solid, toxic (Phorate)
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 (Phorate), 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

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.

IMDG Regulated Marine Pollutant.

Section 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 B

Propylene glycol (CAS 57-55-6)

Australia Medicines & Poisons Schedule 4

Phorate (CAS 298-02-2)

Australia Medicines & Poisons Schedule 7

Phorate (CAS 298-02-2)

High Volume Industrial Chemicals (HVIC)

Crystalline silica (CAS 14808-60-7)	100000 - 999999 TONNES See the regulation for additional information.
Propylene glycol (CAS 57-55-6)	10000 - 99999 TONNES See the regulation for additional information.

Importation of Ozone Depleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10, as amended)

Not listed.

National Pollutant Inventory (NPI) substance reporting list

Nuisance Dust (CAS -)	2000 tonnes/yr Threshold Category: 2B 400 tonnes/yr Threshold Category: 2A

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

Phorate (CAS 298-02-2)	Pesticide

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
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	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).

Section 16 - Any other relevant information

Issue date 15-August-2023

Revision date 15-August-2023

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.

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