

1. IDENTIFICATION

Product Name	Monoammonium phosphate (MAP)
Other Names	Ammonium dihydrogen orthophosphate; Ammonium dihydrogen phosphate; Monoammonium orthophosphate; Monoammonium phosphate + Zinc Blend
Uses	Agricultural use as an ingredient of fertilisers; as a component in dry chemical fire extinguishers; Food additive; Optics; Electronics.
Chemical Family	No Data Available
Chemical Formula	Unspecified
Chemical Name	Phosphoric acid, monoammonium salt
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Signal Word None



Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Health Hazards	6.3B	Substances that are mildly irritating to the skin
		6.4A	Substances that are irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Monoammonium phosphate	H6NO4P	7722-76-1	<=100 %
Zinc	Zn	7440-66-6	0 - 1 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN: Remove contaminated clothing and shoes immediately. Flush skin with (warm) running water for several minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing until recovered. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing; Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible; Material does not burn.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction. Use extinguishing media appropriate to surrounding fire conditions.
Fire and Explosion Hazard	May evolve toxic fumes/gases when heated to decomposition.
Hazardous Products of Combustion	Fire or heat may produce irritating and/or toxic fumes, including ammonia, oxides of Nitrogen and oxides of Phosphorus.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available



Hazchem Code

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Collect material (sweep or vacuum up) and place in suitable, properly labelled containers for recycling or salvage (if uncontaminated) or disposal (see SECTION 13).
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.
Decontamination	After spill cleanup, wash area preventing runoff from entering drains.
Environmental Precautionary Measures	Prevent entry into drains and waterways. If environmental contamination has occurred, advise local emergency services.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8). To avoid thermal decomposition, do not overheat. Avoid contact with incompatible materials (see SECTION 10).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use. Avoid exposure to water/moisture. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store away from farm chemicals, e.g. insecticides, fungicides and herbicides.
Container	Keep in the original container. Ensure product is adequately labelled.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No value assigned for this specific material by Safe Work Australia. For dusts from solid substances without specific occupational exposure standards: - Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m ³ , measured as inhalable dust. - New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m ³ ; TWA = 3 mg/m ³ (respirable).
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or where an inhalation risk exists. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses or dust-proof goggles. - Hand protection: Handle with gloves. Recommended: Impervious gloves, e.g. rubber or PVC. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Light-weight protective clothing; Safety shoes. Wear overalls when using in large quantities or where heavy contamination is likely.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of work. Wash contaminated clothing and other protective equipment before storage or re-use.



9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystals, granules or powder
Odour	Odourless or slight-acidic
Colour	White or off-white
pH	4.2 - 5.0 (1% solution)
Vapour Pressure	<1 mmHg (@ 20 °C)
Relative Vapour Density	No Data Available
Boiling Point	Decomposes before boiling
Melting Point	190 - 197 °C
Freezing Point	No Data Available
Solubility	Soluble in water (370 g/l) 25°C
Specific Gravity	1.80 - 1.81
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	1,100 kg/m ³ (20 °C)
Corrosion Rate	No Data Available
Decomposition Temperature	>197 °C
Density	1.81 g/cm ³
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Product does not present an explosion hazard (inorganic substance).
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material does not burn.
Reactions That Release Gases or Vapours	Fire or heating may produce irritating and/or toxic fumes, including ammonia, oxides of Nitrogen and oxides of Phosphorus.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

Reacts with alkalis releasing ammonia. Reacts with methenamine, causing slow evolution of formaldehyde. May be



General Information	mildly corrosive to aluminium and steel.
Chemical Stability	Stable under recommended conditions of storage and handling.
Conditions to Avoid	Avoid dust formation. To avoid thermal decomposition, do not overheat.
Materials to Avoid	Incompatible/reactive with strong acids, alkalis, oxidising agents; copper and its alloys; methenamine, magnesium, hypochlorites.
Hazardous Decomposition Products	No decomposition if used and stored according to specifications. Fire or heating may produce irritating and/or toxic fumes, including ammonia, oxides of Nitrogen and oxides of Phosphorus.
Hazardous Polymerisation	Not expected to occur.

11. TOXICOLOGICAL INFORMATION

General Information	Information on possible routes of exposure: - Ingestion: Low toxicity. Ingestion of large quantities may result in gastrointestinal irritation, nausea and vomiting. - Eye contact: Low to moderate irritant. Contact may result in (physical) irritation, lacrimation, pain and redness. - Skin contact: Low to moderate irritant. Prolonged or repeated contact may result in irritation and rash. - Inhalation: Low irritant. Overexposure may result in mucous membrane irritation (of the nose and throat) with coughing. Chronic effects: Ingestion of large quantities may also result in serious disturbances in calcium metabolism.
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity; - LC50, Freshwater fish (<i>Oncorhynchus mykiss</i>): >85.9 mg/L (96 h) static [OECD Guideline 203]. - EC50, Freshwater invertebrates (<i>Daphnia carinata</i>): 1,790 mg/L (72 h) Read-across, single-superphosphate [APHA-1975]. - EC50, Freshwater algae (<i>Selenastrum capricornutum</i>): >100 mg/L (72 h) Read-across, ammonium dihydrogenorthophosphate [OECD 201]. Toxicity to microorganisms: - EC50, Bacteria (Activated sludge, domestic), respiration rate: >100 mg/L (3 h) Read-across, diammonium hydrogenorthophosphate [OECD 209].
Persistence/Degradability	Ready biodegradation tests are not applicable since the substance is inorganic. In aqueous solution, ammonium dihydrogen orthophosphate is completely dissociated into the ammonium ion (NH ₄ ⁺) and the phosphate anion (PO ₄ ³⁻). Hydrolysis of the substance does not occur, and it is also not susceptible to photodegradation.
Mobility	This substance is highly water soluble and dissociating. Low potential for adsorption to soil (based on substance properties).
Environmental Fate	Product may act as a plant nutrient and cause eutrophication. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Bioaccumulation Potential	Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution; Such a substance has a low potential for bioaccumulation.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Can be reused without reprocessing if uncontaminated. If contaminated with other materials, dispose of to an approved landfill site and in accordance with local/regional/national regulations.
Special Precautions for Land Fill	No information available.

14. TRANSPORT INFORMATION



Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Monoammonium phosphate (MAP)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Monoammonium phosphate (MAP)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Monoammonium phosphate (MAP)
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

15. REGULATORY INFORMATION

General Information	AMMONIUM PHOSPHATE is listed in Appendix B of the SUSMP (Low toxicity; Any use).
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR002768
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	231-764-5
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes

MOAMMB1000, MOAMMB1001, MOAMMB1002, MOAMMB1003, MOAMMB1004, MOAMMB1005, MOAMMB2000, MOAMMF1000, MOAMMF1001, MOAMMF1002, MOAMMF1003, MOAMMF1004, MOAMMF1005, MOAMMF1006, MOAMMF1007, MOAMMF1008, MOAMMF1009, MOAMMF1010, MOAMMF1011, MOAMMF1012, MOAMMF1013, MOAMMF1014, MOAMMF1015, MOAMMF1016, MOAMMF1020, MOAMMF1033, MOAMMF1040, MOAMMF1050, MOAMMF2000, MOAMMF2500, MOAMMF3000, MOAMMF4000, MOAMMF4010, MOAMMO0200, MOAMMO0201, MOAMMO0300, MOAMMO0301, MOAMMO0400, MOAMMO0500, MOAMMO0600, MOAMMO0700, MOAMMO0800, MOAMMO0801, MOAMMO0802, MOAMMO0805, MOAMMO0810, MOAMMO0812, MOAMMO0880, MOAMMO0890, MOAMMO0891, MOAMMO0892, MOAMMO0893, MOAMMO0895, MOAMMO0898, MOAMMO0899, MOAMMO0900, MOAMMO1000, MOAMMO1001, MOAMMO1002, MOAMMO1003, MOAMMO1004, MOAMMO1005, MOAMMO1006, MOAMMO1007, MOAMMO1008, MOAMMO1009, MOAMMO1010, MOAMMO1011, MOAMMO1012, MOAMMO1013, MOAMMO1014, MOAMMO1015, MOAMMO1016, MOAMMO1017, MOAMMO1018, MOAMMO1019, MOAMMO1020, MOAMMO1021, MOAMMO1022, MOAMMO1023, MOAMMO1024, MOAMMO1025, MOAMMO1026, MOAMMO1027, MOAMMO1028, MOAMMO1029, MOAMMO1044, MOAMMO1100, MOAMMO1400, MOAMMO1500, MOAMMO1501, MOAMMO1550, MOAMMO1600, MOAMMO1601, MOAMMO1610, MOAMMO1650, MOAMMO1700, MOAMMO1800, MOAMMO1801, MOAMMO1802, MOAMMO1803, MOAMMO1804, MOAMMO1805, MOAMMO1806, MOAMMO1807, MOAMMO1808, MOAMMO1809, MOAMMO1810, MOAMMO1811, MOAMMO1812, MOAMMO1813, MOAMMO1814, MOAMMO1815, MOAMMO1816, MOAMMO1817, MOAMMO1818, MOAMMO1819, MOAMMO1820, MOAMMO1821, MOAMMO1822, MOAMMO1823, MOAMMO1824, MOAMMO1825, MOAMMO1826, MOAMMO1827, MOAMMO1830, MOAMMO1900, MOAMMO2000, MOAMMO2001, MOAMMO2100, MOAMMO2101, MOAMMO2200, MOAMMO2300, MOAMMO2400, MOAMMO2401, MOAMMO2450, MOAMMO2451, MOAMMO2500, MOAMMO2501, MOAMMO2600, MOAMMO2800, MOAMMO2801, MOAMMO2802, MOAMMO2805, MOAMMO2806, MOAMMO2807, MOAMMO2810, MOAMMO2812, MOAMMO2900, MOAMMO2905, MOAMMO3000, MOAMMO3100, MOAMMO3105, MOAMMO3300, MOAMMO3301, MOAMMO3305, MOAMMO3306, MOAMMO3310, MOAMMO3311, MOAMMO3315, MOAMMO3320, MOAMMO3350, MOAMMO3360, MOAMMO3380, MOAMMO3500, MOAMMO3501, MOAMMO3502, MOAMMO3600, MOAMMO3700, MOAMMO3800, MOAMMO3900, MOAMMO4000, MOAMMO4001, MOAMMO4100, MOAMMO4200, MOAMMO4500, MOAMMO4900, MOAMMO4901, MOAMMO4902, MOAMMO4905, MOAMMO4906, MOAMMO4910, MOAMMO4911, MOAMMO4912, MOAMMO5000, MOAMMO5001, MOAMMO5002, MOAMMO5100, MOAMMO5105, MOAMMO5106,



MOAMMO5110, MOAMMO5115, MOAMMO5300, MOAMMO5400, MOAMMO5500, MOAMMO5600, MOAMMO5601, MOAMMO5700, MOAMMO5800, MOAMMO5801, MOAMMO5802, MOAMMO5803, MOAMMO5804, MOAMMO5805, MOAMMO5900, MOAMMO5901, MOAMMO5902, MOAMMO6000, MOAMMO6001, MOAMMO6002, MOAMMO6003, MOAMMO6004, MOAMMO6005, MOAMMO6006, MOAMMO6007, MOAMMO6100, MOAMMO6101, MOAMMO6102, MOAMMO6200, MOAMMO6201, MOAMMO6202, MOAMMO6300, MOAMMO6400, MOAMMO6401, MOAMMO6500, MOAMMO6501, MOAMMO6502, MOAMMO7000, MOAMMO7001, MOAMMO7500, MOAMMO7600, MOAMMO7700, MOAMMO8000, MOAMMO8300, MOAMMO8400, MOAMMO8500, MOAMMO8510, MOAMMO8520, MOAMMO8600, MOAMMO8900, MOAMMO8905, MOAMMO8906, MOAMMO9000, MOAMMO9100, MOAMMO9200, MOAMMO9300, MOAMMO9400, MOAMMO9500, MOAMMO9501, MOAMMO9510, MOAMMO9520, MOAMMO9525, MOAMMO9550, MOAMMO9551, MOAMMO9552, MOAMMO9600, MOAMMO9601, MOAMMO9700, MOAMMO9701, MOAMMO9702, MOAMMO9705, MOAMMO9706, MOAMMO9707, MOAMMO9710, MOAMMO9715, MOAMMO9720, MOAMMO9725, MOAMMO9750, MOAMMO9770, MOAMMO9771, MOAMMO9772, MOAMMO9773, MOAMMO9800, MOAMMO9801, MOAMMO9900

Revision

3

Revision Date

01 Nov 2016

Key/Legend

< Less Than
 > Greater Than
AICS Australian Inventory of Chemical Substances
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO₂ Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH₂O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH₂O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Health and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne



TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

