1. IDENTIFICATION

Product Name	**Monodicalcium phosphate**
Other Names	Calcium phosphate; Dicalcium phosphate
Uses	Used as a phosphorus and calcium source in animal feeds.
Chemical Family	No Data Available
Chemical Formula	Unspecified
Chemical Name	Monodicalcium phosphate
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
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
Hazard Categories		Skin Corrosion/Irritation - Category 2	
		Serious Eye Damage/Irritation - Category 2A	
		Specific Target Organ Toxicity (Single Exposure) - Category 3	
Pictograms			
Signal Word		Warning	
Hazard Statements		**H315**	Causes skin irritation.
		H319	Causes serious eye irritation.
		H335	May cause respiratory irritation.
Precautionary Statements	Prevention	**P280**	Wear protective gloves/eye protection/face protection.
		P261	Avoid breathing dust.
		P271	Use only outdoors or in a well-ventilated area.
	Response	**P302 + P352**	IF ON SKIN: Wash with plenty of soap and water.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P312	Call a POISON CENTER or doctor/physician if you feel unwell.
		P332 + P313	If skin irritation occurs: Get medical advice/attention.
		P362	Take off contaminated clothing and wash before reuse.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Storage	**P403 + P233**	Store in a well-ventilated place. Keep container tightly closed.
		P405	Store locked up.
	Disposal	**P501**	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Health Hazards	**6.1E**	Substances that are acutely toxic –May be harmful, Aspiration hazard
		6.3A	Substances that are 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
Monocalcium phosphate	Ca.2H3O4P	7758-23-8	60 - 70 %
Calcium phosphate, dihydrate	Ca.H3O4P.2H2O	7789-77-7	30 - 40 %
Water	H2O	7732-18-5	2 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed If swallowed: Rinse mouth, then (slowly) drink plenty of water. Do NOT induce vomiting. If vomiting occurs spontaneously, lean patient forward (head-down position, if possible) to maintain an open airway and prevent aspiration. Never give anything by mouth to an unconscious person. Call a Poison Centre or doctor/physician if you feel unwell.

Eye Eye contact: 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 Skin contact: Remove material from skin immediately. Flush skin with running water for several minutes/Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.

Inhaled If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician if experiencing respiratory symptoms or if you feel unwell.

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.

Extinguishing Media Use extinguishing media suitable for the surrounding area.

Fire and Explosion Hazard Not considered a significant fire risk, however containers may burn.

Hazardous Products of Combustion Decomposition may produce toxic fumes of: Phosphorus oxides.

Special Fire Fighting Instructions No information available.

Personal Protective Equipment Wear self-contained breathing apparatus and structural firefighting protective clothing.

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 No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames). Do not touch or walk through spilled material. Avoid breathing dust. Avoid contact with eyes and skin.

Clean Up Procedures Clean up spills immediately. Recover product wherever possible. Avoid generating dust. If required, wet with water to prevent dusting. Sweep/shovel material into suitable containers for later disposal.

Containment Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud.

Decontamination	Wash area down with large quantity of water and prevent runoff into drains.
Environmental Precautionary Measures	Prevent spillage from entering drains, sewers or water courses. If contamination of drains or waterways occurs, advise emergency services.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash fountains should be provided within the immediate work area for emergency use. Handle in accordance with good industrial hygiene and safety practice. Use only outside or in a well-ventilated area. Avoid breathing dust. Avoid contact with eyes and skin. Wear protective gloves/eye protection/face protection.
Storage	Keep dry. Store under cover in a well-ventilated place. Keep containers securely sealed when not in use. Protect containers against physical damage. Keep away from incompatible materials (oxidising and reducing agents). Store locked up.
Container	Keep in the original or suitable (Polyethylene or Polypropylene) container. Check all containers are clearly labelled and free from leaks.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	Contains no substances with occupational exposure limit values. For dusts from solid substances without specific occupational exposure standards: - New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m3 (total); TWA = 3 mg/m3 (respirable). - OSHA PEL (Particulates not otherwise regulated): TWA = 15 mg/m3 (total); TWA = 5 mg/m3 (respirable).
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	Provide adequate ventilation in warehouse or closed storage areas. 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: In case of inadequate ventilation, wear respiratory protection. Recommended filter type: Particulate (AS/NZS 1716 & 1715). Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Safety glasses with side-shields or chemical goggles. Hand protection: Wear protective gloves. Recommended (for protection against undissolved, dry solids, where abrasive particles are not present): Polychloroprene, nitrile rubber, butyl rubber, polyvinyl chloride (Break through time: >240 min. where prolonged or repeated contact may occur; Breakthrough time: >60 min. when only brief contact is expected). Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls; PVC apron.
Special Hazards Precaustions	No information available.
Work Hygienic Practices	When handling, Do NOT eat, drink or smoke. Always wash hands with soap and water after handling. Work clothes should be laundered separately.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline solid or dry powder
Odour	Odourless
Colour	White to off-white
pH	No Data Available
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available

Boiling Point	No Data Available
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Partly soluble in water
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
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 Data Available
Potential for Dust Explosion	No information available.
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. Not considered a significant fire risk, however containers may burn.
Reactions That Release Gases or Vapours	Partial oxidation of phosphates by oxidising agents may result in the release of toxic phosphorus oxides.
Release of Invisible Flammable Vapours and Gases	Phosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides.

10. STABILITY AND REACTIVITY

Chemical Stability	Product is considered stable.
Conditions to Avoid	Avoid generating dust.
Materials to Avoid	Incompatible with oxidising and reducing agents.
Hazardous Decomposition Products	Decomposition may produce toxic fumes of: Phosphorus oxides. Phosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides.
Hazardous Polymerisation	Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	Information on possible routes of exposure: - Ingestion: Accidental ingestion of the material may be damaging to the health of the individual. Effects can include vomiting, tiredness, fever, diarrhoea, low blood pressure, slow pulse, cyanosis, spasms of the wrist, coma and severe body spasms. - Inhalation: The material can cause respiratory irritation in some persons. - Skin contact: This material can cause inflammation of the skin on contact in some persons. The material may accentuate pre-existing dermatitis conditions. Skin contact is not thought to have harmful health effects; however the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material. - Eye contact: This material can cause eye irritation and damage in some persons. - Chronic exposure: Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Acute

Ingestion	Acute toxicity (Oral): INGREDIENT: Monocalcium phosphate (CAS No. 7758-23-8): LD50, Rat: >2,000 mg/kg. INGREDIENT: Calcium phosphate, dihydrate (CAS No. 7789-77-7): LD50, Rat: >4,649 mg/kg.
Other	Acute toxicity (Dermal): INGREDIENT: Monocalcium phosphate (CAS No. 7758-23-8): LD50, Rabbit: >2,000 mg/kg.
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	INGREDIENT: Monocalcium phosphate (CAS No. 7758-23-8): - LC50: >1,000 mg/l (96 h). - EC50: >1,000 mg/l (48 h). - EC50: >87.60 mg/l (72 h). INGREDIENT: Calcium phosphate, dihydrate (CAS No. 7789-77-7): - LC50: >1,000 mg/l (96 h). - EC50: >1,000 mg/l (48 h). - EC50: >1,000 mg/l (72 h).
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Prevent from entering drains, sewers or water courses.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Recycle wherever possible. Dispose of contents/container in accordance with local/regional/national regulations. Bury residue in an authorised landfill.
Special Precautions for Land Fill	No information available.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	Monodicalcium phosphate
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

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	Monodicalcium phosphate
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

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	Monodicalcium phosphate
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

Land Transport (United States of America)
US DOT

Proper Shipping Name	Monodicalcium phosphate
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

Sea Transport
IMDG Code

Proper Shipping Name	Monodicalcium phosphate
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

Air Transport
IATA DGR

Proper Shipping Name	Monodicalcium phosphate
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

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR002521

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
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	MODICA0202, MODICA0203, MODICA0204, MODICA0205, MODICA0420, MODICA1000, MODICA1001, MODICA1002, MODICA1003, MODICA1004, MODICA1005, MODICA1006, MODICA1007, MODICA1041, MODICA1051, MODICA1064, MODICA1066, MODICA1150, MODICA1160, MODICA1170, MODICA1200, MODICA1211, MODICA1214, MODICA1215, MODICA1217, MODICA1218, MODICA1300, MODICA1301, MODICA1302, MODICA1303, MODICA1304, MODICA1305, MODICA1306, MODICA1400, MODICA1401, MODICA1402, MODICA1500, MODICA1501, MODICA1550, MODICA1600, MODICA1601, MODICA1700, MODICA1800, MODICA1801, MODICA1802, MODICA1803, MODICA1804, MODICA1805, MODICA1806, MODICA1807, MODICA1808, MODICA1900, MODICA2000, MODICA2001, MODICA2002, MODICA2003, MODICA2004, MODICA2100, MODICA2101, MODICA2200, MODICA2300, MODICA2400, MODICA2500, MODICA2502, MODICA2600, MODICA2601, MODICA2700, MODICA2800, MODICA2900, MODICA3000, MODICA3100, MODICA3200, MODICA3300, MODICA3301, MODICA3302, MODICA3500, MODICA3501, MODICA3502, MODICA3600, MODICA3700, MODICA3800, MODICA3900, MODICA4000, MODICA4100, MODICA4200, MODICA4201, MODICA4300, MODICA4301, MODICA4400, MODICA4500, MODICA4501, MODICA4600, MODICA4700, MODICA4800, MODICA5000, MODICA5500, MODICA5600, MODICA5700, MODICA5701, MODICA5800, MODICA6000, MODICA6001, MODICA6500, MODICA6600, MODICA6601, MODICA6602, MODICA6603, MODICA6610, MODICA6611, MODICA6700, MODICA6701, MODICA6702, MODICA6703, MODICA6710, MODICA6711, MODICA7000, MODICA7200, MODICA7400, MODICA7500, MODICA7600, MODICA8000, MODICA8200, MODICA8500, MODICA8600, MODICA9000, MODICA9100, MODICA9500, MODICA9600
Revision	3
Revision Date	23 Oct 2015
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 Heath 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