1. IDENTIFICATION

Product Name	**Borax pentahydrate**
Other Names	Actibor 15 Granular; Chemiebor 15-S; Disodium Tetraborate pentahydrate; pentahydrate, borax 5 Mol
Uses	Agricultural Micronutrient
Chemical Family	Inorganic borates
Chemical Formula	Na2B4O7.5H2O
Chemical Name	Sodium tetraborate, pentahydrate
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) 5

Globally Harmonised System

Hazard Classification		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
Hazard Categories		Toxic To Reproduction - Category 1B	
Pictograms			
Signal Word		Danger	
Hazard Statements		**H360FD**	May damage fertility. May damage the unborn child.
Precautionary Statements	Prevention	**P201**	Obtain special instructions before use.
		P202	Do not handle until all safety precautions have been read and understood.
		P281	Use personal protective equipment as required.
	Response	**P308 + P313**	IF exposed or concerned: Get medical advice/ attention.
	Storage	**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
		6.4A	Substances that are irritating to the eye
		6.8B	Substances that are suspected human reproductive or developmental toxicants
	Environmental Hazards	**9.1D**	Substances that are slightly harmful to the aquatic environment or are otherwise designed for biocidal action

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Borax Pentahydrate	No Data Available	12179-04-3	>99.9 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Swallowing small quantities (one teaspoon) will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.
Eye	Immediately flush eyes with plenty of water for 15 minutes, holding eyelids open. If irritation occurs, seek medical attention.

Skin	No Treatment necessary because non-irritating.
Inhaled	Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient.
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product. POTENTIAL HEALTH EFFECTS: Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because Actibor 15(G) is poorly absorbed through intact skin. CANCER: Actibor 15(G) is not a known carcinogen. SIGNS AND SYMPTOMS OF EXPOSURE: Symptoms of accidental over-exposure to Actibor 15(G) have been associated with ingestion or absorption through large areas of damaged skin. These may include nausea, vomiting and diarrhea, with delayed effects of skin redness and peeling. HUMAN DATA: Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. Recent epidemological studies under the conditions of normal occupational exposure to borate dust indicated no effect on fertility.

5. FIRE FIGHTING MEASURES

General Measures	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions	Product is a non-flammable solid.
Extinguishing Media	Any fire extinguishing media may be used on nearby fires. The product itself is a flame retardant.
Fire and Explosion Hazard	Non-explosive. Non combustible.
Hazardous Products of Combustion	The product itself is a flame retardant.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).
Flash Point	Non Flammable
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	Avoid accidents, clean up immediately. Slippery when spilled. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Use clean, non-sparking tools and equipment.
Clean Up Procedures	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly as hazardous waste.
Containment	Stop leak if safe to do so. Isolate the danger area.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. May, at high concentrations, cause damage to trees or vegetation by root absorption.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes. To maintain package integrity and to minimize caking of the product bags should be handled on a first in first out basis.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Storage temperature: Ambient Storage pressure: Atmospheric Special sensitivity: Moisture (caking) This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Disodium Tetraborate Pentahydrate [Borax Pentahydrate] CAS 12179-04-3: TWA = 1mg/m3 NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
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. Adequate ventilation should be provided so that exposure limits are not exceeded.
Personal Protection Equipment	RESPIRATOR: Wear a respirator when handling this product (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: Impervious gloves (AS2161). CLOTHING: Long-sleeved protective coveralls and safety footwear (AS3765/2210).
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Granulated Solid
Odour	Odourless
Colour	White
pH	9.3 3% solution
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	200 (heated in closed space) °C
Freezing Point	No Data Available
Solubility	3.8% @ 20 deg C - 51.2% @ 100 deg C

Specific Gravity	1.81
Flash Point	Non Flammable
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	291.24
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 Data Available
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas, which could create an explosive hazard.
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable, but when heated it loses water, eventually forming anhydrous borax (Na2B4O7).
Conditions to Avoid	Moisture.
Materials to Avoid	Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas, which could create an explosive hazard.
Hazardous Decomposition Products	None
Hazardous Polymerisation	Has not been reported.

11. TOXICOLOGICAL INFORMATION

General Information	Acute toxicity: Inhalation: Low acute inhalation toxicity; LC50 in rats is greater than 2.0 mg/L (or g/m3). Ingestion: Low acute oral toxicity; LD50 in rats is 3,200 to 3,400 mg/kg of body weight. Skin irritation: Non-irritant.

	Skin/dermal: Low acute dermal toxicity; LD50 in rabbits is greater than 2,000 mg/kg of body weight. Poorly absorbed through intact skin. Eye irritation: Draize test in rabbits produced eye irritation effects. Fifty years of occupational exposure to the product indicates no adverse effects on human eye. Therefore it is not considered to be a human eye irritant in normal industrial use. Sensitization: not a skin sensitizer.
Ingestion	Small amounts (eg: a teaspoonful) swallowed accidentally are not likely to cause effects. Swallowing amounts larger that that may cause gastrointestinal symptoms, including nausea, vomiting and diarrhea.
SkinIrritant	Absorption through large areas of damaged skin may have delayed effects of skin redness and peeling.
Reproduction	Toxic to reproduction. Suspected of damaging fertility or the unborn child.
Inhalation	Occasional mind irritation effects to nose and throat may occur from inhalation of dusts at levels greater than 10 mg/m3.
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	Ecotoxicity data General: Boron (B) is the element in sodium tetraborate pentahydrate [Actibor 15(G)] which is used by convention to report borate product ecological effects. It occurs naturally in sea-water at an average concentration of 5 mg B/L and generally occurs in fresh water at concentrations up to 1 mg B/L. In dilute aqueous solutions the predominant boron species present is undissociated boric acid. To convert sodium tetraborate pentahydrate into the equivalent boron (B) content, multiply by 0.1484. Phytotoxicity: Boron is an essential micronutrient for healthy growth of plants; however, it can be harmful to boron sensitive plants in high quantities. Care should be taken to minimize the amount of Actibor 15(G) released to the environment. Algal toxicity: Green algae, Scenedesmus subspicatus 96-hr EC10 = 24 mg B/L† Invertebrate toxicity: Daphnids, Daphnia magna straus 24-hr EC50 = 242 mg B/L† Test substance: † sodium tetraborate Fish toxicity: Sea-water: Dab, Limanda limanda 96-hr LC50 = 74 mg B/L† Fresh water: Rainbow trout, S. gairdneri (embryo-larval stage) 24-day LC50 = 88 mg B/L† 32-day LC50 = 54 mg B/L† Goldfish, Carassius auratus (embryo-larval stage) 7-day LC50 = 65 mg B/L† 3-day LC50 = 71 mg B/L†
Persistence/Degradability	Persistence/degradation: Boron is naturally occurring and ubiquitous in the environment. Actibor 15(G) decomposes in the environment to natural borate. Octanol/water partition coefficient: No value. In aqueous solution sodium tetraborate pentahydrate is converted substantially into undissociated boric acid.
Mobility	Soil mobility: Actibor 15(G) is soluble in water and is leachable through normal soil.
Environmental Fate	Do NOT let product reach waterways, drains and sewers.
Bioaccumulation Potential	No Data Available
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. Small quantities of Actibor 15(G) can usually be disposed of at landfill sites. Tonnage quantities of product should if possible be used for an appropriate application.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	Actibor 15 Granular
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

Proper Shipping Name	Actibor 15 Granular
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	Actibor 15 Granular
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	Actibor 15 Granular
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	Actibor 15 Granular

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	Actibor 15 Granular
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)	5

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

Approval Code	HSR003998

National/Regional Inventories

Australia (AICS)	Not Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	215-540-4
Europe (REACh)	Not Determined
Japan (ENCS/METI)	1-69

Korea (KECI)	1-760
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)	Listed

16. OTHER INFORMATION

Related Product Codes	GRABOR3000, GRABOR3020, GRABOR7000, GRABOR8000
Revision	3
Revision Date	02 Jan 2015
Reason for Issue	MSDS updated
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