Safety Data Sheet

Sulphur

Section 1: SUBSTANCE IDENTIFICATION AND SUPPLIER

Product Name:	**Sulphur**
Other Names	Atomic sulphur, brimstone, flowers of sulphur, sulphur flour, sulphur powder, sulphur precipitated, sulphur roll, sulphur sublimed, Tech 00000786-manufacturer's code
Product Code:	8000000
Recommended Use:	Fertiliser raw material
Restrictions of Use:	Refer to Section 15
Company Identification:	Ravensdown Limited
Address:	292 Main South Road, Hornby, Christchurch, 8042 PO Box 1049, Christchurch 8011
Customer Centre:	0800 100 123
National Poisons Information Centre:	0800 POISON (0800 764 766)
Emergency Phone Number:	0800 CHEMCALL (0800 243 622) (24hr) (Emergencies Only)
Transport Emergency Phone Number:	111 - tell operator what service is needed: Fire, Ambulance or Police
Date of SDS Preparation	19 October 2023

Section 2: HAZARD IDENTIFICATION

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020

EPA Approval No:	Additives, Process Chemicals, Raw Materials (subsidiary) – HSR002503
Pictograms:	
Signal Word:	**Warning**

GHS Classification and Category	Hazard Code	Hazard Statement
Skin irritation Cat. 2	H315	Causes skin irritation.

Prevention Code	Prevention Statement
P103	Read carefully and follow all instructions.
P264	Wash hands thoroughly after handling.
P280	Wear protective clothing as detailed in Section 8.

Response Code	Response Statement

P362	Take off contaminated clothing and wash it before reuse.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.

Storage Code	**Storage Statement**
None Allocated	

Disposal Code	**Disposal Statement**
P501	Dispose of according to Local Regulations or Authorities

Section 3: COMPOSITION INFORMATION

INGREDIENT	CAS No.	CONTENT %
Sulphur	7704-34-9	100%

Section 4: FIRST AID MEASURES

Routes of Exposure:	
First Aid Measures:	Low to moderate toxicity. May evolve highly irritating vapours if heated. avoid eye-skin contact and vapour-dust inhalation. Some individuals may experience asthma-like symptoms with chronic over exposure. Consult the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately in every case of suspected poisoning.
If in eyes:	Immediately flush with large amounts of water for 15 mins. Continue rinsing until advised to stop by Poisons Information Centre or Doctor. If irritation persists: get medical attention.
If on skin:	Wash affected area with water and then soap and water, if it causes an irritation. If a large area is affected seek medical assistance. Wash hands thoroughly before eating.
If ingested:	If large quantities have been swallowed give 1 or 2 glasses of fluids to dilute (if conscious) DO NOT induce vomiting – seek medical attention if you feel unwell. Never give anything by mouth to an unconscious person. . For advice, contact the National Poisons Centre on 0800 POISON (0800 764 766).
If inhaled:	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.
Most important symptoms and effects, both acute and delayed	
Symptoms:	Refer to Section 11
Eyes:	Not applicable.
Skin:	Causes skin irritation.
Ingested:	Not applicable.
Inhaled:	Not applicable.
Chronic:	Not applicable.
Advice to Doctor:	Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Hazard Type	Combustible solid. Potentially explosive dust. Evacuate area and contact emergence services. Wear full protective equipment (see Section 6, spillage) including self-contained breathing apparatus (SCBA) when combating fire.
Hazards from combustion products	Sulphur dioxide (toxic gas) may be evolved when heated. Remain upwind and notify those downwind of hazard.
Suitable Extinguishing media	Use water spray to blanket fire, cool fire exposed containers, and to blush non-ignited spills or vapours away from fire. Solid streams of water should not be used because of possibility of dispersing dust clouds of sulphur in air. Alternatively, gently shovel sulphur onto the flames to smother.

Precautions for firefighters and special protective clothing	Wear full protective gear.
HAZCHEM CODE	**1Z**

Section 6: ACCIDENTIAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
If spilt (bulk), contact emergency services if appropriate. Ventilate and clear area of unprotected personnel.
Environmental precautions:
Avoid washing excessive amounts into streams and waterways. If spill does enter waterways contact the local authority.
Methods and material for containment and cleaning up:
Eliminate ignition sources. Avoid dust generation. Absorb spill with sand or similar, collect and place in sealed container for disposal. Sweep up as much as possible – avoid washing excessive amounts into streams and waterways. If spill does enter waterways contact the local authority.

Section 7: HANDLING AND STORAGE

Handling:	Read carefully and follow all instructions. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wash hands thoroughly after handling. Wear protective clothing as detailed in Section 8. Avoid creating dust.
Storage:	Store in cool, dry, well-ventilated area, removed from oxidising agents, halogens, carbides, ammonia, metals, direct sunlight, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should be well ventilated.

Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

	TWA		**STEL**	
Substance	**ppm**	**mg/m^3**	**ppm**	**mg/m^3**
Nuisance Dust	-	10	-	-

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices April 2022 13TH EDITION.

Engineering Controls:	Do not inhale dusts. Use in well ventilated areas – open doors and windows. In poorly ventilated areas, mechanical extraction ventilation at source is recommended

Personal Protection Equipment:	
Eyes:	Safety glasses. If dusts present wear goggles.
Skin/Hands:	Overalls, gloves.
Respiratory:	Approved dust and mist respirator.
General:	Eye wash facilities should be available. Wash hands after working with substance.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Pellet or granule, dust
Colour	Yellow
Odour	Slight odour
Odour Threshold	Not available
pH	Not available
Boiling Point	445^0C
Melting Point	119^oC
Freezing Point	Not available
Flash Point	207^0C (approx.)
Flammability	Not flammable
Upper and Lower Explosive Limits	Not available
Vapour Pressure	10 mmHg@246^0C
Vapour Density	8.9 (air=1)
Specific Gravity	2.07 @20^0C
Bulk Density	Not available
Water Solubility	Insoluble in water
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Kinematic Viscosity	Not available
Granulometrics (mm)	Not available

Section 10: STABILITY AND REACTIVITY

Stability of Substance	Stable under ordinary conditions of use and storage. Transition temperature is about 95°C (slow conversion) between alpha and beta crystalline forms.
Possibility of hazardous reactions	Not data available.
Conditions to Avoid	Heat, flame, ignition sources, dusting and incompatibles (materials to avoid).
Incompatible Materials	Chlorates, nitrates and other oxidizing agents. Halogens, carbides, zinc, tin , alkali metals, phosphorus, ammonia, ammonium nitrate, charcoal and many other substances.
Hazardous Decomposition Products	Burning may produce sulphur oxides.

Section 11: TOXICOLOGICAL INFORMATION

Acute Effects:

Swallowed	Not applicable. LD50 (Oral, Rat) >3000 mg/kg
Dermal	Not applicable. Low irritant dust – highly irritating vapours. Over exposure at high levels may result in irritation of the nose and throat with coughing. If heated, pungent, strongly irritating and toxic vapours are evolved. Over exposure at high levels may result in breathing difficulties (with asthma-like symptoms), pulmonary oedema and unconsciousness.
Inhalation	Not applicable.
Eye	Not applicable. Direct contact may result in lacrimation, pain, redness and conjunctivitis.
Skin	Causes skin irritation. Prolonged and repeated exposure to dust may result in irritation and dermatitis.

Chronic Effects:

Carcinogenicity	Not applicable.

Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Not applicable.

Section 12: ECOLOGICAL INFORMATION

Designed for biocidal action.
This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/L. Always use recommendation as outlined in the New Zealand Fertiliser manufacturers research association "Code of practice for Fertiliser Use

Persistence and degradability	No data available.
Bioaccumulation	No data available
Mobility in Soil	No data available.
Other adverse effects	No data available

Section 13: DISPOSAL INFORMATION

Disposal Method:	Waste disposal: ensure product is covered with moist soil to prevent dust generation and dispose of to approved council landfill. Contact risk management Technologies if additional information is required. Observe any local authority restrictions that may apply
Precautions or methods to avoid:	Do not allow to enter waterways.

Section 14: TRANSPORT INFORMATION

This product is NOT classified as a Dangerous Good for transport in NZ ; NZS 5433:2020 and SNZ HB 5433:2021

Section 15: REGULATORY INFORMATION

This substance is classified hazardous according to the EPA Hazardous Substances (Classification) Notice 2020	
EPA Approval Code:	Additives, Process Chemicals, Raw Materials (subsidiary) – HSR002503

HSW (HS) Regulations 2017	**Trigger Quantity**
Signage Trigger Quantities (Schedule 3)	Not required
Emergency Response Plan (Schedule 5)	Not required
Secondary Containment (Schedule 5)	Not required
Fire extinguishers	Not required
Tracking (Schedule 26)	Not required
Certified Handlers	Not required
Location Certificate	Not required
Restrictions of use	Additive/Raw Material only.

Section 16: OTHER INFORMATION

Glossary

Cat	Category
EC_{50}	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC_{50}	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.

LD_{50}	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices April 2022 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2020
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

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Please contact Ravensdown, if further information is required.

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