



1. Identification of the substance/mixture and supplier

Product Name:	Sulpha90
Other names	(Sulphur/Bentonite mixture)
Recommended Uses	Agricultural/horticultural fertiliser, and soil amendment
Supplier	Hortigro Ltd / Landco Fertiliser
Street address	264 Manukau Road Pukekohe New Zealand
Telephone Number	09 2371777
Facsimile	09 2371778
Emergency Telephone	0800 CHEMCALL (24 hours) 0800 243 622
Date of Preparation	20 July 2017

2. Hazards Identification

Dangerous Goods	Not classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land
Hazardous Goods	Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.
HSNO Classifications	4.1.1B Readily combustible solids and solids that may cause fire through friction: low hazard 6.4A Irritating to the eye.
Hazard Statements	Most important hazard: flammable from any Sulphur dust created when blending the product with other fertilizers.

Risk and safety phrases: No labelling information has been prescribed.

Precautionary Statements Keep out of reach of children. Read label before use. Store locked up. Avoid breathing dust. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/ eye protection. Do not eat, drink or smoke when using this product. Wash hands and exposed skin thoroughly after handling.

3. Composition/Information on Ingredients

Contents	CAS Number	Proportion
Elemental Sulphur	7704-34-9	90%
Bentonite Clay		10%

4. First Aid Measures

For advice, contact National Poisons Information Centre (Phone 0800 764 766) or a doctor
Have product container or label at hand.

- Swallowed** Action is not normally required unless a large quantity is involved. In this case, precautionary medical advice may be needed
Doctors should note that cases of poisoning may be caused by ingestion, intravenous and intraperitoneal routes. Dust can cause an eye irritant, and inhalation of dust may cause irritation of mucous membranes
- Eye Contact** In the event of contact with eyes, precautionary measures should be taken before the onset of symptoms, which may not occur for some hours. As soon as contact has taken place, wash the eye thoroughly with water for at least 15 minutes, holding the eye open for better irrigation. If any discomfort persists seek medical attention
- Skin Contact** Following contact with the skin, wash off thoroughly.
- Inhaled** Should irritation of the respiratory tract occur following inhalation, or if breathing becomes irregular, seek medical advice. If breathing ceases, artificial respiration must be administered and urgent medical help sought.
- Advice to Doctor** Treat symptomatically. Refer to National Poisons and Hazardous Chemicals Information Centre 0800 764 766

5. Fire-fighting Measures

- Specific Hazard** Combustible material.
- Fire-fighting advice** Extinguish with a fine water spray or fog - not a water jet. Small sulphur fires can be smothered with an application of earth or sand. Self-contained breathing apparatus should be worn, and fire fighters should keep upwind of the blaze. Irritation of the lung and eye may take place with combustion forms of gaseous oxides of sulphur. Dust can explode in certain conditions.

6. Accidental Release Measures

Personnel should wear full protective clothing: chemical gloves and goggles, anti-static, antispark footwear, and regularly laundered overalls. Dust masks and suitable breathing apparatus should also be used if there is a risk of exposure to fumes or combustion products. The relevant authorities must be informed should spillage cause the contamination of vegetation, drains, rivers, streams etc. Any spillage must be swept up, placed in a secure plastic container and taken to a safe place to be disposed of by a licensed contractor under the Waste Disposal Regulations.

7. Handling and Storage

Handling advice	<p>Powdered sulphur that is not dust suppressed should be processed in an inert atmosphere, where all equipment can be earthed. Explosion vents of the correct specification should be interlocked with process equipment drives. When open handling, take local exhaust ventilation or dust extraction measures. Make sure that eye baths are available wherever accidental exposure may occur so that quick treatment can be given. No smoking in storage and handling areas. Store in cool, dry, labelled premises away from other flammable materials</p> <p>Explosive properties of sulphur dusts: Ignition temperature of dust cloud: 190 deg. C Minimum spark energy for ignition of cloud: 15 mJ Minimum explosive concentration: 35 mg/l Maximum explosion pressure: 5.5 bar Average rate of pressure rise: 116 bar/sec Maximum rate of pressure rise: 325 bar/sec</p>
Storage advice	<p>Suitable storage materials: laminated paper or plastic sacks, fibreboard kegs, aluminium</p> <p>Unlined steel or any spark generating material are not recommended</p>

8. Exposure Controls/Personal Protection

Workplace Exposure Guidelines

Control parameters

Occupational exposure limits:

Occupation Exposure Limits 8-hour TWA values:

For sulphur dust, total dust 10 mg/cubic metre; respirable dust 4 mg/cubic metre.

For sulphur dioxide, 5.3 mg/cubic metre (2 ppm), [and 10 minute TWA value 13 mg/cubic metre (5 ppm)]

Exposure controls

Appropriate engineering controls

It is essential that all users carry out a suitable and sufficient Risk Assessment before handling sulphur.

Personal equipment might include:

Chemical gloves and goggles

Anti-static, anti-spark footwear

Overalls regularly laundered to avoid accumulation of dust particles

Dust masks and suitable breathing apparatus should be used where there is a risk of exposure to fumes or combustion products.

Additives: Operatives should use gloves and/or barrier cream when working with grades containing oil-based additives to avoid irritation of the skin. After use, wash hands thoroughly with soap and water.

For Installation Control, see Section 7. Handling and Storage

Individual protection measures, such as personal protective equipment

Risk assessment of protective clothing should take into account Council Directive 89/686/EEC and refer to appropriate CEN standards.

Eye/face protection - Safety glasses with side-shields

Hand protection –

Full contact:

Glove material: Nitrile rubber
Glove thickness: 0.11mm
Break through time: > 480 min

Splash contact:

Glove material: Nitrile rubber
Glove thickness: 0.11mm
Break through time: > 480 min

Other protective equipment:

Protective clothing

Respiratory protection:

Required when dusts are generated.

9. Physical and Chemical properties

The appearance of consistently formed grey/brown material in the form of 2-4 mm diameter pastilles.

Density: Vapour (air = 1.0) - 7.43 at 444°C

Liquid kg/cu. m 1791 at 135°C

Bulk kg/cu. m 2070 as solid

Powder kg/cu. m 560-800

Odour: sulphurous

Molecular weight: 32.07 (s)

pH: Not applicable - Sulphur is not soluble in water

Boiling point: 444.6 °C

Melting point: 110.2 - 112.8°C (rhombic form). 114.5 - 119.3°C (monoclinic form)

Vapour pressure: 0.042 mbar at 120°C, 0.260 mbar at 150°C

Flash point: 188°C (Liquid, Cleveland Open Cup Test). 190°C Ignition temperature of dust cloud

Auto flammability: 232°C in air at atmospheric pressure (liquid). 235°C (powder, similar conditions)

10. Stability and Reactivity

Stability and Reactivity

Sulphur 90 pastilles (sulphur/bentonite) will not decompose over time so long as it is stored in the correct manner.

For conditions to avoid see Section 7,

Handling and Storage

Materials to avoid:

Air - Sulphur burns in the air to form sulphur dioxide and other oxides. Only in exceptional circumstances such as atomisation does rapid combustion take place in air at normal handling temperatures

Water - There is generally no dangerous reaction to water

- Acids - There is generally no dangerous reaction to acids
- Bases/alkalis - There is generally no dangerous reaction to bases and alkalis
- Oxidising agents - When mixed with oxidising materials like chlorates, perchlorates, permanganates and nitrates, sulphur forms a highly sensitive and explosive substance
- Other chemicals: Other substances that may initiate a dangerous reaction are: halogens, carbides, halogenates; many metals but especially alkali metals and alkaline earths; charcoal, phosphorus, fluorides, and nitrides; sulphur dichloride; halogenates
- Elemental solid sulphur does not decompose

11. Toxicological information

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

- Swallowed** There are no known systemic effects from ingestion of dust or vapour below 175 mg/kg (rabbit)
- Eye Contact** Several hours after exposure to dust or vapour, irritation and lachrymation may occur. [Blurred vision, conjunctivitis and photophobia may follow contact with hydrogen sulphide, a potential by product of sulphur]
- Skin Contact** No effects have been documented following sulphur on the skin.
There are no known systemic effects following the skin absorption of dust or vapour
- Inhaled** No acute effects have been documented following inhalation of sulphur dust. Dust and vapour may cause irritation of the mucus membranes in cases of chronic exposure.
[Chronic exposure to hydrogen sulphide may give headaches, cause bronchitis or rhinitis.
The acute effect of the inhalation of hydrogen sulphide is headache, excitement, diarrhoea, staggering, even death

12. Ecotoxicological information

Toxicity to Fish

LC50 Brachydanio rerio (zebra fish) 866 mg/L Duration of exposure 96 hours (source IUCLID)

LC50 Oncorhynchus mykiss (rainbow trout) >180mg/L Duration of exposure 96 hours.

Toxicity to Daphnia & other aquatic invertebrates

EC50 Daphnia magna (water flea) >10,000 mg/L Exposure time 24 hours.

Toxicity to Bacteria

EC50 Activated sludge 1,900mg/L Exposure time 3hours. Method ISO 8192

Persistence and Degradability

Sulphur is a natural component in water and soil.

Bioaccumulative potential

Sulphur has low potential for bioaccumulation.

Mobility in soil

Sulphur has slight mobility in soil.

Results of PBT and vPvB assessment

Sulphur does not meet the PBT criteria (persistent/bioaccumulative/toxic) and vPvB criteria: self-classification, as chemical safety assessment not required or previously conducted.

Other adverse effects

No ecological problems are expected, when the product is handled and used with due care and attention.

13. Disposal

All forms of sulphur, or other materials contaminated with sulphur must be disposed of in accordance with Waste Disposal Regulations, using a licensed waste contractor. In the case of spillage, full protective clothing must be worn as detailed in Section 8.

Refer also to the accidental release measures in Section 6

14. Transport information

Road and Rail Transport

Not Classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land.

Marine Transport

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Air Transport

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

15. Regulatory Information

ERMA (NZ) Approval code

HSR001284

HSNO Classifications

4.1.1B Readily combustible solids and solids that may cause fire through friction: low hazard
6.4A Irritating to eye

16. Other information

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES.

The information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any particular purpose, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from the use of this information or the product, the safety of this product, or the hazards related to its use. This information and product are furnished on the condition that the person receiving them shall

make their own determination as to the suitability of the product for their particular purpose and on the condition that he assume the risk of his use thereof.