



MATERIAL SAFETY DATA SHEET

SULPHUR POWDER/SULPHUR CANDLE

1 Identification of Substance and Supplier

Product Name: Sulphur Powder/Sulphur Candle
Product Description: Yellow solid – a fungicide for amateur use
Supplier: William Sinclair Horticulture Limited
Firth Road
Lincoln LN6 7AH
Tel: (01522) 537561
Fax: (01522) 513609

2 Composition

Description: Sulphur (yellow solid as either prills, powder or small slates).

Hazardous Ingredients	CAS No:	% Range	Hazard	Risk No:
Sulphur	7704-34-9 22,36/38	>95	FLAMMABLE	10

3 Hazard Identification

This product is classified as FLAMMABLE under the Chemicals (Hazard Information and Packaging) regulations 1996

4 First Aid

Inhalation: Remove from exposure. Restore breathing if necessary and keep at rest. Seek medical attention if recovery is not rapid or complete.
Eye Contact: Flush well with water for at least 15 minutes and seek medical attention.
Skin Contact: Remove all contaminated clothing immediately and launder thoroughly before re-use. Wash skin with plenty of soap and water. Seek medical attention for persistent irritation or damaged skin.
Ingestion: DO NOT induce vomiting. If conscious, rinse mouth with water and give two or more glasses of water or milk immediately. Seek immediate medical attention.

5 Fire-Fighting Measures

Small sulphur fires may be extinguished by smothering with sand or earth. Otherwise use a fine water spray or fog NOT A WATER JET. Self-contained breathing apparatus should be worn and firefighters should stay upwind or fire. Combustion may form gaseous oxides of sulphur, which may irritate the lungs and eyes. Sulphur dust can explode under certain conditions.

6 Accidental Release Measures

Wear protective, gloves, goggles, anti-static/anti-spark footwear and a suitable dust mask/respirator. Sweep up spillage and place in a suitable secure container and hold for approved waste disposal (see section 13.) Inform the appropriate authorities if spillage causes contamination of vegetation, drains, rivers, streams etc...

7 Handling & Storage

Powdered sulphur that is not dust suppressed should be processed in an inert atmosphere where all equipment is earthed.

Explosion vents of the correct specification should be interlocked with process equipment drives. Make sure that eye baths are available wherever accidental exposure may occur so that quick treatment may be given..

If skin contact is likely to occur wear rubber/PVC gloves and suitable protective clothing.

If dusts are likely to be created wear a suitable respirator/dust mask.

Store in original container with a secure lid in a cool, dry labelled premises away from other flammable materials.

When open handling, use local exhaust ventilation or dust extraction measures.

NO SMOKING IN STORAGE AND HANDLING AREAS.

Wash hands and exposed skin after using and before eating and drinking.

Regularly launder overalls to avoid build up of dust particles.

KEEP OUT OF REACH OF CHILDREN.

Explosive properties of sulphur dusts:

Ignition temperature of dust cloud: 190°C

Minimum spark energy for ignition of cloud: 15 mJ

Minimum explosive concentration : 35 mg/L

Maximum explosive pressure: 5.5 bar

Average rate of pressure rise: 116 bar/sec

Maximum rate of pressure rise: 325 bar/sec

Suitable storage materials: Laminated paper or plastic sacks, fibreboard kegs, aluminium.

Unsuitable storage materials: Unlined steel or any spark generating material.

8 Exposure Controls and Personal Protection

Always consult the label before use

Ingredient: Sulphur.

O.E.S: 10 mg/m (total dust), 4mg/m (respirable dust) 8 Hrs TWA

Sulphur Dioxide: 5.3mg/m (2ppm), 13mg/m (5ppm), 10 minute TWA

Respirators: Recommended (suitable for dusts)

Gloves: Recommended (PVC or rubber)

Eye Protection: Recommended (Goggles)

Protective Clothing: Recommended (Overalls and anti-static/anti-spark boots)

9 Physical and Chemical Properties

Appearance: Yellow solid lumps, prills, powder or small flakes

Density: Vapour (air=1.00) 7.43Kg/m at 444°C, Liquid 1791Kg/m at 135°C, Bulk Solid 2070Kg/m , Powder 560-800Kg/m

Odour: Sulphurous

Solubility: not soluble in water

Boiling Point: 444.6°C

Melting point: 110.2-112°C (rhombic form, 114.5-119.3°C (monoclinic form)

Vapour pressure: 0.042 mbar at 120°C, 0.260 mbar at 50°C

Flash point: 188 (liquid, Cleveland open cup test)

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

Ignition Temperature of dust cloud.: 190°C

10 Stability and Reactivities

Sulphur will not decompose with time if correctly stored.

Conditions to avoid: see section 7.

Materials to avoid.

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

Oxidising agents – materials such as chlorates, perchlorates, permanganates and nitrates react with sulphur to form a highly sensitive and explosive substance.

Other chemicals that may initiate a dangerous reaction are halogens, carbides, halogenates, many metals but especially alkali metals and alkaline earths, charcoal, phosphorous, fluorides and nitrides, sulphur dichloride, halogenites.

Elemental sulphur does not decompose.

11 Toxicological Information

Ingestion:	Not know systemic effects from ingestion of dust or vapour below 175mg/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:	Not known systemic effects following the skin absorption of dust or vapour.
Inhalation:	Not acute effect documented following inhalation of dust. Dust may cause irritation to mucous membranes with repeated or long-term exposure. (Chronic exposure to hydrogen sulphide may cause headaches, bronchitis or rhinitis. The acute effect of inhaled hydrogen sulphide is headaches, excitement, diarrhoea, staggering and even death.

12 Ecological Information

Sulphur is used as a fungicide and is non bio-accumulative.

13 Disposal Considerations

Dispose of liquid/solid sulphur waste product and empty containers/contaminated materials via an authorised waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

14 Transport Information

UN NO: 1350 FLAMMABLE SOLID	H.I. NO: 40
ADR/RID: UN 1350 SULPHUR 4.1, 11°C, ADR	PACKAGING GRP: 111

15 Regulatory Information

Label for supply:	Non required
NOTE: Not classified as harmful for supply. Transport regulations require labelling as a flammable solid.	
Risk Phrases:	Non required
Safety Phrases	Non required.

Recommended: Fungicide.

Sulphur candles when burnt product sulphur dioxide gas which poses additional health and safety hazards. Sulphur dioxide is categorised as TOXIC by inhalation and irritating to the eyes and respiratory systems – see section 8 for exposure limits. Areas fumigated with a sulphur candle should be well ventilated before being put back into use.

Sulphur candles are approved for under the Control of pesticide Regulations 1986 and a fungicide for amateur use under approval number MAFF 02039.

This safety data sheet provides health and safety information. The product is to be used in a way consistent with best horticultural practice as stated on packaging. Individuals handling this product should be informed under COSHH of the recommended safety precautions and should have access to this information. The product information in this data sheet is to the best of our knowledge correct at the date of publication. William Sinclair Horticulture Limited disclaims any liability for any loss or damage resulting from reliance on this information.

Issue 1.1

Date 18.1.11