J&S TECH SERVICES

T: +44 (0)1799 584777
F: +44 (0)1799 584857

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION

Product Description SULPHUR
Address J & S Technical Services Limited
The Elizabethan House
Shudy Camps Park
Shudy Camps
Cambridge CB1 6RD
United Kingdom
Telephone National 01799 584777 - International +44.1779.584777
Facsimile National 01799 584857 - International +44.1779.584857
e-mail info@jstech.co.uk
In case of emergency National 01799 584777 - International +44.1779.584777

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Chemical Name:- Sulphur
Synonyms:- Brimstone
Chemical Family:- Non-metallic element of group VI
CAS Name & Number:- Sulphur 7704-34-9
Ingredients contributing to the hazard:- Sulphur

3. HAZARDS IDENTIFICATION

Most important hazard: flammable.
Risk and safety phrases: No labelling information has been prescribed

4. FIRST AID MEASURES

Eyes: 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

Inhalation: 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

Skin: Following contact with the skin, wash off thoroughly

Ingestion: 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

verdetop
Gracias por confiar en Verdetop
Más información, fichas y asesoramiento en verdetop.com
www.verdetop.com

T: +44 (0)1799 584777
F: +44 (0)1799 584857

5. FIRE FIGHTING MEASURES

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, anti-spark 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
o The relevant authorities must be informed should spillage cause the contamination of vegetation, drains, rivers, streams etc
o 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

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
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
Suitable storage materials: laminated paper or plastic sacks, fibreboard kegs, aluminium
Unlined steel or any spark generating material are not recommended

verdetop
Gracias por confiar en Verdetop
Más información, fichas y asesoramiento en verdetop.com
www.verdetop.com

T: +44 (0)1799 584777
F: +44 (0)1799 584857

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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
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)]
For Installation Control, see Section 7. Handling and Storage

9. PHYSICAL AND CHEMICAL PROPERTIES

The appearance of sulphur is yellow solid lumps, prills, powder or small flakes
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 m.bar at 120° C. 0.260 m.bar 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)

verdetop
Gracias por confiar en Verdetop
Más información, fichas y asesoramiento en verdetop.com
www.verdetop.com

T: +44 (0)1799 584777
F: +44 (0)1799 584857

10. STABILITY AND REACTIVITY

Sulphur will not decompose over time so long as it is stored in a 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 an 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; halogenites
Elemental solid sulphur does not decompose

11. TOXICOLOGICAL INFORMATION

Effect of sulphur:
o On the Eyes: 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]
o On Skin: No effects have been documented following sulphur on the skin. There are no known systemic effects following the skin absorption of dust or vapour
o Inhalation:. 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]
o Ingestion: There is no known systemic effects from ingestion of dust or vapour below 175 mg/kg (rabbit)

12. ECOLOGICAL INFORMATION

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

verdetop
Gracias por confiar en Verdetop
Más información, fichas y asesoramiento en verdetop.com
www.verdetop.com

T: +44(0)1799 584777
F: +44(0)1799 584857

13. DISPOSAL CONSIDERATIONS

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

UN Number 1350, Flammable solid
ADR/RID Classification Class 4.1, 11° (c), HIN 40
IMO Classification 4.1 Flammable solid, Packaging group III
IATA Classification Packaging Instruction: 419 - 25g (passenger) - 100kg (cargo)
TREMCARD Number 115/41 G03
Normal Carriage Pressure - Atmospheric
Normal Carriage Temperature - Ambient

15. REGULATORY INFORMATION

Relevant Statutory Instruments

The Environmental Protection Act 1990
The Environment Act 1995
The Environmental Protection (Prescribed processes and substances) Regulations
The Special Waste Regulations
The Health and Safety at Work etc Act 1974
The Control of Substances Hazardous to Health Regulations
The Chemicals (Hazard Information and Packaging for Supply) Regulations
The Dangerous Substances (Notification and Marking of Sites) Regulations
The Control of Major Accident Hazards Regulations
The Carriage of Dangerous Goods by Road Regulations (and Amendments)
The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and the Use of Transportable Pressure Receptacles Regulations

NOTE: THIS DATA SHEET DOES NOT CONSTITUTE A USER'S ASSESSMENT OF WORKPLACE RISK AS REQUIRED BY HEALTH and SAFETY at WORK etc ACT, CONTROL of SUBSTANCES HAZARDOUS to HEALTH REGULATIONS, MANAGEMENT of HEALTH and SAFETY at WORK REGULATIONS, OR OTHER HEALTH and SAFETY LEGISLATION

verdetop
Gracias por confiar en Verdetop
Más información, fichas y asesoramiento en verdetop.com
www.verdetop.com

T: +44 (0)1799 584777
F: +44 (0)1799 584857

16. OTHER INFORMATION

References:
Dangerous Properties of Industrial Materials, N Irving Sax, Rheinhold
Encyclopaedia of Chemical Technology; 2nd Edition, Kirk-Othmer, Wiley
Sulphur, Sulphur Dioxide and Sulphuric Acid; Sander, Rothe and Kola, British Sulphur Corporation
The Manufacture of Sulphuric Acid, Duecker & West, ACS Monograph, Rheinhold
The Merck Index; 10th Edition, Merck & Co
The Freeport Sulphur Handbook, Freeport Sulphur Company, USA
Occupational Exposure - Guidance Note EH40/99
Approved Carriage List
Approved Supply List
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
Relevant information can be obtained from Guidance Notes and Codes of Practice.

PREPARED FROM THE BEST KNOWLEDGE AVAILABLE; NO RESPONSIBILITY IS ACCEPTED THAT THE INFORMATION IS SUFFICIENT OR CORRECT IN ALL CASES. IT IS THE USER'S RESPONSIBILITY TO SATISFY THEMSELVES AS TO THE SUITABILITY OF THE PRODUCT FOR THEIR OWN PARTICULAR USE.

verdetop
Gracias por confiar en Verdetop
Más información, fichas y asesoramiento en verdetop.com
www.verdetop.com