Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

Product Identifier:

Identification as on the label/Trade name: Sulphur, Enriched Sulphur.
Molecular weight: 32.06
Chemical formula: S
Synonyms: Brimstone; Bensulfoid; Flowers of Sulphur; Precipitated Sulphur; Sublimed Sulphur.

Details of the supplier of the Safety Data Sheet:

Neonest AB
Storgatan 70C, Solna
SE-17152
Sweden

Contact details:

+46-76-219-9731

24-hour Emergency Contact:

Swedish Poisons Centre
Phone: 112 - Ask for Poisons Information, 112 – begär Giftinformation.

Other International Contacts:

CHEMTREC 24-hour: +1-703-741-5500 (US + Worldwide)
NHS: 111 (UK)
Charite: +49 30 450 531 000 (Netherlands)
INTCF: +34 917689800 (Spain)
CapTv: +33 1 40 05 48 48 (France)

Section 2: Hazards Identification

Classification of the substances or mixture:

The mixture is classified according to: Regulation EC 1272/2008 [EU-GHS/CLP]

Hazard classes/Hazard categories:	**Hazard statement:**
Skin Irritant (Category 2)	H315

Label elements:

Hazard pictograms:

Signal Words: Warning.
Hazard Statements:
H315 Causes skin irritation.

Precautionary Statements:
P264 Wash hands thoroughly after handling.
IF ON SKIN: Wash with plenty water.
If skin irritation occurs: Get medical advice/attention.
Other hazards: None known.

Section 3: Composition/Information on Ingredients

Substance/Mixture: Substance.
Ingredients:

Substance name (IUPAC/EC)	**CAS-No.** / **EC-No.**	**Molecular weight**	**Concentration % by weight**	**Classification** EC1272/2008
Sulphur	7704-34-9 / 231-722-6	32.06	>99%	Skin Irrit. 2 H315

For explanation of abbreviations see Section 16.

Section 4: First-Aid Measures

Description of first aid measures:

In case of inhalation: Remove to fresh air. Get medical attention for any breathing difficulty.
In case of skin contact: Wash exposed area with soap and water. Get medical advice if irritation develops.
In case of eye contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
In case of ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:
Inhalation: Nuisance dust. May cause coughing, sneezing or laboured breathing if large amounts are inhaled.
Ingestion: Considered essentially non-toxic by ingestion. Ingestion of very large amounts may cause sore throat, nausea, headache, and possibly unconsciousness in severe cases. May be converted into hydrogen sulphide in the intestine. May cause irritation. Irritant to human eyes at 6-8 ppm. Redness and pain may be observed.
Indication of any immediate medical attention and special treatment needed: Treat symptomatically. Show this safety data sheet to a physician or emergency room.

Section 5: Fire-Fighting Measures

Extinguisher media:

Suitable extinguisher media: Use water spray to blanket fire, cool fire exposed containers, and to flush 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.
Unsuitable extinguishing media: None known.

Special hazards arising from the mixture: Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Explosive limits, dust in air, gm/cu meter: Lower - 35, Upper - 1400. Hazardous in contact with oxidizing materials; forms explosive mixtures.
Advice for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.
Further information: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Personal precautions: Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas.
Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Local authorities should be advised if significant spillages cannot be contained.

Methods for containment and cleaning up:

Methods for cleaning up: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

Reference to other sections:
Treat recovered material as described in the section "Disposal considerations".

Section 7: Handling and Storage

Precautions for safe handling:

Advice on safe handling: Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions in accord with accepted engineering practices in any process capable of generating dust and/or static electricity. Empty only into inert or non-flammable atmosphere. Emptying contents into a non-inert atmosphere where flammable vapours may be present could cause a flash fire or explosion due to electrostatic discharge. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
Hygiene measures: Do not eat, drink or smoke when using this product.

Conditions for safe storage, including incompatibilities:

Requirements for storage areas and containers: Keep in a tightly closed container. Store in a cool, dry, corrosion-proof, ventilated area away from moisture, sources of heat or ignition, combustibles and oxidizers. Protect against physical damage. Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions in accord with accepted engineering practices in any process capable of generating dust and/or static electricity.

Section 8: Exposure Controls/Personal Protection

Control parameters:

Occupational exposure limits: Contains no substances with occupational exposure limit values.

Exposure controls:

Appropriate engineering controls: Use adequate general or local exhaust ventilation to keep fume or dust levels as low as possible. In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Use safety glasses. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.
Hand protection: Use chemical resistant gloves. Examples of preferred glove barrier materials include: Butyl rubber, Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, polyvinyl alcohol, Polyvinyl chloride.
Body protection: Wear protective clothing as appropriate.
Respiratory protection: None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask. For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive pressure, air-supplied respirator.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance (form): Solid (powder).
Colour: Yellow.
Odour: Faint.
Odour threshold: No data available.
Molecular Weight: 32.06
pH (concentration): No data available.
Melting point/range (°C): 116 °C
Boiling point/range (°C): 445 °C
Freezing point (°C): No data available.
Flash point (°C): No data available.
Evaporation rate: No data available.
Flammability (solid, gas): No data available.
Ignition temperature (°C): No data available.
Upper/lower flammability/explosive limits: No data available.
Vapour pressure (20 °C): No data available.
Vapour density: 8.8
Relative density (25 °C): 2.01
Water solubility (g/L) at 20 °C: Negligible.
n-Octanol/Water partition coefficient: No data available.
Auto-ignition temperature: No data available.
Decomposition temperature: No data available.
Viscosity, dynamic (mPa s): No data available.
Explosive properties: The substance or mixture is not classified as explosive.
Oxidising properties: The substance or mixture is not classified as oxidizing.

Section 10: Stability and Reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Conditions to avoid: Heat, flame, other sources of ignition.
Incompatible materials: Strong oxidizing agents, most common metals, hydrogen, chlorine, fluorine, organic materials at elevated temperatures.
Hazardous decomposition products: Oxides of sulphur.

Section 11: Toxicological Information

Information on toxicological effects:

Acute Toxicity:
Oral LD_{50}:
LDLO Oral - Rabbit - 175 mg/kg
LD_{50} Oral - Rat - > 2,000 mg/kg
Inhalation LC_{50}:
LC_{50} Inhalation - Rat - 4 h - > 9.23 mg/l
Dermal LD_{50}:
LD_{50} Dermal - Rabbit - > 2,000 mg/kg
Other Information on Acute Toxicity:
LDLO Intravenous - Rat - 8 mg/kg
LDLO Intravenous - Rabbit - 5 mg/kg
LDLO Intraperitoneal - Guinea pig - 55 mg/kg
LDLO Intravenous - Dog - 10 mg/kg

Classification according to GHS (1272/2008/EG, CLP)

Skin corrosion/irritation:
Not classified based on available information.
Serious eye damage/eye irritation:
Causes serious eye damage. Symptoms include pain, redness, tearing, and corneal abrasion.
Respiratory or skin sensitisation:
Harmful if inhaled. Symptoms include coughing, sneezing, nasal discharge, headache, and hoarseness.
Germ cell mutagenicity:
Not classified based on available information.
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity:
Not classified based on available information.
Specific target organ toxicity – single exposure (STOT):
May cause respiratory irritation.
Specific target organ toxicity (STOT) – repeated exposure:
Not classified based on available information.

Aspiration toxicity:
Not classified based on available information.

Section 12: Ecological Information

Toxicity:
Toxicity to fish: LC_{50} - *Oncorhynchus mykiss* (rainbow trout), > 180 mg/l, 96 hours. Other fish, 866 mg/l, 96 hours.
Toxicity to daphnia and other aquatic invertebrates: EC_{50} *Daphnia magna*, 5,000 mg/l, 48 hours.
Persistence and degradability: No data available.
Bioaccumulative potential: No data available.
Mobility in soil: No data available.
Results of PBT& vPvB assessment: Not relevant.
Other adverse effects: No data available.

Section 13: Disposal Considerations

Waste treatment methods: Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of unused contents in accordance with federal, state and local requirements.

Section 14: Transport Information

DOT:

Proper Shipping Name: SULPHUR.
Hazard Class: 4.1
UN Number: 1350
Packing Group: III

Section 15: Regulatory Information

EU regulations:

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
Not listed.
Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended
Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry
Not listed.
Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
Not listed.

Authorisations:
Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended
Not listed.

Restrictions on use:
Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use
Not regulated.
Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended
Not listed.
Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work
Not regulated.
Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.
Not regulated.

Other EU regulations:
Directive 2012/18/EU on major accident hazards involving dangerous substances
Not listed.
Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.
Always applicable.
Directive 94/33/EC on the protection of young people at work
Not listed.

Other regulations: The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.
OSHA Hazards: Flammable solid, irritant.
SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (de minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard.
US State Regulations:
Massachusetts Right to Know Components: Sulphur / CAS No. 7704-34-9 / Revision Date 1993-04-24
Pennsylvania Right to Know Components: Sulphur / CAS No. 7704-34-9 / Revision Date 1993-04-24
New Jersey Right to Know Components: Sulphur / CAS No. 7704-34-9 / Revision Date 1993-04-24
California Prop. 65 Components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.
National regulations: Follow national regulation for work with chemical agents.
Chemical safety assessment: No Chemical Safety Assessment has been carried out.

Section 16: Other Information

List of abbreviations:

ACGIH American Conference of Governmental Industrial Hygienists
ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA As Low As Is Reasonably Achievable
AMU Atomic Mass Unit
ANSI American National Standards Institute
BLS Basic Life Support
CAM Continuous Air Monitor
CAS Chemical Abstracts Service (division of the American Chemical Society)
CEN European Committee for Standardization
CERCLA Comprehensive Environmental Response Compensation and Liability Act
CLP Classification, Labelling and Packaging (European Union)
CPR Controlled Products Regulations (Canada)
CWA Clean Water Act (USA)
DAC Derived Air Concentration (USA)
DOE United States Department of Energy (USA)
DOT United States Department of Transportation (USA)
DSL Domestic Substances List (Canada)
EC50 Half Maximal Effective Concentration
EINECS European Inventory of Existing Commercial Chemical Substances
EHS Environmentally Hazardous Substance
ELINCS European List of Notified Chemical Substances
EMS Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA Environmental Protection Agency (USA)
EPCRA Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS Globally Harmonized System
HMIS Hazardous Materials Identification System (USA)
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC Intermediate Bulk Containers
ICAO International Civil Aviation Organization
IDLH Immediately Dangerous to Life or Health
IMDG International Maritime Code for Dangerous Goods
LC50 Lethal concentration, 50 percent
LD50 Lethal dose, 50 percent
LDLO Lethal Dose Low
LOEC Lowest-Observed-Effective Concentration
MARPOL International Convention for the Prevention of Pollution from Ships
MSHA Mine Safety and Health Administration (USA)
NCRP National Council on Radiation Protection & Measurements (USA)
NDSL Non-Domestic Substances List (Canada)
NFPA National Fire Protection Association (USA)
NIOSH National Institute for Occupational Safety and Health (USA)
NOEC No Observed Effect Concentration

N.O.S. Not Otherwise Specified
NRC Nuclear Regulatory Commission (USA)
NTP National Toxicology Program (USA)
OSHA Occupational Safety and Health Administration (USA)
PBT Persistent Bioaccumulative and Toxic Chemical
PEL Permissible Exposure Limit
PIH Poisonous by Inhalation Hazard
RCRA Resource Conservation and Recovery Act (USA)
RCT Radiation Control Technician
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS Registry of Toxic Effects of Chemical Substances
SARA Superfund Amendments and Reauthorization Act (USA)
TDG Transportation of Dangerous Goods (Canada)
TIH Toxic by Inhalation Hazard
TLV Threshold Limit Value
TPQ Threshold Planning Quantity
TSCA Toxic Substances Control Act
TWA Time Weighted Average
UN United Nations (Number)
VOC Volatile Organic Compound
vPvB Very Persistent Very Bioaccumulative Chemical
WGK Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS Workplace Hazardous Materials Information System

References:

Not available.

Full text of any H-statements not written out in full under Sections 2 to 15:

H315 Causes skin irritation.

Revision information:

None.

Training information:

Follow training instructions when handling this material.

Further Information:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.