

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Trade Name: Sulphur
CAS number: 7704-34-9
EC number: 231-722-6
Registration number: 01-2119487295-27

Relevant identified uses of the substance or mixture and uses advised against:

As an Intermediate; Use as release agents or binders; Rubber production and processing; Use as a fuel; Use as a monomer; Use of substance to formulate chemical product mixtures; Uses in coatings; Use in cleaning agents; Use in metal working fluids/rolling oils, Use as a blowing agent; Use in polymer production, Lubricants; Laboratory use; Use in mining operations; Use in water treatment chemicals; Use as a functional fluids; Steel and alloys in massive form; Intermediate for manufacturing of Sulphuric Acid; Use in road and construction applications; Explosives manufacturing & use; Use in Agrochemicals; Use in oil field drilling and production operations; De-icing.

Application of the substance/ the preparation: The substance has many industrial, professional and consumer applications.

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2. HAZARDS IDENTIFICATION

Hazard description: Not applicable.

Information concerning particular hazards for human and environment: Not applicable.

GHS label elements:



Signal word: Warning

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Hazard statements: H315- Causes skin irritation

Precautionary statement: P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterization:

CAS No. Description: 7704-34-9 Sulphur

Identification number(s):

EINECS Number: 231-722-6

4. FIRST AID MEASURES (SYMPTOMS)

General information: Immediately remove any clothing soiled by the product.
Molten Sulphur can cause thermal burns.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact: Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.

After eye contact: Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing: Wash mouth out with water.
Do not induce vomiting; call for medical help immediately.
Seek medical treatment.

Information for doctor: Treat symptomatically and supportively.

Most important symptoms and effects, both acute and delayed: No further relevant information available.

Indication of any immediate medical attention and special treatment needed: For minor thermal burns: Cool the burn. Hold the burned area under cold running water for at least five minutes, or until the pain subsides. However, body hypothermia must be avoided.
Do not put ice on the burn; Remove non-sticking garments carefully. DO NOT attempt to remove portions of clothing glued to burnt skin but cut round them.
Seek medical attention in all cases of serious burns.
If hot product is splashed into eye, it should be cooled immediately to dissipate heat, under cold running water. Immediately obtain specialist medical assessment and treatment for the casualty.

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5. FIRE-FIGHTING MEASURES

Suitable extinguishing agents: CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents: Water with full jet.

Special hazards caused by the substance, its products of combustion or resulting gases: Sulphur dioxide (SO₂).

Combustible.

Finely dispersed particles form explosive mixtures in air.

If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

Protective equipment:

Wear fully protective suit.

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

Additional information:

Collect contaminated fire-fighting water separately. It must not enter the sewage system.

Cool endangered receptacles with water spray.

6. ACCIDENTAL RELEASE MEASURES

Person-related safety precautions: Avoid formation of dust.

Keep ignition sources away- no smoking.

Ensure adequate ventilation.

Environmental precaution:

Do not allow product to reach sewage system or any water course.

Do not allow to penetrate the ground/soil.

Methods and material for containment and cleaning up: Send for recovery or disposal in suitable receptacles.

Small dry spills of Sulphur may be carefully shovelled into a clean, dry, covered container for recovery or later disposal.

Large spills may be wetted down with water and diked for later disposal.

Do not allow material to enter water sources or sewers.

Additional information:

No dangerous substances are released.

7. HANDLING AND STORAGE

Handling:

Information for safe handling:

Prevent formation of dust.

Ensure good ventilation/exhaustion at the workplace.

Information about fire- and explosion protection: Keep ignition sources away- Do not smoke.

Dust can combine with air to form an explosive mixture.

Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g. by grounding).

Storage:

Requirements to be met by storerooms and receptacles: Sulphur should be stored in a cool, well ventilated area, away from sources of ignition, physical damage, chlorates, nitrates and other oxidising materials.

Information about storage in one common storage facility: Store away from oxidizing agents.

Further information about storage conditions: Store in cool, dry conditions in well-sealed receptacles.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Additional information about design of technical facilities: No further data; see item 7.

Ingredients with limit values that require monitoring at the workplace: Not required.

Additional information: The lists valid during the making were used as basis.

Personal protective equipment: Select PPE appropriate for the operations taking place taking into account the product properties.

General protective equipment: Avoid contact with the eyes.
Avoid close or long term contact with the skin.
Do not breathe dust.
Do not eat, drink, smoke or sniff while working.
Wash hands before breaks and at the end of work.

Respiratory protection: Not required.

Protection of hands: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer.

Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection: Safety glasses.

Body protection: Protective work clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information:

Form: Crystalline
Colour: Light yellow
Odour: Sulphurous.

Change in condition:

Melting point/Melting range: 119°C
Boiling point/Boiling range: 445°C

Flash point: 218°C

Flammability (solid, gaseous): Product is not flammable.

Ignition temperature: 260°C

Danger of explosion: Finely dispersed particles form explosive mixtures in air.

Explosion limits:

Lower: 35 g/m³
Upper: 1400 g/m³

Density at 20°C: 2.07 g/cm³

Solubility in/Miscibility with water: Insoluble.

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10. STABILITY AND REACTIVITY

Reactivity:

Chemical stability:

Thermal decomposition/conditions to be avoided: Sulphur is an easily ignitable solid.

Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

Fire may produce irritating and/or toxic gases.

Incompatible materials: Strong oxidising agents.

Possibility of hazardous reactions: Molten sulphur reacts with hydrocarbons to form toxic and flammable gases.

Reacts violently with strong oxidants causing fire and explosion hazard, especially if powdered.

Conditions to avoid: No further relevant information available.

Hazardous decomposition products: Sulphur oxides (SO_x).

On combustion, forms toxic and corrosive gases of sulphur oxides including sulphur dioxide.

Additional information: Dust explosion possible if in powder or granular form, mixed with air, if dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

LD/LC50 values relevant for classification:

Oral:	LD50	>2000 mg/kg (rat)
Dermal:	LD50	>2000 mg/kg (rabbit)
Inhalative:	LC50/4h	>5.43 mg/l (rat)

Primary irritant effect:

On the skin: No irritant effect.

On the eye: No irritant effect.

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):

ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK: Evaporation at 20°C is negligible; a harmful concentration of air-borne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE: Inhalation of powder of this substance may cause inflammation of the nose and the respiratory tract.

Substance to chronic toxicity:

EFFECTS OF LONG-TERM EXPOSURE: Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the respiratory tract, resulting in chronic bronchitis.

Additional toxicological information: When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us. The substance is not subject to classification according to the latest version of the EU lists. Depending on the degree of exposure, periodic medical examination is indicated.

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12. ECOLOGICAL INFORMATION

Toxicity:

Aquatic toxicity:

EC50: >100 mg/kg (daphnia)

Persistence and degradability: No further relevant information available.

Behaviour in environmental systems:

Bioaccumulation potential: Product is not expected to bioaccumulate.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes: Generally not hazardous for water.

Results of PBT and vPvB assessment:

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects:

13. DISPOSAL CONSIDERATIONS

Water treatment methods:

Recommendation: Contact waste processors for recycling information.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

European waste catalogue: Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.
Do not mix with other waste streams:
Container remains hazardous when empty. Continue to observe all precautions.
Containers, even those that are empty, may contain residues that can develop flammable vapours upon heating. Do not cut, drill, grind, weld or reform similar operations on or near empty containers.

14. TRANSPORT INFORMATION

UN number:

ADR: 1350

UN proper shipping name:

ADR: 1350 Sulphur

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Transport hazard class(es):

ADR, IMDG, IATA:



Class: 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.

Label: 4.1

Packaging group: III

Special precautions for user: Warning: Flammable solids, self-reactive substances and solid desensitised explosives.

Danger code (Kemler): 40

EMS number: 4.1-06

Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code: Not applicable.

Transport/additional information: Often transported in molton state (UN 2448)

ADR:

Limited quantities (LQ): LQ9

Transport category: 3

Tunnel restriction code: E

UN "Model Regulation": UN1350, Sulphur, 4.1, III

15. REGULATORY INFORMATION

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Sector of Use:

- SU0: Other
- SU1: Agriculture, forestry, fishery.
- SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites.
- SU4: Manufacture of food products.
- SU6a: Manufacture of wood and wood products.
- SU8: Manufacture of bulk, large scale chemicals (including petroleum products).
- SU9: Manufacture of fine chemicals.
- SU10: Formulation (mixing) of preparations and/or re-packaging (excluding alloys)

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SU11: Manufacture of rubber products:
SU14: Manufacture of basic metals, including alloys.
SU15: Manufacture of fabricated metal products, except machinery and equipment.
SU19: Building and construction work.
SU23: Electricity, steam, gas water supply and sewage treatment.
SU24: Scientific research and development.

Product category:

PC0: Other
PC1: Adhesives, sealants
PC3: Air care products.
PC4: Anti-freeze and de-icing products.
PC7: Base metals and alloys.
PC9a: Coatings and paints, thinners, paint removers.
PC9b: Fillers, putties, plasters, modelling clay.
PC9c: Finger paints.
PC11: Explosives.
PC12: Fertilizers.
PC13: Fuels.
PC16: Heat transfer fluids.
PC17: Hydraulic fluids
PC18: Ink and toners.
PC19: Intermediate.
PC22: Lawn and Garden preparations, including fertilizers.
PC23: Leather tanning, dye, finishing impregnation and care products.
PC24: Lubricants, greases, release products.
PC27: Plant protection products.
PC28: Perfumes, fragrances.
PC31: Polishes and wax blends.
PC32: Polymer preparations and compounds.
PC35: Washing and cleaning products (including solvent based products).
PC36: Water softeners.
PC37: Water treatment chemicals.
PC38: Welding and soldering products (with flux coatings or flux cores), flux products.
PC39: Cosmetics, personal care products.

Process category:

PROC1: Use in closed process, no likelihood of exposure.
PROC2: Use in closed, continuous process with occasional controlled exposure.
PROC3: Use in closed batch process (synthesis or formulation).
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC6: calendaring operations.
PROC7: Industrial spraying.
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.

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- PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
- PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
- PROC10: Roller application or brushing.
- PROC11: Non industrial spraying.
- PROC12: Use of blowing agents in manufacture of foam.
- PROC13: Treatment of articles by dipping and pouring.
- PROC14: Production of preparations or articles by tableting, compression, extrusion, palletisation.
- PROC15: Use as laboratory reagent.
- PROC16: Using material as fuel sources, limited exposure to unburned product to be expected.
- PROC17: Lubrication at high energy conditions and in partly open process.
- PROC19: Hand-mixing with intimate contact and only PPE available.
- PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems.
- PROC21: Low energy manipulation of substances bound in materials and/or articles.
- PROC22: Potentially closed processing operations with materials/metals at elevated temperature- Industrial setting.
- PROC23: Open processing and transfer operations with minerals/metals at elevated temperature.
- PROC24: High (mechanical) energy work-up of substances bound in materials and/or articles.
- PROC25: Other hot work operations with metals.
- PROC26: Handling of solid inorganic substances at ambient temperature.

Environmental release category: ERC0: Other

- ERC1: Manufacturing of substances.
- ERC2: Formulation of preparations.
- ERC3: Formulation in materials.
- ERC4: Industrial use of processing aids in process and products, not becoming part of articles.
- ERC5: Industrial use of resulting in inclusion into or onto a matrix.
- ERC6a: Industrial use resulting in manufacturing of another substance (use of intermediates).
- ERC6b: Industrial use of reactive processing aids.
- ERC6c: Industrial use of monomers for manufacture of thermos-plastics.
- ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers.
- ERC7: Industrial use of substances in closed systems.
- ERC8a: Wide dispersive indoor use of processing aids in open systems.
- ERC8b: Wide dispersive indoor use of reactive substances in open systems.
- ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix.
- ERC8d: Wide dispersive outdoor use of processing aids in open systems.
- ERC8e: Wide dispersive outdoor use of reactive substances in open systems.
- ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix.
- ERC9a: Wide dispersive indoor use of substances in closed systems.
- ERC9b: Wide dispersive outdoor use of substances in closed systems.

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ERC12a: Industrial processing of articles with abrasive techniques (low release).

ERC12b: Industrial processing of articles with abrasive techniques (high release).

Article category:

AC0: Other

AC1: Vehicles.

AC2: Machinery, mechanical appliances, electrical/electronic articles.

AC10: Rubber articles.

Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation.

This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.