



مصنع ساف للكبريت
SAF Sulphur Factory

MATERIAL SAFETY DATA SHEET

SULPHUR GRANULAR

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

Product Name : Sulphur granular

Other means of identification Synonyms : sulphur pellets, sulphur prills.

Recommended use of the chemical and restrictions on use

Recommended Use : chemical feedstock

Uses advised against : No information available

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Section 2: HAZARD IDENTIFICATION CAUTION

2.1 Classification of the Substance

2.1.1 Classification according to Regulation (EC) No. 1272/2008: H315

2.1.2 Classification according to Directive of the Council 67/548/EEC: Xi; R38 2.2 Labelling
Labeling according to Regulation (EC) No. 1272/2008

Signal word: CAUTION.

Hazard statements: H315: Irritating to skin.

Precautionary statements:

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.





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P332+P313: If skin irritation occurs: Get medical advice/attention. Other hazards Sulphur is solid combustible material which is attributed to products of low hazard when at ambient temperature and normal conditions. Finely dispersed sulphur particles may form explosive mixtures in air.

Sulphur dust irritates mucous membrane of respiratory tract and eyes, and the skin. Ingestion may cause digestive tract diseases. Burning sulphur emits toxic sulphur dioxide (SO₂). Low environment hazard at ambient temperature. Hazard of soil and ground water contamination.

Section 3: COMPOSITION /INFORMATION ON INGREDIENTS

Chemical composition: Granular Technical Sulphur.

Components according to Regulation (EC) No. 1272/2008:

Description	CAS No.	EC No.	Identification Number	Concentration, % m/m
Granular Sulphur	7704-34-09	231-722-6	016-094-00-1	100

Section 4: FIRST AID MEASURES

General Information Solid sulphur is flammable. Burning sulphur emits toxic and suffocating sulphur dioxide (SO₂). Finely dispersed particles form explosive mixtures in air. Liquid sulphur can cause thermal burns.

Inhalation Symptoms: irritation of the upper respiratory tract.

In case of symptoms arising from inhalation of sulphur dust: Remove casualty to a quiet and well ventilated place if safe to do so.

If casualty is unconscious and: -

Not breathing – ensure that there is no obstruction to breathing and give artificial respiration by trained personnel. If necessary, give external cardiac massage and obtain medical assistance.

Breathing – place in the recovery position. Administer oxygen if necessary. Obtain medical assistance if breathing remains difficult.

If there is any suspicion of inhalation of SO₂: Rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures.

- Remove casualty to fresh air as quickly as possible.



- Immediately begin artificial respiration if breathing has ceased.
- Provision of oxygen may help.
- Obtain medical advice for further treatment.

Skin Contact

Symptoms: (product at ambient temperature): irritation. May cause burn in case of contact with product at high temperature. Immediately remove contaminated clothing and footwear and dispose of safely. Wash affected area with soap and water. Seek medical attention if skin irritation, swelling or redness occurs.

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.

Eye Contact

Symptoms: (product at ambient temperature): irritation. May cause burn in case of contact with product at high temperature.

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.

If dust particles remain in the eye, do not rub the eye as mechanical abrasion due to the dust may damage the cornea.

If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist. If hot product is splashed into the eye, it should be cooled immediately to dissipate heat, under cold running water. Immediately obtain specialist medical assessment and treatment for the casualty.

Ingestion Symptoms: light laxative effect. In contact with mouth, wash out with plenty of water. Except as deliberate acts, ingestion of large amounts of sulphur is unlikely. DO NOT induce vomiting. Get medical assistance.

Information to doctor or other competent person providing first aid

Treat symptomatically.

Section 5: FIRE AND EXPLOSION HAZARD





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Special hazards Dust clouds may present an explosion hazard. They may be ignited by heat, sparks, static electricity or flames. The flames generated by the burning product are short, dark blue colored at night and invisible in the daylight, with the exception of the fume and the heat. The burning material acquires a dark redblack colour.

Suitable Extinguishing Media

- Foam (specifically trained personnel only)
- Water fog (specifically trained personnel only)
- Dry chemical powder
- Carbon dioxide
- Other inert gases (subject to regulations)
- Sand or earth
- Steam.

Unsuitable Extinguishing Media : Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Combustion Products : Combustion products include sulphur oxide (SO₂).

Specific Hazards : Whereas burning sulphur emits toxic gas which irritates mucous membrane of respiratory tract and eyes, do not come close to the source of fire without suitable breathing apparatus. Burning sulphur in railway cars and storage facilities should be extinguished with water at a safe distance. Nearest building and area evacuation should be arranged considering toxic burning sulphur products movement direction.

Protective Equipment for Fire-fighters

In case of a large fire or in confined or poorly ventilated spaces wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6: ACCIDENTAL RELEASE MEASURES

General Information As sulphur is flammable, any leakage or spill in dust form creates a fire hazard in case of presence of ignition sources. Finely dispersed sulphur particles may form explosive mixtures in air. Stop or contain leak at the source, if safe to do so. Avoid direct contact with released material. Keep non-involved personnel away from the area of spillage.



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Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. It is recommended to eliminate all ignition sources, if safe to do so (e.g. electricity, sparks, fires, flares).

Prevent generation and spreading of dust. When the presence of dangerous gases around the spilled product is suspected or proved, additional or special actions may be warranted, including access restrictions, use of special protection equipment, procedures and personnel training. If required, notify relevant authorities according to all applicable regulations.

Personal Protection Equipment

Small spillages: normal antistatic working clothes are usually adequate. Large spillages: full body suit of chemically resistant and antistatic material.

Work gloves providing adequate chemical resistance.

NOTE: Gloves made of PVA are not water-resistant, and are not suitable for emergency use.

Work helmet. Antistatic non-skid safety shoes or boots.

Closed goggles. Face shield, if contact of hot product or vapours with eyes is possible or anticipated. If contact with hot product is possible or anticipated, gloves should be heat-resistant and thermally insulated.

Respiratory protection: a half mask with dust filter, a full face respirator with filter(s) for organic vapours/SO₂/H₂S, or a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

Environmental Measures and Cleaning Methods

Land spillage: Prevent product from entering sewers, rivers or other bodies of water. Leaks and spillages of molten sulphur cause the risk of severe burns. NOTE: Solidified product may clog drains and sewers. If necessary dike the molten product with earth, sand or similar non-combustible materials. Let molten sulphur cool naturally. If necessary, cautiously use water fog to help the cooling. Do not play direct jets of water on the spilled molten product, as this may cause splattering. When inside buildings or confined spaces, ensure adequate ventilation. Collect free product with suitable mechanical means. Collect recovered product and other contaminated materials in suitable containers for recycle, recovery or safe disposal.

Spillages in Water or at Sea : The product in solid form is heavier than water, and normally no intervention will be possible. Fine dust may momentarily float. If possible, control the





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spreading of the spillage, and collect the solid product by skimming or other suitable mechanical means. In case of spillages of molten sulphur in the water, the product will cool down rapidly, become solid and sink to the bottom.

Do not use solvents or dispersants, unless specifically advised by an expert, and, if required, approved by local authorities. Collect recovered product and other materials in suitable tanks or containers for recovery or safe disposal.

Additional Information

NOTE: Recommended measures are based on the most likely spillage scenarios for this material, however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken. In those cases when the presence of dangerous amounts of gases around the spilled product is suspected or proved, additional or special actions may be warranted, including access restrictions, use of special equipment for detection and personal protection, procedures and personnel training. Spillages of limited amounts of products, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which are unlikely to entail exposure to dangerous concentrations of SO₂. As these gases have a density greater than ambient air, a possible exception may regard the build-up of dangerous concentrations in specific spots, like trenches, depressions or confined spaces. In all these circumstances, however, the correct actions should be assessed on a case-by-case basis.

Section 7: HANDLING AND STORAGE

General Information

When handling, risk of explosive mixtures of dusts and air. Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products, are followed. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. A specific assessment of inhalation risks from the presence of Sulfur dioxide (SO₂) in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases must be made to help determine controls appropriate to local circumstances. Use only outdoors or in a well-ventilated area. Avoid contact with the product, namely when in the molten form. Avoid release to the environment.

Handling : Handle only in areas away from potential ignition sources, therefore take precautionary measures against static electricity. Ground/bond container and receiving equipment. Avoid splash filling of bulk volumes when handling hot liquid product. Transfer





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equipment must be designed in a manner that minimizes the airborne dust. Avoid skin and eye contact. Do not breathe dusts/vapors of hot product. Use personal protective equipment as required.

Storage : Storage area layout, tank design, equipment and operating procedures must comply with the relevant European, national or local legislation. Store in facilities designed for flammable solid or liquid material storage. Concentrations of SO₂ in silos, pits or tanks can reach hazardous values in case of prolonged storage, particularly where the sulphur is molten or recently solidified from the molten state. Cleaning, inspection and maintenance of internal structure of storage equipment must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.

Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content, SO₂, and flammability.

Store separately from oxidizing agents.

Recommended and Unsuitable Materials for Storage Recommended materials :

Solid sulphur : carbon steel.

Liquid sulphur : carbon steel and concrete. Acid-resistant internal coating is recommended for containments and storage spaces. Hulls of sea carriers for the transport of solid sulphur should be either coated or lime washed. Compatibility should be checked with the manufacturer.

Unsuitable materials : Some synthetic materials may be unsuitable for containers (tanks) or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer.

Container Advice If the Product is Supplied in Containers Keep only in the original container or cargo container designed for this kind of product. Cargo container shall be tightly closed and properly labelled. Empty cargo container may contain combustible product residues. Do not weld, solder, drill, cut or incinerate empty cargo container, unless they have been properly cleaned. Harmful concentrations of SO₂ may also arise especially in case of prolonged storage of heated molten product.

Section 8: EXPOSURE AND PERSONAL PROTECTION

Exposure Limits

It is recommended to observe national allowed occupational exposure limits. Where not established, the following long-term exposure limits are recommended:





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- sulphur dust - 6 mg/m³ ;

- SO₂ - 5 mg/m³ .

Technical measures : At ambient temperature sulphur evolves small amounts of toxic dust and gas. However, during granular sulphur transfer, sulphur dust may be generated. In case of fire, toxic SO₂ gas is emitted. Toxic material concentrations in the air of working environment should be controlled to the minimum allowed limit.

Personal Protective Equipment:

Respiratory Protection : If during operations the exposure to dust inevitable, then suitable respiratory protective equipment, such as protective respirator or B filtering mask against SO₂ and H₂S and sulphur dust (e.g. acc. to EN 141) should be worn. Respiratory protection equipment should be selected and used in accordance with the manufacturer's instructions and requirements established by the law.

Eye Protection : Wear safety goggles if contact of sulphur dust with eyes may occur (e.g. acc. to EN 166).

Skin and Body Protection : Hand Protection Acid-resistant gloves (e.g. acc. to EN 388, EN 374-2, EN 374-3).

Other Protective Measures

It is necessary, wear protective clothing (e.g. acc. to EN 11612, EN 1149-5), gloves and other protective equipment. Heat and acid resistant clothes and boots should be worn to avoid thermal burns when handling molten hot sulphur. Cover your face, head and neck. Protective clothing and equipment should be regularly inspected and maintained.

Special Hygienic Recommendations Wash hands before breaks and after work.

Section 9 : PHYSICAL AND CHEMICAL INFORMATION

Appearance, colour, odour : Crystal solid material of yellow colour with specific odour.

Important Safety Information

pH : N/A

Melting point : 119 °C.

Boiling point : 444 °C.

Auto-ignition temperature : 190 °C





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Sulphur dust explosive concentration in air : over 17 g/m³.

Density : liquid – 1790 kg/m³ . -

solid – 2100 kg/m³

Solubility in water : Insoluble

Section 10: STABILITY AND REACTIVITY

Stability : Stable at ambient temperature.

Conditions to Avoid : High ambient temperature. Avoid all open and potential sources of ignition.

Materials to Avoid : Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products : Burning sulphur emits toxic sulphur dioxide which may build-up of dangerous concentrations in ambient air, especially in confined spaces.

Section 11: TOXICITY INFORMATION

Sources of Exposure : Dust particles may enter the body when inhaled together with air.

Acute Health Effects : Sulphur dust is irritating to eyes, mucous membrane of respiratory tract and skin, causes eye irritation and redness, coughing, and skin dryness. If hot molten product is splashed into the eyes or on skin, it may cause thermal burns. Except for deliberate acts, ingestion of large amounts of sulphur is unlikely.

Chronic Health Effects : Repeated or prolonged contact with sulphur and dust may cause skin redness, dermatitis. Prolonged exposure to sulphur dust may cause eye inflammation and pneumonia. NOTE: Product handling at normal conditions is not subject to toxicity.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity : Sulphur does not cause any long-term adverse affects in the aquatic and other environment.

Durability and Degradability : Non-biodegradable. In normal conditions, the product is not mobile and therefore remains in the same location.

Bioaccumulation Potential : Bioaccumulation will not occur.

Mobility According to its physical properties granular sulphur is not mobile; therefore it stays on the surface of soil. Sinks in water.





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Section 13: DISPOSAL CONSIDERATION

Waste Disposal Methods Waste : is disposed of by decontamination in accordance with national requirements and local regulations or via a licensed waste disposal contractor. Identify the hazards of waste handling and undertake required safety measures. Personal protective equipment is necessary for personnel involved in waste disposal. Empty containers or cargo containers may contain some remaining sulphur; therefore, hazard warning labels are to be retained as a guide to the safe container handling and waste disposal.

Section 14: TRANSPORT INFORMATION

UN number - 1350

Shipping name - Granular Technical Sulphur

Granular Technical Sulphur in ADR, RID, IMDG, IATA systems is not classified as hazardous cargo. Granular Technical Sulphur transported to Belarus, Kazakhstan, Russia, Ukraine according Addendum No. 2 SMGS shall be marked:

Land Transport

ADR

Hazard class - 4.1

Packing group - III

Environmental hazard - environmentally non-hazard

RID

Hazard class - 4.1

Packing group - III

Environmental hazard - environmentally non-hazard

Sea Transport

IMDG

Hazard class - 4.1

Packing group - III

Environmental hazard - environmentally non-hazard





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Section 15: REGULATORY INFORMATION

Users should ensure that they comply with relevant local, state or national legislation.

Section 16: OTHER INFORMATION

DISCLAIMER : Information contained in this material safety data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is up to the User/Distributor to ensure that the information contained in the material safety data sheet is relevant to the product manufactured/handled or sold by him as the case may be, Saf Sulphur Factory makes no warranties, expressed or implied, in respect of the adequacy of this document for any particular purpose.

