

SAFETY DATA SHEET

Sulphur (Granular)



Section 1. Identification

Product identifier : Sulphur (Granular)

[Recommended use of the chemical and restrictions on use](#)

Material uses : Chemical feedstock

Manufacturer / Distributor : Kuwait Petroleum Corporation
P.O. Box 26565 Safat
13126 Safat
Kuwait
Tel. +965 1858585, Fax 2423371/2467159/246

e-mail address of person responsible for this SDS : SDSinfo@Q8.com, communication preferably in English only.

Emergency telephone number

Middle East / Africa : +44 (0) 1235 239 671

Global (English only) : +44 (0) 1865 407 333



Section 2. Hazard identification

[Classification of the substance or mixture](#)

SKIN IRRITATION

Category 2

H315

Ingredients of unknown toxicity : None.

Ingredients of unknown ecotoxicity : None.

[GHS label elements](#)

Hazard pictograms :



Signal word : Warning

Hazard statements : H315 - Causes skin irritation.

[Precautionary statements](#)

Prevention : P280 - Wear protective gloves.
P264 - Wash hands thoroughly after handling.

Response : P302 + P352 + P362 + P364 - IF ON SKIN: Wash with plenty of soap and water.
Take off contaminated clothing and wash it before reuse.
P332 + P313 - If skin irritation occurs: Get medical attention.

Storage : Not applicable.

Disposal : Not applicable.

Other hazards which do not result in classification : Hazardous concentrations of hydrogen sulphide (H₂S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

CAS number/other identifiers

CAS number : 7704-34-9

EC number : 231-722-6

Ingredient name	%	CAS number
sulfur	75 - 100%	7704-34-9

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposure to hydrogen sulphide is suspected or cannot be excluded, obtain medical attention IMMEDIATELY. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.

Section 4. First aid measures

- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
sulfur oxides
Hydrogen sulphide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. Hazardous concentrations of hydrogen sulphide (H₂S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Provide adequate ventilation. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

- Appropriate engineering controls** : Use only with adequate ventilation. Product may release hydrogen sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water and unintentional releases should be made to help determine controls appropriate to local circumstances.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Section 8. Exposure controls/personal protection

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Wear suitable gloves tested to EN374. Recommended: < 1 hour (breakthrough time): nitrile rubber 0.17 mm.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Boiling point > 65 °C: A1; Boiling point < 65 °C: AX1; Hot material: A1P2.

Section 9. Physical and chemical properties and safety characteristics

Appearance

- Physical state** : Solid.
- Appearance** : Granular solid.
- Color** : Yellow
- Odor** : Characteristic.
- Odor threshold** : Not available.
- pH** : Not applicable.
- Melting point/freezing point** : >113°C (>235.4°F)
- Boiling point** : Not available.
- Flash point** : Closed cup: 205°C (401°F) [ASTM D93.] [Product does not sustain combustion.]
- Evaporation rate** : Not applicable.
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Lower: 35%
Upper: 1400%
- Vapor pressure** : Not available.
- Relative vapor density** : Not available.
- Density** : 2.07 g/cm³ [20°C]
- Solubility** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : >230°C (>446°F)
- Decomposition temperature** : Not available.
- Viscosity (40°C)** : Not available.
- Flow time (ISO 2431)** : Not available.
- Molecular weight** : 32.06 g/mole
- Aerosol product**
- Heat of combustion** : -11027566 J/kg

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product may not be stable under certain conditions of storage or use. See "Possibility of Hazardous Reactions" for further information.
- Possibility of hazardous reactions** : Hazardous reactions or instability may occur under certain conditions of storage or use.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Decomposition products may include the following materials: sulfur oxides
Hydrogen sulphide

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
sulfur	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.43 g/m ³	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-

Irritation/Corrosion

Not available.

Conclusion/Summary

- Skin** : Irritating to skin.
- Eyes** : Irritating to eyes.

Sensitization

Not available.

Conclusion/Summary

- Skin** : Not sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
sulfur	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	OECD 473 <i>In vitro</i> Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative

Carcinogenicity

Not available.

Conclusion/Summary

- : To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.

Reproductive toxicity

Not available.

Conclusion/Summary

- : No known significant effects or critical hazards.

Section 11. Toxicological information

Teratogenicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
sulfur	Sub-chronic LDLo Oral	Rat - Male, Female	1000 mg/kg	90 days; 7 days per week
	Sub-chronic LDLo Dermal	Rat - Male, Female	400 mg/kg Repeated dose	6 hours; 7 days per week

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Section 11. Toxicological information

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
sulfur	Acute LC50 >100 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
sulfur	-	-	Not readily

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-

Section 14. Transport information

Packing group	-	-	-
Environmental hazards	No.	No.	No.

Additional information

- IMDG** : **Remarks** IMSBC code: Group C
Sulphur is not subject to the requirements of IMDG when it has been formed to a specific shape (e.g. prills, granules, pellets, pastilles or flakes).
- IATA** : **Remarks** Sulphur is not subject to the requirements of IATA when it has been formed to a specific shape (e.g. prills, granules, pellets, pastilles or flakes).

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : This material is listed or exempted.
- Canada** : This material is listed or exempted.
- China** : This material is listed or exempted.
- Europe** : This material is listed or exempted.
- Japan** : **Japan inventory (ENCS):** Not determined.
Japan inventory (ISHL): Not determined.
- Malaysia** : Not determined
- New Zealand** : This material is listed or exempted.
- Philippines** : This material is listed or exempted.
- Republic of Korea** : This material is listed or exempted.
- Taiwan** : This material is listed or exempted.
- Thailand** : Not determined.
- Turkey** : This material is listed or exempted.
- United States** : This material is listed or exempted.
- Viet Nam** : Not determined.

Section 16. Other information

History

Date of printing : 04-07-2019

Date of issue/Date of revision : 04-07-2019

Date of previous issue : 04-07-2019

Version : 1.01

Training advice : Ensure operatives are trained to minimise exposures.

Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations

Procedure used to derive the classification

Classification	Justification
SKIN IRRITATION - Category 2	Regulatory data

References : Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

The information in this SDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfill the demands set out in the local rules and legislation. The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.