



Product Stewardship Summary

Sulfur, prilled

This product stewardship summary is intended to provide general information about Sulfur. It is not intended to provide an in-depth discussion of all health and safety information. Additional information on the product is available through the applicable Safety Data Sheet which should be consulted before use of the product. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity:

Sulfur is produced as a by-product in Q-Chem operations when sour ethane is treated to remove H₂S and CO₂ from process gas. H₂S removed is then processed further for converting sulfur compounds into liquid sulfur to be then converted into solid prilled form. In nature sulfur can be found as the pure element in volcanic regions.

CAS Number: 7704-34-9 (Sulfur)

Product uses:

Sulfur is an important industrial raw material used primarily in the manufacture of fertilizer, insecticides, industrial sulfuric acid, metal ore leaching, gunpowder, matches, building materials (cement filler) and asphalt (heat resistance).

Physical/chemical properties:

Sulfur is in yellow solid prill, granules or pellet form with negligible solubility in water and non-volatile in nature. It is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Sulfur has a boiling point of 445°C and flash point of 207°C. It is solid in room temperature and has the atomic weight of 32.06 grams per mole. The ignition temperature of Sulfur (the point at which it will auto-ignite without an external spark) is 232°C. It has no flammable, explosive or oxidizing properties. Hazardous decomposition products include sulfur oxides.

Health Information:

Sulfur is relatively non-toxic to humans, causing only mild or no irritation to skin and eyes. Sulfur has no aspiration toxicity classification. It is unlikely to be acutely toxic by inhalation, oral or dermal. The product is not a skin sensitizer and is not expected to cause genetic effects or cancer. Although prolonged breathing or exposure of dust may result in respiratory and skin irritation in sensitive persons. It is advisable to avoid formation of respirable particles and breathing of vapors/dust. Long term exposure to the product is not thought to produce chronic effects adverse to the health; nevertheless exposure by all routes should be minimized where ever possible. Use caution and wear the required protective clothing and respiratory equipment. For additional details please consult the Safety Data Sheet (SDS).

Environmental Information:

Sulfur is not classified as an environmental hazard as no specific hazards have been found to be associated with it. Aquatic toxicity is unlikely for Sulfur since it is not volatile and has low/negligible solubility in water. For additional details please consult the Safety Data Sheet (SDS).

Exposure Potential:

- *Workplace use:* Workers handling sulfur may be exposed to sulfur dusts during storage, transport and delivery of sulfur. Sulfur dust can be controlled by providing adequate ventilation to maintain air concentrations below exposure guidelines/limits. In cases where achieving safe exposure levels is not possible thru engineering controls or work practices the recommended protective equipment should be applied. For additional details please consult the Safety Data Sheet (SDS).
- *Consumer use:* Non-occupational exposure to Sulfur dust is not expected as the product is primarily being supplied to industrial intermediates and not directly to consumers. For additional details please consult the Safety Data Sheet (SDS).
- *Potential environmental release:* No significant release into air is expected, but any leakage or spillage should be prevented and contained. If the product contaminates rivers and lakes or drains inform respective authorities. Qatar Chemical Company (Q-Chem) is committed to operating in an environmentally responsible manner and has adopted the Gulf Petrochemical & Chemical Association's (GPCA) Responsible Care ® initiative.

Risk Management:

Qatar Chemical Company Limited (Q-Chem) is committed to product stewardship and doing business responsibly. We endeavor to provide sufficient information for the safe use and handling of all our products.

With regard to Sulfur, good industrial hygiene practices should always be followed and personnel's handling it should be knowledgeable and trained. Dust formation should be avoided and appropriate exhaust ventilation should be provided at places where dust is formed. It is important to safeguard against excessive and prolonged exposures to vapors and dusts which result from exposure to sulfur. Therefore, adequate local or general exhaust ventilation should be used to prevent the accumulation of high vapor concentrations.

Adequate ventilation should be provided to control airborne concentrations below the exposure guidelines/limits. When designing engineering controls and selecting personal protective equipment the potential hazards of these materials, applicable exposure limits, job activities, and other substances in the work place should be considered. If adequate and reliable exhaust ventilation is not available and in the absence of reliable detection and warning devices, National Institute for Occupational Safety and Health (NIOSH) certified organic vapor respirators or supplied air breathing apparatus should be used.

Generally breathing of vapors/dust and contact with skin and eyes should be avoided. Smoking, eating and drinking should be prohibited in the application area. Any leakage or

spillage should be prevented and contained. If the product contaminates rivers and lakes or drains inform respective authorities. Dispose of rinse water in accordance with local and national regulations. While in storage, keep storage areas and containers tightly closed in a dry and well ventilated place. Electrical installations / working materials must comply with the technological safety standards. When handling this material, an electrostatic charge may accumulate to create hazardous conditions. To minimize such hazards, proper electrically grounding of material handling and processing equipment may be necessary.

Finally, when handling Sulfur or products which contain sulfur, make sure to consult the relevant product Safety Data Sheet and review applicable regulatory guidelines and requirements, including but not limited to OSHA guidelines.

Regulatory Information:

Regulations exist that govern the manufacture, sale, transportation, use and/or disposal of products of the sulfur category. These regulations may vary by city, state, country or geographic region. Additional helpful information may be found by consulting the relevant product Safety Data Sheet.

Sources of Additional Information:

- Qatar Chemical Company Limited Material Safety Data Sheet Information <http://www.qchem.com.qa/internet/Products/Pages/sulphur.aspx>
- U.S. Environmental Protection Agency (USEPA) Hazardous Substances Data Bank (HSDB) <http://toxnet.nlm.nih.gov/>
- European Chemical Substances Information System (ESIS) <http://esis.jrc.ec.europa.eu/>
- The National Institute for Occupational Safety and Health (NIOSH) <https://www.cdc.gov/niosh/>

Conclusion:

Sulfur is an inorganic substance in the form of yellow solid prill, granules or pellet widely used in the applications for various industrial or consumer settings. As sold by Qatar Chemical Company Limited (Q-Chem), in solid prilled form, sulfur is chemically stable under normal ambient temperature and pressure. It is relatively non-toxic to humans, causing only mild or no irritation to skin and eyes. It is not toxic to aquatic and terrestrial organisms. However, make sure to consult the Safety Data Sheet and review applicable OSHA and other appropriate regulatory guidelines prior to use of these products.

Contact Information:

<http://www.qchem.com.qa/>

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