SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
   Trade name: GRANULATED SULPHUR
   Name: Sulfur
   CAS No: 7704-34-9
   EC No: 231-722-6
   Index No: 016-094-00-1
   Registration No: Not applicable - exempted from registration according to Annex V REACH Regulation.

1.2. Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Raw material in chemical industry. Used in production of sulphuric acid, plant protection products, rubber vulcanization.
   Uses advised against: other uses than those listed above.

1.3. Details of the supplier of the safety data sheet
   Manufacturer: Grupa Azoty Kopalnie i Zakłady Chemiczne Siarki „Siarkopol“ S.A.
   Address: Grzybów, 28-200 Staszów, Poland
   Telephone No/Fax No: +48 15 864 8000 / +48 15 864 3717
   e-mail /www: siarkopol.zg@grupaazoty.com / www.grupaazoty.com

1.4. Emergency telephone number
   +48 15 867 0221

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
   According to Regulation (EC) No 1272/2008 (CLP):
   | Hazard | Classification |
   | for physical-chemical properties: | Not classified |
   | for health hazards: | Skin corrosion/irritation: Skin Irrit. 2 (H315 Causes skin irritation). |
   | for environmental hazards: | Not classified |

2.2. Label elements
   Hazard pictogram(s): GHS07
   Signal word(s): Warning
   Hazard statement(s):
   H315 Causes skin irritation
   Precautionary statement(s):
   P280 Wear protective gloves/protective clothing/eye protection/face protection.
   P302+P352 IF ON SKIN: Wash with plenty of water and soap.
   P332+P313 If skin irritation occurs: Get medical advice/attention.

2.3. Other hazards
   Solid sulfur is flammable. Dust of sulfur/air mixtures may be explosive. May be irritating by inhalation. May cause digestive system disorders.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances
SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation:
When inhaled, remove to fresh air. Seek medical aid when adverse effects maintain or when feeling unwell.

Contact with skin:
Take off contaminated clothing. Wash skin thoroughly with soap and water, and then with a plenty of water. When an irritation persists get medical attention.

Contact with eyes:
Flush eyes with plenty of water for a few minutes, remove contact lenses. Do not chafe eyes. When an irritation persists get medical attention.

Ingestion:
Rinse mouth with water, do NOT induce vomiting. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Light laxative effect after ingestion. Skin and/or eye irritation or corrosion may appear.

4.3. Indication of any immediate medical attention and special treatment needed

Show the safety data sheet or label/ packaging to a person providing first aid. Information to a doctor: treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media: carbon dioxide, dry chemical powder, foam, water fog, earth, sand.

Unsuitable Extinguishing Media: direct water jets. Burning liquid can spread over water surface.

5.2. Special hazards arising from the substance or mixture

Flammable product. Dust and vapours with air can form explosive mixtures. Hazardous combustion products: sulfur oxides (SO₂, SO₃) and hydrogen sulphide (H₂S).

5.3. Advice for firefighters

Cool imperilled containers with water spray and remove to a safe place. In case of large fire or poorly ventilated spaces wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA).

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Alert about a break down. Alert emergency personnel. Keep non-involved personnel away from the area of spillage. All persons have to be trained, equipped with special clothing and protective equipment. Avoid any source of ignition. Avoid spreading of dust/vapours. Use adequate personal protective equipment as required in Section 8 of the safety data sheet.

6.2. Environmental precautions

Prevent from entering sewers, rivers or other bodies of water and soil. Collect dust from water surface. Alert emergency personnel if necessary.

6.3. Methods and material for containment and cleaning up

Stop or limit leaks or spillages of the product from the container. Collect the product from water surface. Cover with earth and than collect to a special cointainer. Dispose of waste in compliance with current legislation.

6.4. Reference to other sections

Refer to Sections 8 and 13 of the safety data sheet.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling
Keep away from any source of ignition. Dust and vapours of sulfur with air can form explosive mixtures. Avoid breathing dust and vapours. Avoid skin and eye contact. Work in well ventilated area. Use adequate personal protective equipment as required in Section 8 of the safety data sheet. Never eat, drink or smoke during use. Change and wash contaminated clothing immediately. Avoid contact with product, especially large body surface. Always wash hands with soap and water after work.

7.2. Conditions for safe storage, including any incompatibilities
Store in closed, properly labelled metal containers suitable for the product or loose at the store square. Do not smoke, use fire or other sources of ignition. Store separately from oxidising agents.

7.3. Specific end use(s)
Not known.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Hydrogen sulphide OEL (UK): STEL: 14 mg/m³ 15 minute(s), STEL: 10 ppm 15 minute(s), TWA: 7 mg/m³ 8 hour(s), TWA: 5 ppm 8 hour(s).
Sulfur dioxide OEL (UK): TWA: 5 mg/m³ 8 hour(s).
DNEL: not applicable
PNEC: not applicable

8.2. Exposure controls
Appropriate engineering controls:
Adequate general and local ventilation is required to remove dust and vapours from the source of emission.

Eye/face protection:
Safety goggles or face shield.

Skin protection:
Protective gloves eg. cotton. PVA gloves are unsuitable. Protective clothing, non-skid boots. A helmet is recommended.

Respiratory protection:
In normal conditions, with adequate ventilation not required. Insufficient ventilation - a mask with a dust filter or with a filter for organic vapours (type E).

Thermal hazards:
Molten hot sulfur can cause skin and eye burns.

Environmental exposure controls:
Precautions should be made against environmental contamination.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a) Appearance : Solid, yellow
b) Odour : Characteristic
c) Odour threshold : Not applicable
d) pH : Not applicable
e) Melting point/freezing point : 113 - 120 °C at 101.3 kPa
f) Initial boiling point and boiling range : 444.6 °C at 101.3 kPa
g) Flash point : 218 °C at 761 mmHg
h) Evaporation rate : Not applicable
i) Flammability (solid, gas) : Not flammable
j) Upper/lower flammability or explosive limits : not available / 2.3 g/m³ (dust diameter 850 µm) or 17.6 (dust diameter 15 µm) (explosive limits)
k) Vapour pressure : 0.00014 Pa at 20 °C
l) Vapour density : Not applicable
m) Relative density : 2.07 g/cm³ at 20 °C
n) Solubility(ies) : Not soluble in water (<0.005 mg/l at 22 °C)
o) Partition coefficient: n-octanol/water : Not applicable
p) Auto-ignition temperature : Not applicable
q) Decomposition temperature : Not applicable
r) Viscosity : Not applicable
s) Explosive properties: Dust with air form explosive mixtures

t) Oxidising properties: Not applicable

9.2. Other information

Surface tension: Not applicable
113 - 160˚C and above 444˚C - very mobile liquid; 160 - 444˚C - very viscous liquid.

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity
Substance is not reactive.

10.2. Chemical stability
Substance is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions
Not known.

10.4. Conditions to avoid
High temperature, fire, hot surface and other sources of ignition.

10.5. Incompatible materials
Strong oxidising agents eg. strong alkali, alkalic amines, nitrates, chlorates, perchlorates, permanganates.
Sulfur is corrosive to some metals and polymers.

10.6. Hazardous decomposition products
Not known. Hazardous combustion products are included in Section 5 of the safety data sheet.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:
Based on available data, the classification criteria are not met.
LD50: >2000 mg/kg bw (oral, rat)
LD50: >2000 mg/kg bw (dermal, rabbit)
LC50: >5430 mg/m³ (inhalation, rat, 4h)

Skin corrosion/irritation:
Causes skin irritation. Skin redness or even skin damage may appear.

Serious eye damage/irritation:
Based on available data, the classification criteria are not met. Contact with the product can causes eye burning and tearing, and even sight damage.

Respiratory or skin sensitisation:
Based on available data, the classification criteria are not met.

Germ cell mutagenicity:
Based on available data, the classification criteria are not met.

Carcinogenicity:
Based on available data, the classification criteria are not met.

Reproductive toxicity:
Based on available data, the classification criteria are not met.

STOT-single exposure:
Based on available data, the classification criteria are not met. Ingestion of molten sulfur can cause gullet and digestive system burns which may cause further damage to other organs. Dust inhalation - breathing shortenings with cough, irritation of the upper respiratory tract.

STOT-repeated exposure:
Based on available data, the classification criteria are not met. Chronic exposure to sulfur’s vapours and dust can cause mucous membrane irritation, headache, dizziness, excitement, apathy, digestive system disorders, skin dryness and cracking.
Sulfur: NOAEL: 1000 mg/kg (oral, subchronic, rat)
NOAEL: 400 mg/kg (dermal, subacute, rat)

Aspiration hazard:
Based on available data, the classification criteria are not met.
SECTION 12. ECOLOGICAL INFORMATION

12.1. Toxicity
Water:
Short-term and long-term toxicity to invertebrates, algae, fish: not applicable, substance is insoluble in water

Sediment:
Sediment organism toxicity: not applicable, substance is insoluble in water

Terrestrial compartment:
NOEC: >1000 mg/kg earth - toxicity to soil micro-organisms, 14 days
NOEC: 25.2 kg/ha - toxicity to terrestrial plants, *Zea mays*, *Avena Sativa*, *Allium cepa*, 14 days
NOEC: 1400 - 1900 g/ha - toxicity to arthropods, *Typhlodromus pyri*, 60 days
LD50: >2000 mg/kg - toxicity to birds, *Coturnix coturnix japonica*, 15 days

12.2. Persistence and degradability
Biotic:
Biodegradation in water: not applicable, substance is an inorganic substance
Simulation tests (water and sediments): not applicable, substance is insoluble in water

Abiotic:
Hydrolysis as a Function of pH: not applicable, substance is insoluble in water
Photolysis / phototransformation: half life in air t1/2: 3.21 - 4.25h at 80000 lux and 25˚C

12.3. Bioaccumulative potential
Not applicable, substance has low bioaccumulation potential.

12.4. Mobility in soil
Studies on adsorption/desorption: not applicable, substance is insoluble in water

12.5. Results of PBT and vPvB assessment
The substance does not meet the PBT and vPvB criteria set out in Annex XIII to the REACH Regulation.

12.6. Other adverse effects
Not known.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Recycle or dispose of waste in compliance with current legislation.

Contaminated containers can be used again for storage the same product. Waste should be returned to supplier or recycled/disposed of in compliance with current legislation.


SECTION 14. TRANSPORT INFORMATION

Granulated sulphur is not subject to the requirements of ADR, RID, IMO IMDG Code, IATA according special provision 242: Sulphur is not subject of ADR, RID, IMDG Code, IATA when it has been formed to a specific shape (such as prills, granules, pellets, pastilles or flakes).

Transport in bulk according to IMSBC code - Group C.

14.1. UN number
Not applicable

14.2. UN proper shipping name
Not applicable

14.3. Transport hazard class(es)
Not applicable

14.4. Packing group
Not applicable

14.5. Environmental hazards
Not applicable

14.6. Special precautions for user
Not applicable

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Not applicable

SECTION 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
GRUPA AZOTY
Kopalnie i Zakłady
Chemiczne Siarki
"SIARKOPOL" S.A.

SAFETY DATA SHEET
In accordance with Regulation (EU) No 2015/830

GRANULATED SULPHUR

Compilation date: 01.09.2004  Revision: 23.06.2015  Version: 3.0


Polish regulation/legislation:
Ustawa z dnia 25 lutego 2011 r. o substancjach chemicznych i ich mieszaninach (Dz.U. 2011 nr 63 poz. 322; Dz.U. 2012 r. nr 0 poz. 908, Dz.U. 2015 nr 0 poz. 675)
Rozporządzenie Ministra Zdrowia z dnia 10 sierpnia 2012 r. w sprawie kryteriów i sposobu klasyfikacji substancji chemicznych i ich mieszanin (Dz.U. 2012 nr 0 poz. 1018; Dz.U. 2014 nr 0 poz. 6)
Rozporządzenie Ministra Zdrowia z dnia 20 kwietnia 2012 r. w sprawie oznakowania opakowań substancji niebezpiecznych i mieszanin niebezpiecznych oraz niektórych mieszanin (Dz.U. 2012 nr 0 poz. 445; Dz.U. 2014 nr 0 poz. 145)
Rozporządzenie Ministra Zdrowia z dnia 2 lutego 2011 r. w sprawie badań i pomiarów czynników szkodliwych dla zdrowia w środowisku pracy (Dz.U. 2011 nr 33 poz. 166)
Rozporządzenia Ministra Gospodarki z dnia 21 grudnia 2005 r. w sprawie zasadniczych wymagań dla środków ochrony indywidualnej (Dz.U. z 2005 r. Nr 259, poz. 2173)
Rozporządzenie Ministra Zdrowia i opieki Społecznej z dnia 30 maja 1996 r. w sprawie przeprowadzania badań lekarskich pracowników, zakresu profilaktyki opieki zdrowotnej oraz orzeczeń lekarskich wydawanych do celów przewidzianych w Kodeksie pracy (Dz. U. z 1996 r. Nr 69, poz. 332; z 1997 r. Nr 60, poz. 375; z 1998 r. Nr 159, poz. 1057; z 2001 r. Nr 37, poz. 451; Nr 128, poz. 1405; z 2010 r. Nr 240, poz. 1611)
Rozporządzenie Ministra Zdrowia z dnia 30 grudnia 2004 r. w sprawie bezpieczeństwa i higieny pracy związanej z występowaniem w miejscu pracy czynników chemicznych (Dz.U. z 2005 r. Nr 11, poz. 86; z 2008 r. Nr 203, poz. 1275)
Ustawa z dnia 24 sierpnia 1991 r. o ochronie przeciwpożarowej (tekst jednolity Dz. U. z 2009 r. Nr 178, poz. 1380; z 2010 r. Nr 57, poz. 353; Dz. U. z 2012 r. Nr 0, poz. 908; Dz.U. 2013 nr 0 poz. 1635)
Ustawa z dnia 19 sierpnia 2011 r. o przewozie towarów niebezpiecznych (Dz. U. z 2011 r. Nr 227, poz. 1367, Nr 244, poz. 1454)

15.2. Chemical safety assessment

Chemical safety assessment has not been carried out for the substance - substance is exempted from registration according to Annex V REACH Regulation.

SECTION 16. OTHER INFORMATION

Changes made in the safety data sheet during revision:


Legend to abbreviations and acronyms used in the safety data sheet:

OELs  Occupational Exposure Limits
vPvB  Very persistent and very bioaccumulative (substance)
PBT  Persistent, bioaccumulative and toxic (substance)
PNEC  Predicted No Effect Concentration
DNEL  Derived No Effect Levels
LD$_{50}$  Lethal Dose 50%, dose required to kill half the members of a tested population after a specified test duration
LC$_{50}$  Lethal Concentration, 50 dose required to kill half the members of a tested population after a specified test duration
NOEC  No Observed Effect Concentration
NOAEL  No observed adverse effect level

Literature references and sources for data:

Regulations/legislations mentioned in sections 2 - 15 of safety data sheet.
Information on substance’s properties.

List of relevant hazard statements and/or precautionary statements, which are not written out in full under Sections 2 to 15:

Not applicable

Advice on any training appropriate for workers to ensure protection of human health and the environment:

Workers that use the product should be trained and informed about personal protection, accident procedure, etc.
Exposure scenarios: not applicable - substance is exempted from registration according to Annex V REACH Regulation.

Information in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. Information provided herein serves only as guidelines for safe work, use, processing, storage, and waste management. It cannot be considered as a warranty or quality certificate. This information applies only to specific material designated and may not be suitable for such material used in combination with any other materials or in any other manner not described in this document.