**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

1.1 **Product identifiers**

- **Product name**: Sulfur
- **Product Number**: 84683
- **Brand**: SIGALD
- **Index-No.**: 016-094-00-1
- **REACH No.**: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
- **CAS-No.**: 7704-34-9

1.2 **Relevant identified uses of the substance or mixture and uses advised against**

- **Identified uses**: Laboratory chemicals, Manufacture of substances

1.3 **Details of the supplier of the safety data sheet**

- **Company**: Sigma-Aldrich Inc.
  3050 SPRUCE ST
  ST. LOUIS MO  63103
  UNITED STATES
- **Telephone**: +1 314 771-5765
- **Fax**: +1 800 325-5052

1.4 **Emergency telephone**

- **Emergency Phone #**: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification**

2.1 **Classification of the substance or mixture**

- **Classification according to Regulation (EC) No 1272/2008**
  - Skin irritation (Category 2), H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 **Label elements**

- **Labelling according Regulation (EC) No 1272/2008**
  - Pictogram

The life science business of Merck operates as MilliporeSigma in the US and Canada
The life science business of Merck operates as MilliporeSigma in the US and Canada

---

**Signal word**  Warning

**Hazard statement(s)**

H315  Causes skin irritation.

**Precautionary statement(s)**

P264  Wash skin thoroughly after handling.
P280  Wear protective gloves.
P302 + P352  IF ON SKIN: Wash with plenty of water.
P332 + P313  If skin irritation occurs: Get medical advice/attention.
P362 + P364  Take off contaminated clothing and wash it before reuse.

**Supplemental Hazard Statements**

none

---

**Reduced Labeling (<= 125 ml)**

**Pictogram**

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hazard statement(s)</strong></td>
<td>none</td>
</tr>
<tr>
<td><strong>Precautionary statement(s)</strong></td>
<td>none</td>
</tr>
<tr>
<td><strong>Supplemental Hazard Statements</strong></td>
<td>none</td>
</tr>
</tbody>
</table>

---

**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

---

### SECTION 3: Composition/information on ingredients

**3.1 Substances**

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>: sulfur (Aerosol)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>: S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>: 32.07 g/mol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>: 7704-34-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>: 231-722-6</td>
</tr>
<tr>
<td>Index-No.</td>
<td>: 016-094-00-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>sulphur</td>
<td>Skin Irrit. 2; H315</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>7704-34-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-No.</td>
<td>231-722-6</td>
</tr>
<tr>
<td>Index-No.</td>
<td>016-094-00-1</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.
SECTION 4: First aid measures

4.1 Description of first-aid measures

**General advice**
Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Remove contact lenses.

**If swallowed**
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

**Suitable extinguishing media**
Water Foam Carbon dioxide (CO2) Dry powder

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Sulfur oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.
6.2 **Environmental precautions**
Do not let product enter drains.

6.3 **Methods and materials for containment and cleaning up**
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 **Reference to other sections**
For disposal see section 13.

**SECTION 7: Handling and storage**

7.1 **Precautions for safe handling**
For precautions see section 2.2.

7.2 **Conditions for safe storage, including any incompatibilities**

**Storage conditions**
Tightly closed. Keep away from heat and sources of ignition.

7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

**SECTION 8: Exposure controls/personal protection**

8.1 **Control parameters**

**Ingredients with workplace control parameters**

8.2 **Exposure controls**

Personal protective equipment

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

- **Full contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0,11 mm
  - Break through time: 480 min
  - Material tested: KCL 741 Dermatril® L

- **Splash contact**
  - Material: Nitrile rubber
The life science business of Merck operates as MilliporeSigma in the US and Canada

Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

**Body Protection**
protective clothing

**Respiratory protection**
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Control of environmental exposure**
Do not let product enter drains.

---

**SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

- **a) Appearance**
  - Form: powder
  - Color: light yellow
- **b) Odor**
  - No data available
- **c) Odor Threshold**
  - No data available
- **d) pH**
  - No data available
- **e) Melting point/freezing point**
  - Melting point/range: 118 - 120 °C
- **f) Initial boiling point and boiling range**
  - 444,7 °C
- **g) Flash point**
  - Not applicable
- **h) Evaporation rate**
  - No data available
- **i) Flammability (solid, gas)**
  - May form combustible dust concentrations in air.
- **j) Upper/lower flammability or explosive limits**
  - Upper explosion limit: 6,83 %(V)
  - Lower explosion limit: 0,17 %(V)
- **k) Vapor pressure**
  - 0,00001 hPa at 40 °C
- **l) Vapor density**
  - No data available
- **m) Relative density**
  - No data available
- **n) Water solubility**
  - 0,00001 g/l at 22 °C - OECD Test Guideline 105
- **o) Partition coefficient: n-octanol/water**
  - Not applicable for inorganic substances
- **p) Autoignition temperature**
  - 240 °C
q) Decomposition temperature No data available

r) Viscosity Viscosity, kinematic: 8 mm²/s at 140 °C
Viscosity, dynamic: No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Risk of explosion with:
Alkali metals
Ammonia
Barium bromates
chlorates
Barium nitrate
Chlorites
Calcium Hypochlorites
chlorine dioxide
chromium(VI) oxide
chlorine oxides
Ether iodates
Potassium nitrates
potassium permanganate
perchlorates
Lithium sodium nitrates
Peroxides
Strong oxidizing agents permanganates
phosphorus
mercury oxide
ammonium nitrate
magnesium in powder form
Zinc in powder form
Risk of ignition or formation of inflammable gases or vapours with:
nitrides  
powdered aluminium  
carbides  
chromates/perchromates  
Lead oxides  
halogen-halogen compounds  
phosphides  
chromyl chloride  
Iron  
Alkaline earth metals  
Fluorine  
Indium  
Nickel  
carbon disulfide  
selenium  
silver oxide  
nitrogen dioxide  
Uranium  
carbon  
Exothermic reaction with:
Sulfides  
Boron  
Bromine  
Chlorine  
halogens  
Copper  
lithium silicide  
Powdered metals  
organic nitro compounds  
Oxides of phosphorus  
Hydrogen  
Tin  
cadmium  
in powder form

10.4 Conditions to avoid
Avoid moisture. Heat, flames and sparks.
no information available

10.5 Incompatible materials
Copper, Mild steel, Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5
SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - > 5,43 mg/l (OECD Test Guideline 403)
LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation (OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitization
in vivo assay - Guinea pig
Result: negative (OECD Test Guideline 406)

Germ cell mutagenicity
No data available
Ames test
Salmonella typhimurium
Result: negative
OECD Test Guideline 474
Mouse - male and female
Result: negative

Carcinogenicity
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
Not available

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting., Dermatitis
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 **Toxicity**
No data available

12.2 **Persistence and degradability**
The methods for determining biodegradability are not applicable to inorganic substances.

12.3 **Bioaccumulative potential**
No data available

12.4 **Mobility in soil**
No data available

12.5 **Results of PBT and vPvB assessment**
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 **Other adverse effects**
No data available

SECTION 13: Disposal considerations

13.1 **Waste treatment methods**

**Product**
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 **UN number**
ADR/RID: 1350  
IMDG: 1350  
IATA: 1350

14.2 **UN proper shipping name**
ADR/RID: SULPHUR  
IMDG: SULPHUR  
IATA: Sulphur

14.3 **Transport hazard class(es)**
ADR/RID: 4.1  
IMDG: 4.1  
IATA: 4.1

14.4 **Packaging group**
ADR/RID: III  
IMDG: III  
IATA: III

14.5 **Environmental hazards**
ADR/RID: no  
IMDG Marine pollutant: no  
IATA: no

The life science business of Merck operates as MilliporeSigma in the US and Canada
14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII): Not applicable

National legislation

Other regulations
Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.
H315 Causes skin irritation.

Relevant changes since previous version
2. Hazards identification

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.
The life science business of Merck operates as MilliporeSigma in the US and Canada