

# Safety Data Sheet

SDS-IAI.04-2019



PRODUCT NAME : SULFUR

Date of issue : 01.01.2019

## 1. IDENTIFICATION

**Product Name** SULFUR

**Company Name** PT Indonesian Acids Industry

**Address** Jl. Raya Bekasi km 21 Cakung Jakarta Timur

**Phone** 62-21-4602203

**Emergency telephone no** 62-21-4602203

### NFPA 704M/HMIS RATING

| HEALTH : 2        | FLAMMABILITY 1 | TOXICITY 0   | REACTIVITY 0 | OTHER       |
|-------------------|----------------|--------------|--------------|-------------|
| 0 = Insignificant | 1 = Slight     | 2 = Moderate | 3 = High     | 4 = Extreme |

**Health Hazard summary** Effects of over exposure may include irritation of the nose and throat, irritation of the digestive tract, coughing, vomiting, diarrhea, shortness of breath, abdominal pain, an allergic skin reaction through repeated contact and chest pain. Irritant. Eye contact may cause the loss of eyesight

**Eye** Dust may be abrasive and irritating to the eyes and cause stinging, watering, and conjunctival redness. Molten sulphur might cause serious cornea burn and eye damage.

**Inhalation** Headache, nausea, cramps and loss of consciousness

**Skin** Skin irritant. Contact may cause redness, burning and skin damage

**Ingestion** Low degree of toxicity by ingestion. Contact of the mouth with molten sulphur might cause thermal burning.

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## GHS Label Elements

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**DANGER**

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### Hazard Statements :

- ← Flammable solid
- ← Causes serious skin burn
- ← Causes skin irritation
- ← Causes serious eye damage

### Precautionary Statements :

- ← Keep away from all sources of ignition
  - ← Avoid contact with eyes and skin
  - ← Wear eye mask/face protection mask
  - ← Wash hand thoroughly after handling
  - ← Remove contaminated clothing immediately
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## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Chemical Name** Sulphur

**Synonyms** Brimstone Sulfur, Solid sulfur, Molten sulfur, flower of sulfur, flour sulfur

**CAS No.** 7704-34-9

**EC No.** 231-722-6

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## 4. FIRST AID MEASURES

- Eye** If the product contact with the eye, immediately hold eyelids apart and flush the eye continuously with water for at least 15 minutes. If irritation occurs and persist, seek medical attention.
- Inhalation** Remove victim away from source of exposure to fresh air. If victim is not breathing, immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. If symptoms persist, seek medical attention.
- Skin** Remove contaminated shoes and clothing, and flush affected areawith large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area throughly by washing with mild soap and water. If irritation or redness develops, seek medical attention.
- Ingestion** First aid is not normally required, however if swallowed in large amount and symptoms develop, seek medical attention.
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## 5. FIRE FIGHTING MEASURES

- Extinguishing media** Water spray, dry chemical powder, carbon monoxide, sand or earth is recommended. In large fires, the use of general foams or water spray for fire extinguishing are suggested.
- Fire and Explosion Hazards** This material may burn, and may ignite readily under certain conditions. Dust may form an explosive mixtures with air. Collision, friction or heat might cause ignition. Avoid friction and static accumulation
- Fire Fighting Procedures** Evacuate hazard area. Do not enter fire space without adequate protective clothing and an approved positive self-contained breathing apparatus. Small fires can be extinguished with sand. Airborne dust can create explosion hazard.

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## 6. ACCIDENTAL RELEASE MEASURES

- Personal Precautions** Wear protective equipment to prevent skin, eye contact and respiratory equipment
- Environmental Precautions** Avoid contaminating waterways
- Procedure for cleaning** Clean up spill immediately, observing precautions in the protective equipment section. Use waterways to reduce vapors, do not put water directly on leak, spill area or inside container. Cover with dry earth, dry sand or other on combustible material followed with plastic sheet to minimize spreading and contact with water. Keep combustible (wood, paper, oil and etc) away from spilled material.
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## 7. HANDLING AND STORAGE

- Handling** Avoid generating and breathing dust. Use spark-free tools when handling. Avoid generation of static electricity. Earth and secure containers when dispensing or pouring. Limit all unnecessary personal contact. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid contact with incompatible materials. When handling DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hand with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
- Storage** Store away from sources of heat or ignition. Store in a cool, dry and well-ventilated area. Store away from oxidizing materials. DO not store on wooden floors. DO not pour molten sulphur into containers with carbon oxides or water vapor. The temperature of molten sulfur should be maintained between 115-145<sup>0</sup>C, to avoid solid chunks of sulphur at low temperatures and the ignition of the storage container at high temperatures. Protect containers against physical damage. Check regularly for spills and leaks.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational exposure limits

| SULFUR | ACGIH (TLV) (TWA)    | OSHA (PEL) (TWA)     |
|--------|----------------------|----------------------|
|        | 10 mg/m <sup>3</sup> | 15 mg/m <sup>3</sup> |

**Engineering Measures** If current ventilation practices are not adequate to maintain airborne concentrations bellow the established exposure limits, additional ventilation or exhaust systems may be required.

**Routes of Exposure** Respiratory tract, eye, skin

**Effect of short-term exposure** The substance is very corrosive to the eye, skin and respiratory tract.

**Personal Protective Equipment**

- Respiratory Protection : Avoid generating and inhaling always wear respiratory protection with dust/mist filtration
- Hand Protection : Chemical protective gloves
- Eye Protection : Wear safety glasses with side shields or chemical goggles and a full-face shield
- Skin, and body protection : Suitable safety clothes and shoes

|                                  |                              |                            |  |
|----------------------------------|------------------------------|----------------------------|--|
| <b>Appearance</b>                | Solid                        | <b>Boiling Point</b>       | 444.7 <sup>o</sup> C                       |
| <b>Color</b>                     | Light Yellow                 | <b>Melting Point</b>       | 118-120 <sup>o</sup> C                     |
| <b>Odor</b>                      | Odorless                     | <b>Freezing Point</b>      | 1.1 <sup>o</sup> C                         |
| <b>pH</b>                        | Not available                | <b>Solubility in water</b> | Insoluble                                  |
| <b>Specific Gravity</b>          | 2.05                         | <b>Evaporation Rate</b>    | Non volatile                               |
| <b>Decomposition Temperature</b> | Not available                | <b>Vapour Pressure</b>     | < 0.1 kPa at 184 <sup>o</sup> C            |
| <b>Autoignition temp</b>         | 232 <sup>o</sup> C (as dust) | <b>Explosion Limit</b>     | 35 g/m <sup>3</sup> - 1400g/m <sup>3</sup> |

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## 10. STABILITY AND REACTIVITY

**Chemical Stability** Stable under normal condition

**Conditions to Avoid** Avoid heat, flames, sparks, product dust formation and other igniton sources.

**Incompatible Materials** Contact with chlorates, chlorites, carbon, carbides, nitrates, and other strong oxidizing agents, which may form explosive mixtures. Elemental sulphur can react with metals such as sodium, calcium, tin, nickel, or zinc under conditions.

**Hazardous Decomposition products** Sulfur oxides..

## 11. TOXICOLOGICAL INFORMATION

### Toxicity Data

|            |        |                  |                          |
|------------|--------|------------------|--------------------------|
| Oral       | Rat    | LD <sub>50</sub> | : > 8437 mg/kg           |
|            | Rabbit | LD <sub>50</sub> | : 175 mg/kg              |
| Inhalation | Rat    | LC <sub>50</sub> | : > 67 mg/m <sup>3</sup> |
|            | Mouse  | LC <sub>50</sub> | : > 47 mg/m <sup>3</sup> |

**Carcinogenicity** None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

## 12. ECOLOGICAL INFORMATION

| Acute Fish Result     | Species           | Exposure | LC <sub>50</sub> |
|-----------------------|-------------------|----------|------------------|
|                       | Gambusia affinis  | 96 hrs   | > 10,000 mg/l    |
|                       | Brachudanio rerio | 96 hrs   | > 866 mg/l       |
| Effects on Eco system | Protozoa          | 168 hrs  | 1.54 mg/l        |

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**Environmental Hazard** Pollutant of air, soil and water

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## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal** Collect waste at a special place and send to organization that has a license to handle this type of waste

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## 14. TRANSPORT INFORMATION

**Proper shipping name** Sulfur

**UN number** 1350

**Hazard class** 4.1

**Packing group** III

**Label required** Flammable solid

## 15. REGULATORY INFORMATION

**National Regulation, USA** SARA (Superfund Amendments and Reauthorization Act of 1986 (Title III) section 313 – List of Toxic Chemical 40 CFR 372 ) :  
This product contains the following substance which appear on the list of Toxic chemical

This material has not been identified as carcinogen by NTP, IARC, or OSHA.  
See section 11 for carcinogenicity information of individual components

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## 16. OTHER INFORMATION

**References**    Purple Book Rev.3, 2009  
                    UNRTDG Orange Books 14<sup>th</sup> edition  
                    Dangerous Properties of Material 6<sup>th</sup> edition, N.Irving Sach,  
                    March 1987 Hazardous Material in Industry 12<sup>th</sup> edition

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*This Information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.*