

# PT. MAHKOTA INDONESIA



Office & Factory : Jalan Raya Bekasi Km. 21 Pulogadung - Jakarta Utara 14250, Indonesia  
Telephone : 6221 - 4603121 (Hunting) Faximile : 6221 - 4602792  
Website: www.mahkotaindonesia.co.id

*Manufacturing of Sulphuric Acid, Aluminium Sulphate, Oleum, Sodium Silicate, Sulphur Block, etc.*



CERTIFICATE NO. 402987

M S D S No. 006 – MI – 2008 (SDS Oleum)

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DATE PREPARED : December 19<sup>th</sup>, 2008

## SAFETY DATA SHEET

### 1. PRODUCT & COMPANY IDENTIFICATION

- **PRODUCT** : **Oleum**
- **COMPANY NAME** : **PT. MAHKOTA INDONESIA**
- **ADDRESS** : **Jl. Raya Bekasi Km.21. Pulogadung.  
Jakarta Utara. 14250**
- **TEL NO.** : **62-21-4603121 (Hunting)**
- **FAX NO.** : **62-21-4602792**
- **EMERGENCY TEL NO.** : **62-21-4603121 (Hunting)**

### 2. HAZARD IDENTIFICATION

#### GHS CLASSIFICATION

##### Physical Hazard Classification

- Oxidizing Liquid : Category 1 (Oxidizing Liquid, Danger)
- Corrosive to metal : Category 1 (Corrosive symbol, Warning)

##### Health and Environment Hazard Identification

###### Acute Toxicity

- Oral : Category 5 (No symbol & signal word used)
- Dermal : Category 1 (Skull & Crossbone, Danger)
- Inhalation : Category 1 (Skull&crossbones, Danger)
- Skin corrosion / Irritation : Category 1 (Corrosive symbol, Danger)
- Serious eye damage/ Irritation : Category 1 (Corrosive symbol, Danger)
- Respiratory Sensitization : Category 1 (Health Hazard symbol, Danger)
- Germ cell mutagenecity : Category 1A (Health Hazard symbol, Danger)
- Carcinogenecity : Category 1A (Health Hazard symbol, Danger)
- Spesific Target Organs : Category 2 (Health Hazard symbol, Danger)  
(Repeated expoure)

###### Hazardous to the Aquatic Environment

- **Toxicity**
  - Fish : Category 3 (No symbol & signal word used)
  - Crustacea : No Information found
  - Algae : No Information found
- **Chronic Toxicity**
  - Fish : Category 1 (Fish and tree symbol, Warning)

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## GHS LABEL ELEMENT



## HAZARD STATEMENT

- Extremely corrosive, causes serious burns
- Harmful if swallowed or inhaled
- Harmful by inhalation, ingestion, and through skin contact
- Skin contact can lead extensive and severe burns
- May cause respiratory irritation
- Chronic exposure may result in lung damage, possibly cancer and lung damage
- Cause damage to organs (nervous system, respiratory system) through prolonged or repeated exposure
- Highly Toxic
- Harmful to Aquatic life

## PRECAUTIONARY STATEMENT

- Avoid contact with skin and eyes
- Do not inhale vapour or spray
- Do not ingest
- Keep out of suns and away from heat
- Wear respiratory protection, protective glove/clothing/face protection as specified by manufacturer/supplier or the competent authority
- Wear eye protection (chemical goggles)
- Keep container tightly closed
- Protective clothing or contaminated work clothing should not be allowed out of the workplace
- Wash hand thoroughly after handling
- Do not eat, drink or smoke when using this product
- Avoid release to the environment
- Do not handle until all safety precaution have been read and understood.
- This substance may be hazardous to the environment, special attention should be given to fish

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

- CHEMICAL NAME : Oleum
- SYNONYMS : Fuming Sulphuric Acid, Pyrosulphuric Acid, Disulphuric Acid, Sulphuric Acid, Mixture with sulphure trioxide.
- CHEMICAL FORMULA :  $H_2SO_4$ ( in  $H_2O$  )

Ingredient	CAS No.	EC No.	Percent WT
Sulphuric Acid	7664 – 93 -9	231- 639 - 5	Max 80 %
Sulphuric Trioxide	7446 – 11 - 9	-	Min 20 %

### 4. FIRST-AID MEASURE

- **Inhalation** :  
Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth to mouth. If breathing has ceased apply artificial respiration using oxygen and suitable mechanical device such as bag and a mask.
- **Ingestion** :  
Do not induce vomiting. If victim conscious and alert, give 2 – 4 cupfull of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
- **Skin Contact** :  
If skin or hair contact, immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
- **Eye Contact** :  
Get medical aid immediately. Do not allow victim to rub or keep eyes closed. Extensive irritation with water is required ( at least 30 minutes ).

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## 5. FIRE-FIGTHING MEASURES

- **Fire and explosion Hazard** :  
Not flammable but highly reactive. Strong dehydrating agent, which may cause ignition of finely divided combustible materials on contact. Reacts violently with water with evolution of heat can react with organic materials explosively. React with most metal , organic materials, nitrates, carbides, chlorates especially when dilute to give flammable potentially explosive hydrogen gas.
- **Fire Fighting Advice** :  
Generates heat upon addition of water, with possible splattering and violent liberation of heat. Run off from fire control may cause pollution, neutralize run off with lime, soda ash, etc prevent corrosion of metal and formation of hydrogen gas. Strong oxidizer, contact with combustible material may cause fire. Wear self contained breathing apparatus if fumes or mist are present.
- **Suitable Extinguishing Media** :  
Do not use water directly on fire. Use carbondioxyde or dry chemical. Do not get water inside containers. Contact professional fire fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

## 6. ACCIDENTAL RELEASE MEASURES

- **Personal Precautions** :  
Wear protective equipment to prevent skin, eye contact and respiratory equipment.
- **Methods for cleaning up** :  
Avoid runn off into storm sewers and ditches which lead to waterways. Clean up spill immediately., observing precautions in the protective equipment section. Provide ventilation. 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 non combustible material followed with plastic sheet to minimize spreading and contact with water. Keep combustibles ( wood, paper, oil and etc ) away from spilled material.

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## 7. HANDLING AND STORAGE

- **Handling** :  
Avoid skin and eye contact and breathing. Keep from contact with moist air and steam. Carbon steel storage tanks must be vented.
- **Storage Color Code** :  
Orange ( General Storage )
- **Storage Advice** :  
Store in cool place, dry place and out of direct sunlight. Store away from incompatible materials described. Keep containers closed when not in use-check regularly for spills. Keep away from water. Corrosive area. Do not store near alkaline substances. Store protected from moisture. Metal and , specifically carbon steel, storage tanks must be vented due to hydrogen released.

## 8. EXPOSURE CONTROL/PERSONAL PROTECTION

- **ENGINEERING MEASURES** :  
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.
- **CONTROL PARAMETERS** :

CHEMICAL NAME	CAS RN	ACGIH (1995-1996)	OSHA (1995)	% 100.0 (by wt)
Sulphuric Acid	7664-93-9	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL	1 mg/m <sup>3</sup> TWA 15 mg/m <sup>3</sup> IDLH	Max 80 %
Sulphur Trioxide (SO <sub>3</sub> )	7446-11-9	3 mg/m <sup>3</sup> STEL	1 mg/m <sup>3</sup> TWA	Min 20 %



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- **PERSONAL PROTECTIVE EQUIPMENT** :
  - RESPIRATORY PROTECTION :  
Avoid generating and inhaling always wear respirator when necessary.
  - HAND PROTECTION :  
Chemical resistant gloves.
  - EYE PROTECTION :  
Wear safety glasses with side shields or chemical goggles and a full face shield.
  - SKIN, AND BODY PROTECTION :  
Suitable wear acid-resistant apron and safety shoes.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- Form : Liquid
- Color : Clear colorless – oily liquid
- Odor : Characteristic, sharp penetrating odor
- pH : 0,3 ( 1N solution at 25 °C / 78 °F)
- Solubility in water : Miscible in all proportions in water, react violently with water.
- Specific Gravity :  $\pm 1.84 \times 10^{-6}$  g/ml @ 20 °C
- Boiling Point : 141 °C ( 20 %)
- Melting Point :  $\pm 10$  °C
- Vapour Density ( Air = 1 ) : 2,8 at 20 °C
- Vapour Pressure (mmHg) :  $7,5 \times 10^{-4}$  @ 20 °C ( low volatility )
- Evaporation Rate (BuAc = 1 ) : Not applicable

## 10. STABILITY & REACTIVITY

- **Chemical Stability** :  
Combines vigorously with water with evolution of heat. Reported to have exploded when in sealed container. This was most likely due to pressure of hydrogen by reducing of water. Stable under normal ambient conditions temperature and pressure.
- **Hazardous Decomposition Products** :  
May includes oxide of sulphur ( Sulphur trioxide, Sulphur dioxide and Sulphuric acid vapours ) , irritating and toxic fumes and gases
- **Incompatibilities with other material** :  
Incompatible with bases, strong dehydrating agents, organic materials, finely powdered metals, moisture, carbides, chlorates, cyanides, azides, fulminates, picrates, nitrates, alkali halides, zinc, iodide, permanganates, hydrogen peroxides, perchlorates, nitromethane, phosphorus, nitrites, cyclopentadiene, lithium silicates, benzene, reducing agents.

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- **Conditions to Avoid** :  
Incompatibles materials, ignition sources, metals, excess heat, combustible materials, organic materials, reducing agents, exposure to moist air or water, oxidizers, amines, bases.

## 11. TOXICOLOGICAL INFORMATION

- **Acute Toxicity** :

### Sulphuric Acid

Oral	Rat	LD <sub>50</sub>	: 2140	mg/kg
Dermal	Rabbit	LD <sub>50</sub>	: 250 x 10 <sup>-6</sup>	mg/kg ( Draize test )
Inhalation	Guinea pig	LC <sub>50</sub>	: 18 – 16	mg/l ( 8h )
	Rat	LC <sub>50</sub>	: 510	mg/l ( 2h )

### Oleum

Inhalation	Rat	LC <sub>50</sub>	: 347	mg/l ( 1h )
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- **Cancer List** :

INGREDIENT	CAS NO.	NTP CARCINOGEN KNOWN	NTP CARCINOGEN ANTICIPATED	IARC
Sulphuric Acid	7664-93-9	No	No	Group I
Sulphuric Trioxide	7446-11-9	No	No	Group I

## 12. ECOLOGICAL INFORMATION

- **Environmental Fate** :  
Avoid contaminating waterways. Dissociates in water to form sulfate salts, especially with calcium and magnesium.
- **Ecotoxicity** :  
Fish \* *L.machrochirus* EC<sub>50</sub> : pH 3,0 – 3,84 ( 96 h )  
Invertebrates \* *Daphnia magna* EC<sub>100</sub> : pH 3,05 = 88 mg/l ( 64 h )



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## 13. DISPOSAL CONSIDERATION

- **Spill/ Leak Procedures** :  
Spill procedures are dictated by site Refer to water waste Management Authority.
- **Large and small spill** :  
Sweep and shovel up dryer chemical and placed in covered container. Dike with inert material ( sand, earth etc ) and neutralize with soda ash and lime. Anhydrous sodium sulphate is useful to treat spills of oleum. Adequate ventilate must be provided.
- **Clean up** :  
Wash impacted areas with plenty of water or inert material to remove residues.

## 14. TRANSPORT INFORMATION

- **The UN classification number** :  
[UNRTDG]  
Proper shipping name : Sulphuric Acid fuming  
UN class : 8 ( Corrosive Substances )  
UN number : 1831  
Packing Group : I
- **Air Transport** :  
Not classified as Dangerous Goods by the criteria of International Air Transport Association ( IATA ) Dangerous Regulations for transport by air
- Any transportation practice must be in compliance with laws and regulation in your country or region.

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## 15. REGULATORY INFORMATION

- EU STATUS :

EINECS : Listed (no. 231-639-5)  
Classification & Labeling (67/548/EEC) :

[CLASSIFICATION] :

Xn : R20/21/22

Xi : R35/36/37/38/39

Xf : R48/49/52

[LABELING]

[F, Xn]

R20/21/22 – Harmful by inhalation, in contact with skin and if inhaled

R35 - Causes severe burns

R36/37/38 - Irritating to eyes, respiratory systems and skin.

S2 - Keep out of the reach of children.

S7 - Keep container in tightly closed

S24/25 - Avoid contact with skin and eyes

S30 - Never add water to this product

S36/37/39 - Wear suitable protective clothing, gloves and eye protecting

## 16. OTHER INFORMATION

- REFERENCES :

- 1) Data generated by PT. Mahkota Indonesia
- 2) Guidebook for GHS Classification and Labelling, March, 2008
- 3) Purple Book Rev 2, 2007
- 4) UNRTDG Orange Books 14<sup>th</sup> edition
- 5) Dangerous Properties of Material 6<sup>th</sup> edition, N. Irving Sach, March 1987
- 6) Hazardous Material in Industry 12<sup>th</sup> edition

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