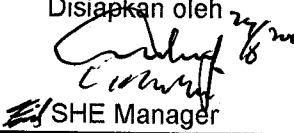
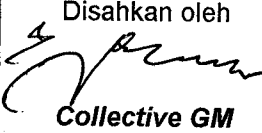




# PT. SULFINDO ADIUSAHA

## MATERIAL SAFETY DATA SHEET

### HYDROGEN

Disiapkan oleh  SHE Manager	Disahkan oleh  Collective GM	NO. DOKUMEN : TBL-QSE-SHE-007
		NO. REVISI : 1
		TGL. BERLAKU : 25 Juni 2020
		HALAMAN : 1/5

#### 1. Identification of the substance/preparation and the company / undertaking :

Identification of the product

Product Name : Hydrogen

Other Nama : -

Manufacturer / Supplier identification

Company : PT. Sulfindo Adiusaha, Serang – Banten, Indonesia

Contact for information : Telp : **+6221 525 8300**

Fax : **+6221 525 8399**

Emergency phone no : **+62254 575 0035 ext 2203**

#### 2. Information on ingredients

CAS-No : 1333-74-0

Molecular formula :  $H_2$

Form : Gas

Color : Colorless

Molar mass : 2.016

Pressure : 165 bar

#### 3. Hazard identification :

Pictogram



Signal Word

DANGER

Hazard identification :

Skin : -

Swallowed : -

Fire hazards : Extremely flammable. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Containers may explode when heated.

Inhalation : Some may be irritating if inhaled at high concentrations.

Precautionary Statement :

Wear appropriate chemical protective gloves such as Nomex, goggles and safety shoes.

Keep sparks, flames, and other sources of ignition away.

Do not handle until all safety precaution have been read and understood

Obtain special instruction before used

A



# PT. SULFINDO ADIUSAHA

## MATERIAL SAFETY DATA SHEET

### HYDROGEN

NO. DOKUMEN : TBL-QSE-SHE-007

TGL. BERLAKU : 25 Juni 2020

NO. REVISI : 1

HALAMAN : 2/5

#### 4. First aid measured

##### After inhalation

Remove person to fresh air; keep him warm and quiet and get medical attention immediately; start artificial respiration if breathing stops.

##### After skin contact

For burns skin, immediately flush with plenty of water for at least 15 min. then close with clean cloth and get medical attention. Use watergel / burnazim cream to help cool the skin by transferring heat from the burn to the carrier watercool.

#### 5. Fire fighting measure :

##### Nature of material :

Hydrogen is a colorless, odorless gas and extremely flammable. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Containers may explode when heated.

##### Suitable extinguishing media :

Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

##### Special risk :

Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air.

##### Special protective equipment for fire fighting :

Wear appropriate chemical protective gloves such as Nomex, goggles and safety shoes.

#### 6. Accidental release measures :

##### Small leakage :

Stoped leakage with closed the sources of gas.

##### Big leakage :

Keep sparks, flames, and other sources of ignition away. Attempt to stop leak if without undue personnel hazard.

##### Personal Protective Equipment used:

Wear appropriate chemical protective gloves such as Nomex, goggles and safety shoes.

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# PT. SULFINDO ADIUSAHA

## MATERIAL SAFETY DATA SHEET

### HYDROGEN

NO. DOKUMEN : TBL-QSE-SHE-007

TGL. BERLAKU : 25 Juni 2020

NO. REVISI : 1

HALAMAN : 3/5

#### 7. Handling and storage :

Handling :

Prevention to exposure :

Keep sparks, flames, and other sources of ignition away.

Storage

Pressure tank

#### 8. Exposure control / personal protection :

Personal protective equipment :

Wear appropriate chemical protective gloves such as Nomex, goggles and safety shoes.

#### 9. Physical and chemical properties :

Form

Gas

Colour

Colorless

Odor

odorless

Flammable Limits ( % vol in air )

Explosion limit lower

upper

Density

0.06948 (H<sub>2</sub> liquid)

Gas Density (H<sub>2</sub> to Air )

Vapor Pressure

-

Boiling point ( ASTM D1078 )

-252.7° C

Melting point

-259.1° C

Critical pressure

-

Water solubility, percent by weight

2.1 cm<sup>3</sup>/100 gr air (0° C)

0.85 cm<sup>3</sup>/100 gr air (80° C)

Flash Point

-

Auto Igtn Temp

-



# PT. SULFINDO ADIUSAHA

## MATERIAL SAFETY DATA SHEET

### HYDROGEN

NO. DOKUMEN : TBL-QSE-SHE-007

TGL. BERLAKU : 25 Juni 2020

NO. REVISI : 1

HALAMAN : 4/5

#### 10. Stability and reactivity

Reactivity :

Highly Flammable, Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air.

Stability

Stable

Condition to be avoided :

Keep sparks, flames, and other sources of ignition away. Please use intrinsically safe electric / electronic device.

Substances to be avoided :

Material causes spark, flame and other of ignition.

#### 11. Toxicological information :

Acute and Chronic toxicity : Some may be irritating if inhaled at high concentrations.

After skin contact : -

After eye contact : -

After swallowing : -

After inhalation : -

#### 12. Ecological information :

Environment effect :

no information available

Environment degradation:

no information available

Bio acumulation :

no information available

#### 13. Disposal Consideration

Use water spray to knock-down vapors.

R



# PT. SULFINDO ADIUSAHA

## MATERIAL SAFETY DATA SHEET

### HYDROGEN

NO. DOKUMEN : TBL-QSE-SHE-007

TGL. BERLAKU : 25 Juni 2020

NO. REVISI : 1

HALAMAN : 5/5

#### 14. Transport information

International Rules :

DOT rules or your country rules.

Transport over land :

Tank truck with rubber lining

Sea transportation :

Ship tanker

Air transportation :

no available

#### 15. Regulatory Information :

Ministry of Indonesian Man Regulation No. KEP. 187/MEN/1999 about Controlling of Hazardous Chemical Materials in Working Place, section III about Determined of Hazardous Potential of Instalation.

#### 16. Other Information

**Revison 1, June 2020**

The information given corresponds to the current state of our knowledge and experience of the the product.

This applies to product which conforms to the specification, unless otherwise stated.