



## SAFETY DATA SHEET (SDS)

SDS in accordance with UN GHS Purple Book

CAP – SDS – 20 – Styrene Monomer (Rev.07)

This SDS is effective as from 29 Feb 2024 and supersedes previous document published | Validity date: 28 Feb 2029

### SECTION-1. IDENTIFICATION

Product/Material	: Styrene Monomer
Recommended Use	: Intermediate material for use in manufacturing surfactants, polymers, and stabilizers.
Manufacturer	: PT Chandra Asri Pacific, Tbk
Head Office	: Wisma Barito Pacific, Tower A, 7th floor, Jl. Letjend S. Parman, Kav.62-63. Jakarta 11410, Indonesia. Phone: +62-21-5308505, Fax: +62-21-5308506.
Plant	: Desa Mangunreja, Kecamatan Puloampel, Kabupaten Serang, Propinsi Banten, Indonesia Phone: +62-254-5750080, Fax: +62-254-5750085.
Emergency contact (24 hrs)	: Health & Safety, Phone: +62-254-5750080 Ext: 3141, 3147 (24hrs), 3106 (daytime)
Website	: www.chandra-asri.com

### SECTION-2. HAZARD IDENTIFICATION

GHS Classification	: Flammable liquids: Category 3   Aspiration hazard: Category 1   Skin irritation: Category 2   Serious eye irritation: Category 2A   Acute toxicity – inhalation: Category 4   Specific organ target toxicity – single exposure: Category 3   Specific organ target toxicity – repeated exposure: Category 1   Hazardous to the aquatic environment, long term (chronic): Category 2.
Hazard statements	: H226: Flammable liquid and vapor   H304: May be fatal if swallowed and enters airways   H315: Causes skin irritation   H319: Causes serious eye irritation   H332: Harmful if inhaled   H335: May cause respiratory irritation   H372: May cause damage to organs through prolonged or repeated exposure   H411: Toxic to aquatic life with long-lasting effects.

Pictogram (Hazard Symbols)



Signal Word : DANGER

NFPA Hazard Rating : Health = 2 Flammability = 3 Reactivity = 2

Precautionary Statements

#### Prevention

: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources – No smoking | P233: Keep container tightly closed | P240: Ground and bond container and receiving equipment | P241: Use explosion-proof [electrical/ventilating/lighting] equipment | P242: Use non-sparking tools | P243: Take action to prevent static discharges | P260: Do not breathe dust/fume/gas/mist/vapors/spray | P261: Avoid breathing dust/fume/gas/mist/vapors/spray | P264: Wash thoroughly after handling | P270: Do not eat, drink or smoke when using this product | P271: Use only outdoors or in a well-ventilated area | P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

<b>Response:</b>	: P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor   P302+P352: IF ON SKIN: Wash with plenty of water   P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing   P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing   P312: Call a POISON CENTER/doctor if you feel unwell   P314: Get medical advice/attention if you feel unwell   P321: Specific treatment (see on this label)   P330: Rinse mouth   P331: Do NOT induce vomiting   P332+P313: If skin irritation occurs: Get medical advice/attention   P337+P313: If eye irritation persists: Get medical advice/attention   P362+P364: Take off contaminated clothing. And wash it before rinse.
<b>Storage</b>	: P403+P233: Store in a well-ventilated place – Keep container tightly closed   P405: Store locked up.
<b>Disposal</b>	: P501: Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).

### SECTION-3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	: Styrene Monomer
Molecular formula	: C <sub>8</sub> H <sub>8</sub> CAS No : 100-42-5
Common Name	: Inhibited Styrene, Phenyl ethylene, Ethenyl, Styrol, Cinnamene, Vinyl benzene, styrolene, styrene.
Concentration	: ≥ 99.7 %wt

### SECTION-4. FIRST-AID MEASURES

General advice	: Do not leave the victim unattended, Move out of dangerous area
Inhalation	: Move to fresh air, If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
Skin contact	: If skin irritation persists, call a physician. If on skin, rinse well with soap and water.
Eyes contact	: Remove any contact lenses. Flush eyes with running water for at least 20 minutes, Protect unharmed eye. If eye irritation persists, consult a specialist.
Swallowed	: Not applicable (gas) Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

### SECTION-5. FIRE-FIGHTING MEASURES

Flash Point	: 31°C (88°F)
Auto Ignition Temperature	: 490°C (914°F)
Special Protective Equipment	: Wear self-contained breathing apparatus for firefighting if necessary.
Further Information	: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and Explosion Protection	: Normal measures for preventive fire protection. Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and ignition sources
Products of Combustion	: The products are carbon oxides (CO, CO <sub>2</sub> )

### SECTION-6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	: Wear a self-contained breathing apparatus when entering the area unless the atmosphere is proven safe. Remove all ignition sources. Vapors can accumulate in low areas.
Environmental Precautions	: If the product contaminates rivers and lakes or drains inform respective authorities. Prevent product from entering drains, sewers, basements or confined areas.

Methods for Cleaning up : Wipe up with absorbent material (e.g. cloth, fleece). Keep in suitable, closed containers for disposal.

## SECTION-7. HANDLING AND STORAGE

### Handling

Advice on Safe Handling : Styrene vapors may polymerize in vents or flame arrestors of storage tanks. Electrostatic charge may accumulate and create a hazardous condition when handling this material. For personal protection see section 8. Smoking, eating, and drinking should be prohibited in the application area.

Advice on Protection Against Fire and Explosion : Normal measures for preventive fire protection. Take necessary action to avoid static electricity discharge. Keep away from open flames, hot surfaces and sources of ignition.

### Storage

Requirements for Storage Areas and Containers : Electrical installations/working materials must comply with the technological safety standards. Ground all equipment containing material

Advice on Common Storage : Do not store for extended periods. Avoid plastic, copper and copper alloy containers.

## SECTION-8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Ingredients with Workplace Control Parameters

Ingredients	Basis	Value	Control Parameter	Note
Styrene monomer	ACGIH	TLV-TWA	20 ppm	8 hour
		TLV-STEL	50 ppm	15 min

### Personal protective equipment

Respiratory Protection : When exposures are not adequately controlled, use respirator approved for protection from organic vapors.

Skin and Body Protection : When exposures are not adequately controlled, flame-retardant clothing covers the entire body.

Eyes Protection : Wear safety glasses or chemical goggles under a full-face shield is recommended.

Hygiene Measures : General industrial hygiene practices.

## SECTION-9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid, clear	Molecular Weight	104.16 g/mol
Color	Colorless	Freezing point	30.63°C (-23.13°F)
Odor	Sweet	Pour point	No data available
Flash Point	31°C (88°F)	Vapor Pressure	4.55 mmHg at 20°C
pH	Not Applicable	Boiling Point	145.15°C (293.27°F)
Lower Flammable Limit	0.9 % V	Water Solubility	0.029 %wt at 20°C
Upper Flammable Limit	6.8 % V	Viscosity Dynamic	0.763 cps
Oxidizing Properties	No	Relative Vapor Density	3.6 (air=1.0)
Auto Ignition Temperature	490°C (914°F)	Evaporation Rate	No data available
Molecular formula	C <sub>8</sub> H <sub>8</sub>	Volatile Content	> 0.975 %
Density (typical)	0.9 g/cm <sup>3</sup>		

## SECTION-10. STABILITY AND REACTIVITY

### Possibility of Hazardous Reaction

Condition to Avoid : Heat, light, catalyst, halogens or any other chemicals

Materials to Avoid : Corrosive to copper and copper bearing alloys. Oxidizing solid/liquids.

Other Data : This material is considered stable under normal ambient anticipated storage and handling conditions of temperature and pressure. No decomposition if stored and applied as directed.

#### **SECTION-11. TOXICOLOGICAL INFORMATION**

Acute Oral Toxicity : LD50: >5,000mg/kg | Species: rat | Sex: male and female.  
Acute Inhalation Toxicity : LD50: 11.8mg/l | Exposure time: 4 hrs | Species: rat | Test atmosphere vapor.  
Acute Dermal Toxicity : LD50: > 2,000mg/kg | Species: rat | Sex: male and female.  
Skin irritation : Irritating to skin  
Eye irritation : Irritating to eye  
Sensitization : Classification: Does not cause skin sensitization, largely based on human evidence  
Repeated Dose Toxicity : Species: mouse | Sex: male and female | Application Route: oral | Dose: 0, 150, 300 mg/kg | Exposure time: 78 wk | Number of exposures: 5 d/wk | NOEL: 150 mg/kg | Lowest observable effect level: 300 mg/kg.  
Aspiration toxicity : May be fatal if swallowed and enters airways. Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

#### **CMR effect of Styrene**

Carcinogenicity : This substance has been reported to cause tumors in certain animal species.  
Mutagenicity : In vitro tests showed mutagenic effects, which were not observed with in vivo tests.  
Teratogenicity : Did not show teratogenic effects in animal experiments.  
Reproductive toxicity : Suspected of damaging the unborn child.

#### **SECTION-12. ECOLOGICAL INFORMATION**

Toxicity to Fish : LC50: 4.02 mg/l | Exposure time: 96 hrs | Species: Pimephales promelas (fathead minnow) | Flow-through test | Test substance: yes | Toxic to fish.  
Toxicity to Daphnia and Other Aquatic Invertebrates : EC50: 4.7mg/l | Exposure time: 48 hrs | Species: Daphnia magna (Water flea) | flow-through test.  
Toxicity to Algae : EC50: 4.9 mg/l | Exposure time: 72 hrs | Species: Selenastrum capricornutum (algae).

#### **Elimination Information (Persistence and Degradability)**

Bioaccumulation : Does not significantly accumulate in organisms  
Biodegradability : According to the results of tests of biodegradability, this product is considered to be readily biodegradable  
Result of PBT assessment : This substance is not considered to be very persistent nor very bioaccumulating (vPvB). This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

#### **SECTION-13. DISPOSAL CONSIDERATIONS**

The information in this SDS pertains only to the product as shipped.

Use the material for its intended purpose or recycle it if possible. If it must be discarded, this material may meet the criteria of hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other state and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility. Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

#### SECTION-14. TRANSPORT INFORMATION

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading

<b>US DOT</b>	: UN2055, STYRENE MONOMER, STABILIZED, 3, III, RQ (STYRENE)
<b>IMO / IMDG</b>	: UN2055, STYRENE MONOMER, STABILIZED, 3, III, RQ (STYRENE), (31 °C)
<b>IATA</b>	: UN2055, STYRENE MONOMER, STABILIZED, 3, III
<b>ADR</b>	: UN2055, STYRENE MONOMER, STABILIZED, 3, III
<b>RID</b>	: UN2055, STYRENE MONOMER, STABILIZED, 3, III
<b>ADN</b>	: UN2055, STYRENE MONOMER, STABILIZED, 3, III

#### SECTION-15. REGULATORY INFORMATION

Classification and Labeling of Commonly Used Dangerous Chemical Substances. Primary label: Combustible Liquid

Europe REACH	: On the inventory, or in compliance with the inventory
United States US.TSCA	: On the inventory, or in compliance with the inventory
Canada DSL	: On the inventory, or in compliance with the inventory
Australia AICS	: On the inventory, or in compliance with the inventory
New Zealand NZIoC	: On the inventory, or in compliance with the inventory
Japan ENCS	: On the inventory, or in compliance with the inventory
Korea KECI	: On the inventory, or in compliance with the inventory
Philippines PICCS	: On the inventory, or in compliance with the inventory
China IECSC	: On the inventory, or in compliance with the inventory
Informasi Regulasi	: PERMENLH RI No. 3 Year 2008: Tata Cara Pemberian Simbol dan Label Bahan Berbahaya dan Beracun. PERMENPERIN RI No. 87/M-IND/PER/9/2009: Sistem Harmonisasi Global Klasifikasi dan Label pada Bahan kimia. KEPMENAKER 187/Men/1999 Pengendalian Bahan Kimia Berbahaya

#### SECTION-16. OTHER INFORMATION

##### Abbreviations that may have been used in this document:

<b>ACGIH</b>	: American Conference of Government Industrial Hygienists
<b>LOAEL</b>	: Lowest Observed Adverse Effect Level
<b>AICS</b>	: Australia, Inventory of Chemical Substance
<b>NFPA</b>	: National Fire Protection Agency
<b>NDSL</b>	: Canada, Domestic Substances List
<b>CNS</b>	: Central Nervous System
<b>CAS</b>	: Chemical Abstract Service
<b>EC</b>	: Effective Concentration
<b>EC50</b>	: Effective Concentration 50%
<b>EINECS</b>	: European Inventory of Existing Chemical Substances
<b>GHS</b>	: Globally Harmonized System
<b>IC50</b>	: Inhibition Concentration 50%
<b>IARC</b>	: International Agency for Research on Cancer
<b>IECS</b>	: Inventory of Existing Chemical Substances in China

<b>ENCS</b>	: Japan, Inventory of Existing and New Chemical Substances
<b>KECI</b>	: Korea, Existing Chemical Inventory
<b>LC50</b>	: Lethal Concentration 50%
<b>LD50</b>	: Lethal Dose 50%
<b>NIOSH</b>	: National Institute for Occupational Safety & Health
<b>NTP</b>	: National Toxicology Program
<b>NOEC</b>	: No Observed Effect Concentration
<b>PEL</b>	: Permissible Exposure Limit
<b>PRNT</b>	: Presumed Not Toxic
<b>RCRA</b>	: Resource Conservation Recovery Act
<b>STEL</b>	: Short-term Exposure Limit
<b>TLV</b>	: Threshold Limit Value
<b>TWA</b>	: Time Weighted Average
<b>US DOT</b>	: United States Department of Transportation
<b>IMDG</b>	: International Maritime Dangerous Goods
<b>IATA</b>	: International Air Transport Association
<b>ADR</b>	: Agreement on Dangerous Goods by Road (Europe)
<b>RID</b>	: Regulations Concerning the International Transport of Dangerous Goods
<b>ADN</b>	: European Agreement Concerning the Int'l Carriage of Dangerous Goods by Inland Waterways
<b>TSCA</b>	: Toxic Substance Control Act
<b>SARA</b>	: Superfund Amendments and Reauthorization Act

**This Safety Data Sheet (SDS) contains the following historical revisions:**

<b>Rev No</b>	<b>Issued Date</b>	<b>Revision Change</b>	<b>Description</b>
00	09 Jan 2015	Original Document	
01	25 Jan 2019	SECTION-01	Emergency Contact was modified
		SECTION-02	NFPA was modified
		SECTION-08	Personal Protective Equipment was modified
02	23 Feb 2021	SECTION-01	Additional information of manufacturer was modified
		SECTION-09	Density was added
03	23 Jul 2021	SECTION-01	Information of manufacturer was revised
04	14 Sep 2021	SECTION-01	Contact person was modified
05	19 Aug 2022	SECTION-02	GHS classification, hazard statement, and precautionary statement were modified
		SECTION-11	Toxicological information was modified
06	31 Jul 2023	SECTION-02	Modify hazard and precautionary statements
07	29 Feb 2024	SECTION-01	Change on company's name

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