

Safety Data Sheet

1. IDENTIFICATION

Product Name:	Styrene Monomer
Other Names:	SM
Recommended Use:	Raw material for used in polymer manufacture: SBR, ABS, SAN resins and rubber modified polystyrene for plastics; styrene-butadiene rubber latex. Styrene polyesters for GRP, FRP molding resins; styrene copolymer resins for coating; chemical intermediate.
Supplier:	Global Chemie ASCC Limited
Street Address:	88/123 Moo 2 Bangpoo Industrial Estate (North), Phraek Sa Mai, Mueang Samutprakan, Samutprakan 10280
Telephone:	+66 2324 6888
Fax:	+66 2324 6898-99
Emergency phone:	+66 2324 6888 ext.320

2. HAZARDS IDENTIFICATION

Health Hazard Classification

This product is classified as hazardous under GHS criteria

Hazardous Categories

Acute Toxicity: Category 4

Flammable liquids: Category 3

Eye Irritation: Category 2A

Skin Corrosion/Irritation: Category 2

Hazardous Statement

Highly Flammable liquid

GHS Pictograms



Hazard Statements

H226: Flammable liquid and vapour.

H315: Cause skin irritation.

H319: Cause serious eye irritation.

H335: May cause respiratory irritation.

Precautionary Statements

P210: Keep away from heat/sparks/open flames/hot surface and Non-smoking.

P233: Keep container tightly closed.

P240: Ground/Bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilating/lighting/equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measure against static discharge.

P261: Avoid breathe dust/fume/gas/mist/vapours/spray.

P264: Wash thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P272: Contaminated work clothing should not be allowed out of the workplace.

P280: Wear protective glove/eye protection/face protection.

Response

P303+P361 +P353: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P370+P378: In case of fire: Use manufacturer/supplier or the competent authority to specify appropriate media for extinction.

P302+P352: Wash with plenty of soap and water.

P362: Take off contaminated clothing and wash before reuse.

P332+P313: If skin irritation persists: Get medical advice/attention.

P304+P340: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P301+P312: Call a poison center or doctor/physician if you feel unwell.

Storage

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P403+P235: Store in a well-ventilated place. Keep cool.

P405: Store locked up.

Disposal

P501: Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied.

Signal Word Warning

3. COMPOSITION: Information on Ingredients

Chemical Ingredient	CAS No.	UN No.	Proportion (%v/v)
Styrene monomer	100-42-5	2055	>99.0

Molecular Formular: $C_6H_5CH=CH_2$

Molecular weight: 104.15 g/mol

4. FIRST AID MEASURES

For advice, contact Ramathibodi Poison Center (Phone: 1367) or a doctor.

Ingestion

Compel the victim to vomit it and transport to nearest medical facility for additional treatment.

Eye Contact

Immediately flush eyes with large amounts of water for at least 15 minutes. Transport to nearest medical facility for additional treatment.

Skin Contact

Remove contaminated clothing. Immediately flush skin with large amounts water and follow by washing with soap if available. **Inhalation**

Remove to fresh air. If the victim has difficulty breathing or tightness of the chest, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

5. FIRE FIGHTING MEASURES

Shut off product that may 'fuel' a fire if safe to do so. Allow trained personnel to attend a fire in progress, providing firefighters with this Safety Data Sheet. Prevent extinguishing media from escaping to drains and waterways.

Suitable extinguishing media

Dry chemical powder, Alcohol-resistant foam and Carbon dioxide .

Specific hazard arising from the chemical

May produce toxic fumes of carbon monoxide, carbon dioxide if burning.

Special protective action for fire-fighters

Keep adjacent containers cool by spraying with water.

Protective Equipment

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES**Protective Measures**

- Observe all relevant local and international regulations.
- Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see chapter 8 this Material Safety Data Sheet. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Clean-Up Methods**Small spillage (< 200 LT)**

Transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Large spillage (> 200 LT)

Transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Other Information

Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

7. HANDLING AND STORAGE

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| Handling | : Avoid contact with skin, eyes, and clothing. Do not breathe vapours. Extinguish any naked flame. Remove ignition sources. Avoid sparks. Do not smoke. The vapour is heavier than air spreads along the ground and distant ignition is possible. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Do not use compressed air for filling, discharging, or handling operations. Handle and open container with care in well-ventilated area. Do not empty into drains. |
| Storage | : Must be stored in a diked (bonded) well-ventilated area, away from sunlight to prevent polymerization reaction. Keep the temperature of this material at 30°C or under. Keep away ignition sources, other sources of heat and oxidizing agents. Keep under nitrogen blanket. Inspect frequently the vent and flame arrester of storage tank, because vapour not containing inhibitor is easy to polymerize. Check frequently the concentration of the inhibitor in this product. |
| Product Transfer | : Keep containers closed when not in use. Do not use compressed air for filling, discharging, or handling operations. If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve. Ensure electrical continuity by bonding and grounding (earthing) all equipment. |
| Recommended Materials | : For containers, or container linings use mild steel, stainless steel. |
| Additional Advice | : Containers even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers. |

8. EXPOSURE CONTROLS: PERSONAL PROTECTION**Control Parameters**

Exposure Standard	:	Occupational Exposure Limits <ul style="list-style-type: none"> • TLV-TWA = 50 ppm (215 mg/m³) • TLV-STEL = 100 ppm (425 mg/m³)
Engineering Controls Workplace	:	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value.
Respiratory Protection	:	Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hand Protection	:	Butyl rubber gloves, Nature rubber gloves, Neoprene rubber gloves, Nitrile rubber gloves.
Eye Protection	:	Chemical splash goggles (chemical monogoggles).
Other Protection	:	Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Unit of Measurement	Typical Value
Appearance	-	Colorless Liquid
Odour	-	Specific odour
pH	-	No data available
Boiling point	°C	145
Melting point	°C	-31
Flash point	°C	31
Autoignition Temperature	°C	490
Decomposition Temperature	°C	No data available
Lower/Upper Flammability Limits	%V	1.1-6.1
Density @ 20°C	g/cm ³	0.909
Specific Gravity @ 20°C	-	0.910
Viscosity @ 20°C	cSt.s	No data available
Vapor pressure	kPa	1.27
Vapor density	kPa (Air = 1)	3.6
Evaporation Rate	(n-Butyl acetate = 1)	No data available
Water Solubility	-	Immiscible
Solubility in other solvents Partition coefficient	(n-octanol/water)	No data available
Coefficient of Thermal Expansion	per Deg °C	No data available

The values listed are indicative of this product's physical and chemical properties. For a full product specification, please consult the Product Data Sheet.

10. STABILITY AND REACTIVITY

- Chemical Reactivity** : This product stable under normal condition by filling inhibitor.
- Stability** : This product stable under normal condition by filling inhibitor.
- Hazardous Polymerisation** : May undergo auto-polymerization.
- Conditions to Avoid** : Oxidizing agents, Peroxides, Amines, Bases, Acids, Reducing agents, Halogens.
- Materials to Avoid** : Oxidizing agents, Peroxides, Amines, Bases, Acids, Reducing agents, Halogens.
- Hazardous Decomposition Products** : Thermal decomposition is highly dependent on conditions. Carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation. May form explosive peroxides.

11. TOXICOLOGICAL INFORMATION

- Acute Toxicity : 2,650 mg/kg, (rat)
- LD₅₀ Acute oral toxicity : 12,000 mg/m³/4 hours, (rat)
 - LC₅₀ Acute inhalation toxicity
- Skin Irritation : Irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
- Eye Irritation : Irritating to eyes. Inflammation of the eye is characterized by redness, pain and itching.
- Respiratory Irritation : Inhalation of vapours or mists may cause irritation to the respiratory system.
- Carcinogenicity : This product has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

12. DISPOSAL CONSIDERATIONS

Acute Toxicity

Fresh Fish (*Lebistes reticulatus*) : Low toxicity LC₅₀ : 74.8 mg/l/96 hours

Crustacea (*Daphnia magna*) : Low toxicity EC₅₀ : 5 mg/l/24 hours

Mobility : Dissolves in ethanol and methanol. If product enters soil, it will low mobile and may contaminate groundwater.

Persistence / Degradability: Readily biodegradable.

Bioaccumulation: Not accumulate in biological organisms.

13. Disposal Considerations

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classifications and disposal methods in compliance with applicable regulations.
- Container Disposal** : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Refer to Section 7 before handling the product or containers. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recovered or metal reclaimed.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN No.	2055	UN No.	2055	UN No.	2055
Class/Item	3	Class/Item	3	Class/Item	3
Hazard Symbol	Flammable Liquid	Hazard Symbol	Flammable Liquid	Hazard Symbol	Flammable Liquid
Proper Shipping Name	Styrene Monomer, Stabilized	Proper Shipping Name	Styrene Monomer, Stabilized	Proper Shipping Name	Styrene Monomer, Stabilized
Packing Group	III	Packing Group	III	Packing Group	III
		Marine Pollutant	No		

Dangerous Goods Segregation

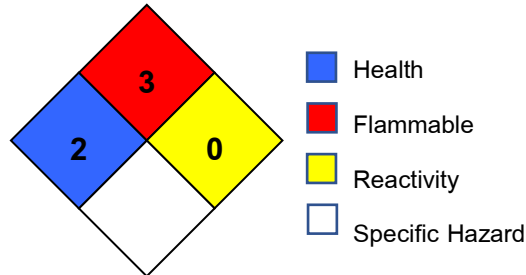
This product is classed as Dangerous Goods Class 3, packing group III. Please consult the Australian Dangerous Goods Code for Transport by Road and Rail for information.

15. Regulatory Information

EC Label Name : Styrene Monomer
 EC Classification : Highly Flammable
 EINECS (EC) : 202-851-5
 EC Annex I Number : 601-026-00-0
 RETCS : WL3675000

16. Other Information

National Fire Protection Association (USA) :



SDS Distribution : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty of guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Prepared By : Quality Control Department / Global Chemie ASCC Limited

Abbreviations:

AICS: Australian Inventory of Chemical Substances
 CAS Number: Chemical Abstracts Number
 IARC: International Agency for Research on Cancer
 N/A: not available

NOHSC: National Occupational Health and Safety

Council GHS: Global Harmonized System

References:

- Supplier Material Safety Data Sheets
 - <http://chem.sis.nlm.nih.gov/chemidplus> (October 18)
 - <http://hsis.ascc.gov.au/SearchHS.aspx> (October 18)
 - Ecotoxicology data: http://cfpub.epa.gov/ecotox/quick_query.htm (October 18)
 - *Sax's Dangerous Properties of Industrial Materials*, Richard J. Lewis Snr., pub. Canada (2000)
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The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the writer's knowledge. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product. No warranty and guarantee are expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product for further information, please contact Global Chemie ASCC Limited.