

Safety data sheet

according to UK REACH

Printing date 11.10.2024

Version number 1

Revision: 11.10.2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: Styrene

CAS number:

100-42-5

EC number:

202-851-5

Index number:

601-026-00-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Sector of Use: Product supplied for professional use only

Application of the substance / the preparation:

Relevant identified uses: Monomer for the preparation of copolymers

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

The Kuwait Styrene Company

Petrochemical Industries Company (K.S.C.) Building

Fahad Al Salem Street

South Al Sabahiya Industrial Area, Block 19 1084, Kuwait

Tel: +96523259585

Email: info@equate.com

Further information obtainable from:

B-Lands Consulting

5 Place Robert Schuman, BP 1516

38025 Grenoble, FRANCE

Tel: +33 476 295 869

Fax: +33 476 295 870

Email: clients@reachteam.eu

www.reachteam.eu

1.4 Emergency telephone number(s):

NCEC - English Support Only:

EMEA/Worldwide: +44 1865 407333

Americas/Worldwide +1 202 464 2554

APAC/Worldwide: +65 3165 2217

NHS Direct: 111

National Poisons Information Service (NPIS): 0121 507 4123 (healthcare professionals only).

Ireland - National Poisons Information Centre: 01 837 9964 or 01 809 2566 (healthcare professionals only).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 3 H226 Flammable liquid and vapour.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Repr. 2 H361d Suspected of damaging the unborn child.

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STOT RE 1 H372 Causes damage to the hearing organs through prolonged or repeated exposure.
Route of exposure: Inhalation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

The substance is classified and labelled according to the GB CLP regulation.

Hazard pictograms:



GHS02 GHS07 GHS08

Signal word: Danger

Hazard-determining components of labelling:

Benzene, ethenyl-

Hazard statements:

H226 Flammable liquid and vapour.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.
H372 Causes damage to the hearing organs through prolonged or repeated exposure. Route of exposure: Inhalation.

Precautionary statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/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.
P321 Specific treatment (see on this label).
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
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.
P362+P364 Take off contaminated clothing and wash it before reuse.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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SECTION 3: Composition/information on ingredients

3.1 Substances

CAS Number. Description.

100-42-5 Benzene, ethenyl-

Identification number(s)
EC number: 202-851-5**Index number:** 601-026-00-0
Hazardous components:

CAS: 100-42-5	Benzene, ethenyl-	50-100%
EINECS: 202-851-5	Flam. Liq. 3, H226; Repr. 2, H361d; STOT RE 1, H372;	
Index number: 601-026-00-0	Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319	
Reg.nr.: 01-2119457861-32-xxxx	Note: D	

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident is recommended.

After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in the recovery position.

After skin contact: Immediately wash with water and soap and rinse thoroughly.
After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents: Carbon dioxide (CO₂). Dry chemical. Foam.**For safety reasons unsuitable extinguishing agents:** Water.

5.2 Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

5.3 Advice for firefighters

Protective equipment:

Wear self-contained respiratory protective device.

Wear fully protective suit.

Additional information: Cool endangered receptacles with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate all sources of ignition.

Use respiratory protective device.

Use personal protective equipment. Keep unprotected persons away.

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Trade name: Styrene**6.2 Environmental precautions**

Do not allow product to reach sewage system or any water course.
Prevent seepage into sewage system, workpits and basements.
Inform respective authorities in case of seepage into water course or sewage system.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation.
Absorb liquid components with liquid-binding material.
Dispose contaminated material as waste according to section 13.

6.4 Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Wear personal protective equipment when handling.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.

Information about fire - and explosion protection:

Vapours may form explosive mixture with air.
Containers should be earthed during decanting operations.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

7.2 Conditions for safe storage, including any incompatibilities**Requirements to be met by storerooms and receptacles:**

Unsuitable materials for containers: brass, Copper

Information about storage in one common storage facility:

Storage temperature: < 40 °C
Check frequently to ensure that stabilizer content is adequate.

Further information about storage conditions: Keep container tightly closed.

7.3 Specific end use(s): No further relevant information available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Ingredients with limit values that require monitoring at the workplace:****100-42-5 Benzene, ethenyl-**

WEL	Short-term value: 1080 mg/m ³ , 250 ppm Long-term value: 430 mg/m ³ , 100 ppm
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Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls**Individual protection measures, such as personal protective equipment****General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.
Wash hands before breaks and at the end of work.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Store protective clothing separately.
Avoid contact with the eyes and skin.

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Trade name: Styrene**Respiratory protection:**

Filter A/P2

In case of brief exposure use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Hand protection

Protective gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/the preparation/the chemical mixture.

Select the glove material based on a consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material:

> 480 min (EN 374)

0.7 mm coating thickness

The exact break through time must be determined by the manufacturer of the protective gloves.

Eye/face protection

Safety goggles (EN 166).

Goggles recommended during refilling

Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties**General Information****Physical state**

Fluid

Colour:

Colourless.

Odour:

Sweet.

Odour threshold:

Not determined.

Melting point/freezing point:

-31 °C

Boiling point or initial boiling point and boiling range

145 °C (100-42-5 Benzene, ethenyl-)

Flammability

Flammable.

Lower and upper explosion limit**Lower:**

Not determined.

Upper:

Not determined.

Flash point:

31 °C (100-42-5 Styrene)

Auto-ignition temperature:

490 °C (100-42-5 Benzene, ethenyl-)

Decomposition temperature:

Not determined.

pH

Not determined.

VOC (EC):**Kinematic viscosity at 25 °C**0.77 mm²/s**Dynamic at 20 °C:**

0.696 mPas

Solubility**Water at 25 °C:**

0.32 g/l

Partition coefficient n-octanol/water (log value)

Not determined.

Vapour pressure at 20 °C:

6 hPa (100-42-5 Benzene, ethenyl-)

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Trade name: Styrene**Density and/or relative density****Density at 20 °C:**0.9 g/cm³**Relative density**

Not determined.

Vapour density

Not determined.

9.2 Other information**Appearance:****Form:**

Liquid.

Explosive properties:

Not determined.

Solids content:

0.0 %

Softening point/range**Oxidising properties**

Not determined.

Evaporation rate

Not determined.

Information with regard to physical hazard classes**Explosives**

Not applicable.

Flammable gases

Not applicable.

Aerosols

Not applicable.

Oxidising gases

Not applicable.

Gases under pressure

Not applicable.

Flammable liquids

Flammable liquid and vapour.

Flammable solids

Not applicable.

Self-reactive substances and mixtures

Not applicable.

Pyrophoric liquids

Not applicable.

Pyrophoric solids

Not applicable.

Self-heating substances and mixtures

Not applicable.

Substances and mixtures, which emit flammable gases in contact with water

Not applicable.

Oxidising liquids

Not applicable.

Oxidising solids

Not applicable.

Organic peroxides

Not applicable.

Corrosive to metals

Not applicable.

Desensitised explosives

Not applicable.

SECTION 10: Stability and reactivity**10.1 Reactivity** No further relevant information available.**10.2 Chemical stability****Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Radical formation can cause exothermic polymerization.

Polymerizes explosively when heated or in contact with bases, acids and metal ions.

Risk of spontaneous and violent self-polymerization if inhibitor is lost or product is exposed to excessive heat.

Risk of exothermic reaction.

Risk of spontaneous polymerization when heated or in the presence of UV radiation.

Risk of spontaneous polymerization in the presence of starters for radical chain reactions (e.g. peroxides).

Polymerization occurs with acids and acid forming substances.

10.4 Conditions to avoid

Avoid high temperatures.

Avoid formation of polymers in valves and pipes.

Avoid inhibitor loss.

10.5 Incompatible materials

Oxidizing agents.

Peroxides

Vinyl polymer catalysts

Caustics

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Copper alloys
Metallic halides (salts)

10.6 Hazardous decomposition products

Thermal decomposition products include carbon monoxide and carbon dioxide.
Aromatic hydrocarbons

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity** Harmful if inhaled.**LD/LC50 values:****100-42-5 Benzene, ethenyl-**

Oral	LD50	5,000 mg/kg (Rat)
Dermal	LD50	>2,000 mg/kg (Rat)
Inhalative	LC50/4h	11.8 mg/L (Rat)

Potential Health Effects:**Primary irritant effect:****Skin corrosion/irritation:** Causes skin irritation.**Serious eye damage/irritation:** Causes serious eye irritation.**Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.**Germ cell mutagenicity:** Based on available data, the classification criteria are not met.**Carcinogenicity:** Based on available data, the classification criteria are not met.**Reproductive toxicity:** Suspected of damaging the unborn child.**STOT-single exposure:** Based on available data, the classification criteria are not met.**STOT-repeated exposure:**

Causes damage to the hearing organs through prolonged or repeated exposure. Route of exposure:
Inhalation.

Aspiration hazard: Based on available data, the classification criteria are not met.**Additional toxicological information:****CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):**

Repr. 2

11.2 Information on other hazards**11.2.1 Endocrine disrupting properties**

Substance is not listed.

SECTION 12: Ecological information**12.1 Toxicity****Aquatic toxicity:****100-42-5 Benzene, ethenyl-**

LC50/96h	4.02 mg/L (Fish)
EC50/48h	4.7 mg/L (Daphnia Magna)
EC50/72h	4.9 mg/L (algae)
EC50/30min	500 mg/L (Activated Sludge)

12.2 Persistence and degradability

Styrene can be readily degraded in water under aerobic conditions.

Styrene degrades more slowly in groundwater than in surface waters.

12.3 Bioaccumulative potential

The BCF values suggest that the compound probably does not accumulate appreciably in aquatic organisms. Moreover, because styrene is probably metabolized and excreted, bioaccumulation is unlikely.

Bioconcentration factor (BCF) 1.714 to 2.016 l/kg

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Trade name: Styrene**12.4 Mobility in soil** No further relevant information available.**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

12.7 Other adverse effects**Additional environmental information:****100-42-5 Benzene, ethenyl-**

NOEC/21d | 1.01 mg/L (Daphnia Magna)

General notes:

Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Recommendation:**

Disposal must be made in accordance with official regulations.

Do not allow product to reach sewage system.

Uncleaned packaging:**Recommendation:**

Disposal must be made in accordance with official regulations.

Packaging that may not be cleansed must be disposed of in the same manner as the product.

SECTION 14: Transport information**14.1 UN number or ID number**

ADR, IMDG, IATA

UN2055

14.2 UN proper shipping name

ADR

IMDG, IATA

2055 STYRENE MONOMER, STABILIZED
STYRENE MONOMER, STABILIZED**14.3 Transport hazard class(es)**

ADR, IMDG, IATA

**Class**
Label3 Flammable liquids.
3**14.4 Packing group**

ADR, IMDG, IATA

III

14.5 Environmental hazards

Not applicable.

14.6 Special precautions for user

Warning: Flammable liquids.

Hazard identification number (Kemler code):

30

EMS Number:

F-E,S-D

Stowage Category

C

Stowage Code

SW1 Protected from sources of heat.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

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Trade name: Styrene**Transport/Additional information:****ADR****Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

D/E

Tunnel restriction code:**IMDG****Limited quantities (LQ)**

5L

Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Poisons Act****Regulated explosives precursors**

Substance is not listed.

Regulated poisons

Substance is not listed.

Reportable explosives precursors

Substance is not listed.

Reportable poisons

Substance is not listed.

Directive 2012/18/EU**Named dangerous substances - ANNEX I** The substance is not listed**Seveso category** P5c FLAMMABLE LIQUIDS**Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t**Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t**REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3**DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

Substance is not listed.

REGULATION (EU) 2019/1148**Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

Substance is not listed.

Annex II - REPORTABLE EXPLOSIVES PRECURSORS

Substance is not listed.

Regulation (EC) No 273/2004 on drug precursors

Substance is not listed.

Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

Substance is not listed.

15.2 Chemical safety assessment A Chemical Safety Assessment has not been carried out.**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

H226 Flammable liquid and vapour.

H315 Causes skin irritation.

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Trade name: Styrene

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H361d Suspected of damaging the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

Date of previous version: 30.11.2020**Abbreviations and acronyms:**

WEL: Workplace Exposure Limits

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Repr. 2: Reproductive toxicity – Category 2

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1