

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

Catalogue Number	CS-IP-00379
Product Name	Styrene
CAS No.	100-42-5
Category	IP Standards
Synonyms	Not available
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email sales@clearsynth.com for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

- Skin irritation (Category 2)
- Serious eye damage/eye irritation (Category 2)
- Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H226	Not available
H315	Causes skin irritation.

H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H372	Not available
H304	Not available
H335	Not available
H361	Not available
H412	Not available
H413	Not available
H401	Not available
H336	Not available
H341	Not available
H350	Not available
H360	Not available
H370	Not available
H351	Not available
H400	Not available
H411	Toxic to aquatic life with long lasting effects.
H303	Not available

Precautionary Statement(s)

Code	Statement
P203	Not available
P210	Not available
P233	Not available
P240	Not available
P241	Not available
P242	Not available
P243	Not available
P260	Not available
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.

P264	Wash hands thoroughly after handling.
P264+P265	Not available
P270	Not available
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P303+P361+P353	Not available
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.
P317	Not available
P318	Not available
P319	Get medical help if you feel unwell.
P321	Specific treatment (see ... on this label).
P332+P317	If skin irritation occurs: Get medical help.
P337+P317	If eye irritation persists: Get medical help.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	Not available
P403+P235	Not available
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
P273	Not available
P301+P316	Not available
P331	Not available
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P308+P316	Not available
P391	Not available
P301+P317	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Styrene
 CAS Number : 100-42-5
 Molecular Formula : C₈H₈
 Molecular Weight : 104.2
 Parent Chemical : Not available
 Synonyms : Not available
 Concentration : Not available

SECTION 4: First aid measures

Not available

SECTION 5: Firefighting measures

Not available

SECTION 6: Accidental release measures

Not available

SECTION-7: Handling and storage

Not available

SECTION 8: Exposure controls / personal protection

Not available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available

Property	Value
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

Not available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: Acute exposure to high concn of styrene may produce irritation of the mucous membranes of the upper respiratory tract, nose and mouth. The principal acute hazards from worker exposure to styrene /is/ ... irritation of the skin, eyes, and upper respiratory tract.
- Skin corrosion/irritation: No data available.
- Serious eye damage/eye irritation: /Exposure to/ styrene vapor /at/ ... 100 ppm in air causes mild irritation of eyes and throat in 20 min in some people. Even at 375 ppm not all people feel significant eye irritation in 15 min, but all have nasal irritation at this concn. Concn of 400 and 500 ppm more consistently cause irritation of eyes and nose, but can be tolerated. /HUMAN EXPOSURE STUDIES/ ... Human volunteers /were exposed/ to styrene vapor for periods of 1-7 hr. At doses of 52 and 117 ppm subjects reported smelling a moderately strong, but not objectionable, odor of styrene upon entering the chamber. The odor diminished during the 1 or 2 hr exposure. No symptoms or objective signs of illness were reported. One of nine subjects reported nasal irritation following 20 min exposure to

216 ppm. There were no neurologic symptoms or physical findings. At 376 ppm, 2 subjects reported mild ocular irritation within 3 min and 2 more within 15 min, and all reported nasal irritation. One subject reported a burning sensation of the skin of the face. The odor decreased but remained perceptible during the exposure period. Neurologic impairments, measured by performance on a modified Romberg test, a dexterity test, and a coordination test, were noted during this exposure. One subject reported nausea, 2 reported a feeling of slight inebriation, and 2 reported headache. Clinical lab studies, including complete blood count, erythrocyte sedimentation rate, reticulocyte count, serum glutamic pyruvic transaminase (SGPT), lactic dehydrogenase (LDH), alkaline phosphatase, blood urea nitrogen, creatinine, glucose, and urinalysis, were normal and unchanged from preexposure values. To simulate a work day ... the same human volunteers /were exposed/to 99 ppm styrene for an initial 3 1/2 hr period, followed by 30 min in a uncontaminated area, then 3 1/2 hr additional exposure. Subjectively, 3 subjects reported mild eye or throat irritation within 20 min. At the end of the exposure period, the odor of styrene was barely perceptible and none of the subjects reported nausea, headache, or irritation of the eyes, nose, or throat. All reported no objection to working in this concn for an indefinite period of time. There were no objective signs of impairment of balance or coordination. Results of clinical lab studies were again normal and unchanged from preexposure values.

- Respiratory or skin sensitization: No data available.

- Germ cell mutagenicity: No adequate human studies are available for styrene-7,8-oxide although this is the primary and active epoxide metabolite of styrene. Both are genotoxic and form DNA adducts in humans. Styrene induced reverse mutations in *Salmonella typhimurium* TA1535 and TA100 in presence of metabolic activation. It was not mutagenic to TA1537, TA1538 or TA98. Styrene was not mutagenic in spot test with various strains of *Salmonella typhimurium* without metabolic activation. It did not induce forward mutations in *Schizosaccharomyces pombe*, even with metabolic activation. In host-mediated assay using male mice, 1000 mg/kg styrene increased gene conversion frequency in *Saccharomyces cerevisiae* strain D4. Styrene 7,8-oxide, a metabolite of styrene, can form DNA adducts by binding to deoxyguanosine. It is also mutagenic and causes increased frequency of sister chromatid exchange, chromosomal aberrations, micronucleated cells, and DNA strand breaks.

- Carcinogenicity: Epidemiologic studies found styrene workers had increased mortality or incidences of lymphohematopoietic cancers (leukaemia or lymphoma or all), with suggestive evidence for pancreatic and esophageal tumors. Long-term chemical carcinogenesis bioassays showed that styrene caused lung cancers in several strains of mice and mammary cancers in rats and styrene-7,8-oxide caused tumors of the forestomach in rats and mice and of the liver in mice. Styrene is reasonably anticipated to be a human carcinogen based on limited evidence of carcinogenicity from studies in humans, sufficient evidence of carcinogenicity from studies in experimental animals, and supporting data on mechanisms of carcinogenesis.

- Reproductive toxicity: Effects on the reproductive system (e.g., decreased frequency of births and increased frequency of spontaneous abortions in female workers) have been reported. When rats were given 0, 125, or 250 ppm commercial grade styrene in their drinking water for three generations, no treatment-related changes in reproduction could be detected.

- STOT-single exposure: No data available.

- STOT-repeated exposure: Long-term contact with styrene results in blistering of the skin and development of dermatitis, which is thought to result from defatting of the skin. Effects on the liver (e.g., increased serum bile acid and enhanced activity of plasma enzymes) and reproductive system (e.g., decreased frequency of births and increased frequency of spontaneous abortions in female workers) have been reported.

- Aspiration hazard: No data available.

Likely routes of exposure

- At high concentrations (higher than 100 ppm), styrene is a respiratory and mucous membrane irritant. Skin contact may result in the development of primary irritant dermatitis.

Symptoms related to the physical, chemical and toxicological characteristics

- Potential symptoms of overexposure are irritation of eyes, nose, respiratory system

SECTION 12: Ecological information

Not available

SECTION 13: Disposal considerations

Not available

SECTION 14: Transport information

Not available

SECTION 15: Regulatory information

Not available

SECTION 16: Other information

Not available

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