

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 07/22/2019

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## SECTION 1. Identification

### Product identifier

Product name	Styrene (stabilised) for synthesis
CAS-No.	100-42-5

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

Identified uses	Chemical for synthesis
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### Details of the supplier of the safety data sheet

Company	Consolidated Chemical & Solvents, LLC 405 Business Park Lane Allentown, PA 18109
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 3, H226  
Acute toxicity, Category 4, Inhalation, H332  
Skin irritation, Category 2, H315  
Eye irritation, Category 2, H319  
Acute aquatic toxicity, Category 1, H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

#### Hazard pictograms



#### Signal Word

Warning

#### Hazard Statements

H226 Flammable liquid and vapor.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.

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H332 Harmful if inhaled.  
H400 Very toxic to aquatic life.

*Precautionary Statements*

P210 Keep away from heat.

P273 Avoid release to the environment.

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

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

**OSHA Hazards**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

**Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

Formula	C <sub>6</sub> H <sub>5</sub> CHCH <sub>2</sub>	C <sub>8</sub> H <sub>8</sub> (Hill)
Molar mass	104.15 g/mol	

**Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

*styrene ( >= 90 % - <= 100 % )*

100-42-5

Exact percentages are being withheld as a trade secret.

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**SECTION 4. First aid measures**

**Description of first-aid measures**

*Inhalation*

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

*Ingestion*

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**

irritant effects, Dermatitis, Dizziness, Vomiting, Tiredness  
Drying-out effect resulting in rough and chapped skin.

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**Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5. Fire-fighting measures**

**Extinguishing media**

*Suitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

**Special hazards arising from the substance or mixture**

Combustible.

Development of hazardous combustion gases or vapors possible in the event of fire.

Forms explosive mixtures with air at elevated temperatures.

Explosive decomposition possible on heating.

Vapors are heavier than air and may spread along floors.

**Advice for firefighters**

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

**Environmental precautions**

Do not empty into drains. Risk of explosion.

**Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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**SECTION 7. Handling and storage**

**Precautions for safe handling**

Observe label precautions.

*Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

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**Conditions for safe storage, including any incompatibilities**

Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

Store below +15°C (+59°F).

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**SECTION 8. Exposure controls/personal protection****Exposure limit(s)***Ingredients*

Basis	Value	Threshold limits	Remarks
<i>styrene 100-42-5</i>			
ACGIH	Time Weighted Average (TWA):	20 ppm	
	Short Term Exposure Limit (STEL):	40 ppm	
NIOSH/GUIDE	Short Term Exposure Limit (STEL):	100 ppm	
	Short Term Exposure Limit (STEL):	425 mg/m <sup>3</sup>	
	Recommended exposure limit (REL):	50 ppm 215 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	50 ppm 215 mg/m <sup>3</sup>	
	Short Term Exposure Limit (STEL):	100 ppm 425 mg/m <sup>3</sup>	
OSHA/Z2	Ceiling Limit Value:	200 ppm	
	Maximum concentration:	600 ppm	Ceiling Limit Value 5 minutes in any 3 hours
	Time Weighted Average (TWA):	100 ppm	

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Safety glasses

*Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

*Other protective equipment:*

Flame retardant antistatic protective clothing

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*Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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**SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	colorless
Odor	sweet
Odor Threshold	No information available.
pH	No information available.
Melting point	-31 °C
Boiling point/boiling range	293 °F ( 145 °C) at 1,013 hPa
Flash point	88 °F ( 31 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.1 %(V)
Upper explosion limit	8.9 %(V)
Vapor pressure	6 hPa at 68 °F ( 20 °C)
Relative vapor density	3.59
Density	0.906 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Relative density	No information available.
Water solubility	0.24 g/l at 68 °F ( 20 °C)
Partition coefficient: n-octanol/water	log Pow: 2.96 OECD Test Guideline 107 Bioaccumulation is not expected.

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Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	0.762 mPa.s at 68 °F ( 20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	896 °F ( 480 °C)
Saturated vapor concentration	25.6 g/m <sup>3</sup> at 68 °F ( 20 °C)

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## **SECTION 10. Stability and reactivity**

### **Reactivity**

Vapor/air-mixtures are explosive at intense warming.

### **Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

#### *Stabilizer*

4-tert-butylpyrocatechol

### **Possibility of hazardous reactions**

Exothermic reaction with:

chlorosulfonic acid, Oxidizing agents

Chlorine

with

Iron

Violent polymerization may be caused by:

aluminum chloride, sodium

Risk of explosion with:

Strong acids, polymerization initiators, Peroxides

Oxygen

with

heat

### **Conditions to avoid**

Heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### **Incompatible materials**

no information available

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**Hazardous decomposition products**  
no information available

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**SECTION 11. Toxicological information**

**Information on toxicological effects**

*Likely route of exposure*

Inhalation, Eye contact, Skin contact

*Target Organs*

Eyes

Skin

Respiratory system

Central nervous system

Liver

reproductive system

*Acute oral toxicity*

LD50 rat: 2,650 mg/kg (RTECS)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

*Acute inhalation toxicity*

LC50 rat: 12 mg/l; 4 h (RTECS)

absorption

Symptoms: Possible damages:, Irritation symptoms in the respiratory tract.

*Skin irritation*

rabbit

Result: Irritations

(IUCLID)

Drying-out effect resulting in rough and chapped skin.

Causes skin irritation.

Dermatitis

*Eye irritation*

rabbit

Result: Eye irritation

(IUCLID)

Causes serious eye irritation.

*Sensitization*

Sensitization test: guinea pig

Result: negative

(IUCLID)

*Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

**Carcinogenicity**

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IARC	Group 2B: Possibly carcinogenic to humans styrene 100-42-5
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**Further information**

After absorption:

Tiredness, Dizziness, Vomiting

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12. Ecological information**

**Ecotoxicity**

*Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 25 mg/l; 96 h (in soft water) (Lit.)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 4.7 mg/l; 48 h (Lit.)

EC5 *E.sulcatum*: > 256 mg/l; 72 h (Lit.)

*Toxicity to algae*

IC5 *M.aeruginosa*: 67 mg/l; 8 d (Lit.)

IC50 *Pseudokirchneriella subcapitata* (green algae): 0.72 mg/l; 96 h (Lit.)

*Toxicity to bacteria*

microtox test EC50 *Photobacterium phosphoreum*: 5.5 mg/l; 5 min (Lit.)

EC5 *Pseudomonas putida*: 72 mg/l; 16 h (Lit.)

**Persistence and degradability**

*Biodegradability*

80 %; 20 d

OECD Test Guideline 301D

(IUCLID)

Readily biodegradable.

**Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: 2.96

OECD Test Guideline 107

Bioaccumulation is not expected.

**Mobility in soil**

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No information available.

**Other adverse effects**

*Henry constant*

195 Pa\*m<sup>3</sup>/mol

(Lit.) Distribution preferentially in air.

*Stability in water*

237 d

reaction with hydroxyl radicals (experimental)

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**SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

<b>UN number</b>	UN 2055
<b>Proper shipping name</b>	STYRENE MONOMER, STABILIZED
<b>Class</b>	3
<b>Packing group</b>	III
<b>Environmentally hazardous</b>	--

**Air transport (IATA)**

<b>UN number</b>	UN 2055
<b>Proper shipping name</b>	STYRENE MONOMER, STABILIZED
<b>Class</b>	3
<b>Packing group</b>	III
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	no

**Sea transport (IMDG)**

<b>UN number</b>	UN 2055
<b>Proper shipping name</b>	STYRENE MONOMER, STABILIZED
<b>Class</b>	3
<b>Packing group</b>	III
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	yes
<b>EmS</b>	F-E S-D

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**SECTION 15. Regulatory information**

**United States of America**

**OSHA Hazards**

Flammable Liquid  
Skin irritant  
Eye irritant  
Carcinogen  
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

**SARA 311/312 Hazards**

Fire Hazard  
Acute Health Hazard  
Chronic Health Hazard

**SARA 313**

The following components are subject to reporting levels established by SARA Title III, Section 313:

*Ingredients*

styrene	100-42-5	99.9985 %
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**SARA 302**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

*Ingredients*

styrene

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

*Ingredients*

styrene

**DEA List I**

Not listed

**DEA List II**

Not listed

**US State Regulations**

**Massachusetts Right To Know**

*Ingredients*

styrene

**Pennsylvania Right To Know**

*Ingredients*

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styrene

**New Jersey Right To Know**

*Ingredients*

styrene

**California Prop 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

**Full text of H-Statements referred to under sections 2 and 3.**

H226	Flammable liquid and vapor.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information. CCS, LLC and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

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