

## Styrene- $\alpha,\beta,\beta$ -d<sub>3</sub> (stabilized with hydroquinone)

### Section 1. Chemical product and company identifications

**Product code:** D-0458

**Chemical formula:** C<sub>8</sub>H<sub>5</sub>D<sub>3</sub>

**CAS:** 3814-93-5

**CAS (unlabelled):** 100-42-5

**Synonyms:** Phenylethylene, Vinylbenzene

**Supplier / Manufacturer:**

**C/D/N Isotopes Inc.**

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Website: www.cdnisotopes.com

**In case of emergency:**

**TOXYSKAN HOTLINE: 1-855-780-0599**

### Section 2. Hazards identifications

**Physical state:** Liquid

**Warning:** Flammable liquid and vapour. Harmful if inhaled. Causes skin irritation. Causes serious eye irritation.




**Routes of entry:** Inhalation, ingestion, skin and eyes

#### **GHS (Globally Harmonized System of Classification and Labelling of Chemicals):**

**GHS Classification:**

- Flammable liquids (Category 3)
- Acute toxicity, Inhalation (Category 4)
- Skin irritation (Category 2)
- Eye irritation (Category 2A)
- Reproductive toxicity (Category 2)
- Carcinogenicity (Category 2)
- Specific target organ toxicity - repeated exposure (Category 1)

**GHS Label elements:**

- Pictograms:   
- Signal word: Danger

**Hazards statement:**

- H226 Flammable liquid and vapour.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H351 Suspected of causing cancer.
- H361 Suspected of damaging fertility or the unborn child.
- H372 Causes damage to organs through prolonged or repeated exposure.

**Precautionary statement:**

- P210 Keep away from heat/ hot surfaces/ sparks/ open flames/ ignition sources. No smoking.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
- P317 Get medical help.

### **Section 3. Composition and information on ingredients**

| <b><u>Name</u></b>                            | <b><u>CAS</u></b> | <b><u>Concentration %</u></b> |
|---|-------------------|-------------------------------|
| Styrene- $\alpha,\beta,\beta$ -d <sub>3</sub> | 3814-93-5         | > 98                          |

### **Section 4. First aid measures**

**Eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Skin contact:** Wash off with soap and plenty of water. Consult a physician.

**Inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### **Section 5. Firefighting measures**

**Flammability of the product:** Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Lower explosion limit:** 1.1 Vol%

**Upper explosion limit:** 8.9 Vol%

**Auto-ignition temperature:** 490 °C (914 °F)

**Flash point:** 31 °C (89 °F)

**Products of combustion:** Hazardous decomposition products formed under fire conditions: Carbon oxides.

**Firefighting media and instructions:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

### **Section 6. Accidental release measures**

**Personal precautions:** Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.

**Environmental precautions:** Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### **Section 7. Handling and storage**

**Handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Provide appropriate exhaust ventilation. Keep away from sources of ignition - No smoking.

**Storage:** STORE REFRIGERATED. Adequate ventilation. Protect from heat and ignition sources.

### **Section 8. Exposure Controls, Personal Protections**

**Engineering controls:** Use mechanical exhaust or laboratory fumehood to avoid exposure.

**Eyes:** Safety glasses with side-shields conforming to NIOSH (US) or EN 166 (EU).

**Respiratory:** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US).

**Hands:** Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Skin/body:** Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### **Section 9. Physical and chemical properties (unlabelled)**

**Molecular weight:** 104.15 g/mol

**Physical status:** Liquid

**Color:** Colorless

**Odour:** Sweet

**Density:** 0.906 g/cm<sup>3</sup>

**Melting point:** -31 °C (-24 °F)

**Boiling point:** 145 - 146 °C (293 - 295 °F)

**Vapour pressure:** 6 hPa (5 mmHg) at 20 °C (68 °F)

**Vapour density:** 3.6 (Air = 1)

**Partition coefficient (octanol/water):** log Pow: 2.95

**Water solubility:** 0.31 g/L

## **Section 10. Stability and reactivity**

**Stability and reactivity:** Stable under recommended storage conditions.

**Incompatibility:** Strong oxidizing agents, copper.

**Products of combustion:** Hazardous decomposition products formed under fire conditions: Carbon oxides.

**Reactivity conditions:** Heat, flames and sparks. May polymerize on exposure to light.

## **Section 11. Toxicological information (unlabelled)**

**Toxicological data:** Styrene

**Information on ingredients:**

| <b><u>Name</u></b> | <b><u>CAS</u></b> | <b><u>LD<sub>50</sub></u></b> | <b><u>LC<sub>50</sub></u></b>                     |
|--------------------|-------------------|-------------------------------|---|
| Styrene            | 100-42-5          | Oral - Rat - 2,650 mg/kg      | Inhalation - Rat - 4 h - 12,000 mg/m <sup>3</sup> |

### **Potential acute effects**

- **Eyes:** Causes serious eye irritation.
- **Skin:** May be harmful if absorbed through skin. Causes skin irritation.
- **Inhalation:** Harmful if inhaled. May cause respiratory tract irritation.
- **Ingestion:** May be harmful if swallowed.

### **Potential chronic effects**

- **Carcinogenic effects:** This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Styrene).
- **Mutagenic effects:** Laboratory experiments have shown mutagenic effects.
- **Teratogenic effects:** Suspected of damaging the unborn child. Suspected human reproductive toxicant.
- **Medical conditions aggravated by overexposure:** Causes damage to organs through prolonged or repeated exposure.

## **Section 12. Ecological information**

**Ecological data:**

| <b><u>Name</u></b> | <b><u>Results</u></b> | <b><u>Species</u></b>           | <b><u>Period</u></b> |
|--------------------|-----------------------|---------------------------------|----------------------|
| Styrene            | 32 mg/l LC50          | Pimephales promelas             | 96 h                 |
|                    | 4.7 mg/l EC50         | Daphnia magna                   | 48 h                 |
|                    | 1.4 mg/l IC50         | Pseudokirchneriella subcapitata | 72 h                 |

**Effects on environment:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**Mobility:** No data available.

**Environmental precautions:** No data available

**Persistence and degradability:** Aerobic, Result: > 60 % - Readily biodegradable.

**Bioaccumulative potential:** No data available.

## **Section 13. Disposal considerations**

**Waste disposal:** Contact a licensed professional waste disposal service to dispose of this material.

## **Section 14. Transportation information**

**Classification DOT/IMDG/IATA label:**

**Shipping name:** Styrene monomer, stabilized

**UN number:** UN2055

**Class:** 3

**Packaging group:** III

**Additional information:** None

## **Section 15. Regulatory information**

### **UNITED STATES: NFPA classification**



Health: 2  
Flammable: 3  
Reactivity: 0  
Special conditions: None

**Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous**

### **U.S. Federal regulations:**

**TSCA 8(b) inventory:** Styrene

**SARA 302/304/311/312 extremely hazardous substances:** Not Listed

**SARA 302/304 emergency planning and notification:** Not Listed

**SARA 302/304/311/312 hazardous chemicals:** Not Listed

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard: Listed

**CWA (Clean Water Act) 307:** Not Listed

**CWA (Clean Water Act) 311:** Not Listed

**CAA (Clean Air Act) 112 accidental release prevention:** Not Listed

**CAA (Clean Air Act) 112 regulated flammable substances:** Not Listed

**CAA (Clean Air Act) 112 regulated toxic substances:** Not Listed

### **State regulations:**

**DEA List I Chemicals (Precursor Chemicals):** Not Listed

**DEA List II Chemicals (Essential Chemicals):** Not Listed

**Substances in Massachusetts:** Listed

**Dangerous substances in New Jersey:** Listed

**New York – Dangerous substances with acute effects:** Not Listed

**Dangerous substances in Pennsylvania – right to know:** Listed

### **WHMIS (Canada):**



B2 - Flammable liquid



D2A - Very toxic material causing other toxic effects  
D2B - Toxic material causing other toxic effects

## **Section 16. Additional information**

### **References:**

- ANSI Z400.1, MSDS Standard, 2001.
- Manufacturer's Material Safety Data Sheet.
- 29CFR Part1910.1200 OSHA MSDS Requirements.
- 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. -Canada
- Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Federal act on the controlled products
- Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2002.
- Toxicological repertory, HSC.
- Material safety data sheet from the components.

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**Elaborated by: Toxyscan Inc., 1-866-780-0599**

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