

## SAFETY DATA SHEET

Version 6.4  
Revision Date 09/21/2021  
Print Date 05/19/2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Styrene- $\alpha$ ,  $\beta$ ,  $\beta$ -d<sub>3</sub>

Product Number : 524999  
Brand : Aldrich  
CAS-No. : 3814-93-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 3), H226  
Acute toxicity, Inhalation (Category 4), H332  
Skin irritation (Category 2), H315  
Eye irritation (Category 2A), H319  
Carcinogenicity (Category 1B), H350  
Reproductive toxicity (Category 2), H361  
Specific target organ toxicity - repeated exposure (Category 1), H372  
Short-term (acute) aquatic hazard (Category 2), H401

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H226 Flammable liquid and vapor.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H350 May cause cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H401 Toxic to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No 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 measures against static discharge.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.  
P501 Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula : C<sub>8</sub>D<sub>3</sub>H<sub>5</sub>  
Molecular weight : 107.17 g/mol  
CAS-No. : 3814-93-5

Component	Classification	Concentration
<b>Styrene-a, β, β-d3</b>	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 1B; Repr. 2; STOT RE 1; Aquatic Acute 2; H226, H332, H315, H319, H350, H361, H372, H401	<= 100 %

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

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

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

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

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

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

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

### **Unsuitable extinguishing media**

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

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

Carbon oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

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

### **5.3 Advice for firefighters**

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

### **5.4 Further information**

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6: Accidental release measures**

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

### **6.3 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 carefully with liquid-absorbent material (e.g.

Chemizorb®). Dispose of properly. Clean up affected area.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Advice on protection against fire and explosion**

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

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

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

#### **Storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

**Storage stability**

Recommended storage temperature  
2 - 8 °C

**Storage class**

Storage class (TRGS 510): 3: Flammable liquids

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

**Ingredients with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis	
Styrene-a, β, β-d3	3814-93-5	TWA	50 ppm 215 mg/m3	USA. NIOSH Recommended Exposure Limits	
		ST	100 ppm 425 mg/m3	USA. NIOSH Recommended Exposure Limits	
		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2	
		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2	
		Peak	600 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2	
		TWA	50 ppm 215 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000	
		STEL	100 ppm 425 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000	
		PEL	50 ppm 215 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)	
		Remarks	Skin		
			STEL	100 ppm 425 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
	Skin				
	C	500 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)		
	Skin				

		TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Ototoxicant Confirmed animal carcinogen with unknown relevance to humans		
		STEL	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Ototoxicant Confirmed animal carcinogen with unknown relevance to humans		

#### Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Styrene-a, $\beta$ , $\beta$ -d3	3814-93-5	Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Styrene	40 $\mu$ g/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

required

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- a) Appearance                      Form: liquid, clear

	Color: colorless
b) Odor	sweet
c) Odor Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -31 °C (-24 °F)
f) Initial boiling point and boiling range	145 - 146 °C 293 - 295 °F - lit.
g) Flash point	ca.32 °C (90 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: ca.8.9 %(V) Lower explosion limit: ca.1.1 %(V)
k) Vapor pressure	ca.6 hPa at ca.20 °C (ca.68 °F)
l) Vapor density	ca.3.6
m) Density	0.935 g/mL at 25 °C (77 °F) - lit.0.935 g/cm <sup>3</sup> at 25 °C (77 °F) - lit.
	Relative density
	No data available
n) Water solubility	ca.0.05 g/l at ca.25 °C (ca.77 °F) - slightly soluble
o) Partition coefficient: n-octanol/water	No data available
p) Autoignition temperature	ca.490.0 °C (ca.914.0 °F)
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## 9.2 Other safety information

Relative vapor density	ca.3.6
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

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

### 10.3 Possibility of hazardous reactions

No data available

#### 10.4 Conditions to avoid

Heating.

#### 10.5 Incompatible materials

No data available

#### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

No data available

##### Skin corrosion/irritation

No data available

##### Serious eye damage/eye irritation

No data available

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

No data available

IARC: 2A - Group 2A: Probably carcinogenic to humans (Styrene-a,  $\beta$ ,  $\beta$ -d3)

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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

##### Reproductive toxicity

No data available

No data available

##### Specific target organ toxicity - single exposure

No data available

##### Specific target organ toxicity - repeated exposure

No data available

##### Aspiration hazard

No data available

#### 11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.



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## SECTION 12: Ecological information

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

UN number: 2055 Class: 3 Packing group: III  
Proper shipping name: Styrene monomer, stabilized  
Reportable Quantity (RQ): 1000 lbs  
Poison Inhalation Hazard: No

### IMDG

UN number: 2055 Class: 3 Packing group: III EMS-No: F-E, S-D  
Proper shipping name: STYRENE MONOMER, STABILIZED

### IATA

UN number: 2055 Class: 3 Packing group: III  
Proper shipping name: Styrene monomer, stabilized

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## SECTION 15: Regulatory information

### SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

### SARA 313 Components

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

Styrene-a,  $\beta$ ,  $\beta$ -d3

CAS-No.  
3814-93-5

Revision Date  
2007-07-01

#### **SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

#### **Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

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### **SECTION 16: Other information**

#### **Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Details in analogy to the undeuterated compound.

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