

## MATERIAL SAFETY DATA SHEET

Date Printed: 03/18/2008

Date Updated: 02/19/2007

Version 1.4

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Section 1 - Product and Company Information

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Product Name 3,4-DIHYDROXY-3-CYCLOBUTENE-1,2-DIONE,  
9 9%

Product Number 123447

Brand ALDRICH

Company Sigma-Aldrich

Address 3050 Spruce Street  
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832

Fax: 800-325-5052

Emergency Phone: 314-776-6555

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Section 2 - Composition/Information on Ingredient

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Substance Name	CAS #	SARA 313
3,4-DIHYDROXY-3-CYCLOBUTENE-1,2-DIONE	2892-51-5	No

Formula C4H2O4

Synonyms Cyclobutenedione, dihydroxy- (8CI) \*  
3-Cyclobutene-1,2-dione, 3,4-dihydroxy- (9CI) \*  
Dihydroxycyclobutenedione \*  
3,4-Dihydroxy-3-cyclobutene-1,2-dione \* Quadratic  
acid \* Squaric acid

RTECS Number: GU1800000

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Section 3 - Hazards Identification

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## EMERGENCY OVERVIEW

Irritant.

Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact.

Strong sensitizer.

For additional information on toxicity, please refer to Section 11.

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Section 4 - First Aid Measures

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## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

## INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

## DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

#### EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

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#### Section 5 - Fire Fighting Measures

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##### FLASH POINT

N/A

##### AUTOIGNITION TEMP

N/A

##### FLAMMABILITY

N/A

##### EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

##### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### EXPOSURE HAZARD(S)

Material: Strong sensitizer. Irritant.

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#### Section 6 - Accidental Release Measures

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##### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

##### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

##### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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#### Section 7 - Handling and Storage

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##### HANDLING

User Exposure: Avoid contact and inhalation. Avoid prolonged or repeated exposure.

##### STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

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#### Section 8 - Exposure Controls / PPE

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##### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

##### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

Hand: Rubber gloves.

Eye: Chemical safety goggles.

#### GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

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#### Section 9 - Physical/Chemical Properties

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Appearance	Color: Grey Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	114.06 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	> 300 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

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#### Section 10 - Stability and Reactivity

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##### STABILITY

Materials to Avoid: Strong oxidizing agents, Strong bases.

##### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

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#### Section 11 - Toxicological Information

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##### ROUTE OF EXPOSURE

Inhalation: Material is irritating to mucous membranes and upper respiratory tract.

Multiple Routes: May be harmful by inhalation, ingestion, or skin absorption. Causes eye and skin irritation.

##### SENSITIZATION

Skin: May cause allergic skin reaction.

CHRONIC EXPOSURE - CARCINOGEN

Species: Mouse  
Route of Application: Subcutaneous  
Dose: 368 MG/KG  
Exposure Time: 92W  
Frequency: I  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS  
criteria. Tumorigenic: Tumors at site or application.

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Section 12 - Ecological Information

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No data available.

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Section 13 - Disposal Considerations

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APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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Section 14 - Transport Information

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DOT

Proper Shipping Name: None  
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

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Section 15 - Regulatory Information

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EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xi  
Indication of Danger: Irritant.  
R: 36/37/38-43  
Risk Statements: Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact.  
S: 26-36  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Irritant.  
Risk Statements: Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.  
US Statements: Strong sensitizer.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No  
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in

accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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## Section 16 - Other Information

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### DISCLAIMER

For R&D use only. Not for drug, household or other uses.

### WARRANTY

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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.