



# ACETIC ACID-D4 (D, 99.5%)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
Issue date: 5/8/2014 Revision date: 11/15/2022 Version: 3.4

### SECTION 1: Identification

#### 1.1. Identification

Product form	: Substance
Substance name	: ACETIC ACID-D4 (D, 99.5%)
Chemical name	: Acetic acid ; Glacial acetic acid
IUPAC name	: Acetic acid
CAS-No.	: 64-19-7
Product code	: DLM-12
Formula	: C2H4O2
Synonyms	: Glacial acetic acid

#### 1.2. Recommended use and restrictions on use

No additional information available

#### 1.3. Supplier

Cambridge Isotope Laboratories, Inc.  
50 Frontage Rd  
01810  
ANDOVER, MA, 01810  
USA  
T 1-800-322-1174  
[cilsales@isotope.com](mailto:cilsales@isotope.com) - [www.isotope.com](http://www.isotope.com)

#### 1.4. Emergency telephone number

Emergency number : 1-703-741-5970  
Chemtrec 1-800-424-9300 24 hours

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

Flammable liquids Category 3	H226	Flammable liquid and vapor
Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Full text of H statements : see section 16		

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

H226 - Flammable liquid and vapor  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage

Precautionary statements (GHS US) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. heat, hot surfaces, open flames, sparks  
P233 - Keep container tightly closed.

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P240 - Ground/Bond container and receiving equipment.  
P241 - Use explosion-proof electrical, lighting, ventilating equipment.  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P260 - Do not breathe dust, fume, gas, mist, spray, vapors.  
P264 - Wash Both hands thoroughly after handling.  
P280 - Wear protective clothing, protective gloves.  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
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.  
P310 - Immediately call a poison center or doctor.  
P321 - Specific treatment (see Hazard pictograms (CLP) on this label).  
P363 - Wash contaminated clothing before reuse.  
P370+P378 - In case of fire: Use Dry chemical, Carbon dioxide, Alcohol resistant foam, Water spray to extinguish.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P405 - Store locked up.  
P501 - Dispose of contents/container to Comply with applicable regulations.

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS US classification
ACETIC ACID-D4 (D, 99.5%) (Main constituent)	CAS-No.: 64-19-7	100	Flam. Liq. 3, H226 Skin Corr. 1A, H314 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.  
First-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.  
First-aid measures after skin contact : Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

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First-aid measures after eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
First-aid measures after ingestion	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Symptoms/effects after skin contact	: Causes severe skin burns and eye damage.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed and enters airways.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
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### 5.2. Specific hazards arising from the chemical

Fire hazard	: Flammable liquid and vapor.
Hazardous decomposition products in case of fire	: Carbon oxides (CO, CO <sub>2</sub> ).

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Wear a self contained breathing apparatus.
Protection during firefighting	:
Other information	: Use water spray to cool unopened containers.

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Emergency procedures	: Use personal protective equipment, and ensure adequate ventilation. Avoid breathing vapors, mist, gas. Remove ignition sources, and move personnel to safe area. Vapors accumulate especially in low areas to form explosive concentrations.
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#### 6.1.2. For emergency responders

No additional information available

### 6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### 6.3. Methods and material for containment and cleaning up

For containment	: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. Contain spillage, then collect with non-combustible absorbent material. Disposal should be in accordance with applicable Federal, State and local regulations.
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### 6.4. Reference to other sections

No additional information available

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Additional hazards when processed : Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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

- Technical measures : Store at room temperature away from light and moisture.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

ACETIC ACID-D4 (D, 99.5%) (64-19-7)	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Acetic acid
ACGIH OEL TWA [ppm]	10 ppm Eye & Upper Respiratory Tract irritation. Pulmonary function.
ACGIH OEL STEL [ppm]	15 ppm Eye & Upper Respiratory Tract irritation. Pulmonary function.
Remark (ACGIH)	TLV® Basis: URT & eye irr; pulm func
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
Regulatory reference	ACGIH 2022
<b>USA - OSHA - Occupational Exposure Limits</b>	
Local name	Acetic acid
OSHA PEL TWA [1]	25 mg/m <sup>3</sup>
OSHA PEL TWA [2]	10 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
<b>USA - NIOSH - Occupational Exposure Limits</b>	
NIOSH REL TWA [ppm]	10 ppm

#### 8.2. Appropriate engineering controls

No additional information available

#### 8.3. Individual protection measures/Personal protective equipment

##### Personal protective equipment:

Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.

##### Eye protection:

Wear safety glasses with side shields (or goggles) and a face shield.

##### Skin and body protection:

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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### Respiratory protection:

When appropriate, use NIOSH/CEN approved respirator.

### Personal protective equipment symbol(s):



## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Colorless
Odor	: Pungent
Odor threshold	: No data available
pH	: 2.4 Source: ECHA
Melting point	: 16.6 °C Source: ChemIDPlus
Freezing point	: No data available
Boiling point	: 117.9 °C Source: ChemIDPlus
Flash point	: 39 °C Source: ICSC
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 20.79 hPa at 25°C Source: ECHA
Vapor pressure at 50°C	: 73.3 hPa (55.0 mmHg) (122.0 °F)
Relative vapor density at 20°C	: No data available
Relative density	: 1.05 Source: ECHA
Density	: 1.04 g/cm <sup>3</sup> Type: 'density' Temp.: 25 °C
Molecular mass	: 60.0516 g/mol Source: ChemIDPlus
Solubility	: Water: 302.9 g/l
Partition coefficient n-octanol/water (Log Pow)	: -0.17 Source: ECHA
Auto-ignition temperature	: 485 °C Source: ICSC
Decomposition temperature	: No data available
Viscosity, kinematic	: 1.015 mm <sup>2</sup> /s
Viscosity, dynamic	: 1.056 cP Source: ECHA
Explosion limits	: 4 – 19.9 % (V) Upper explosion limit: 6 – 17 % Source: ICSC
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable if stored under recommended conditions.

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### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Open flame. Heat. Sparks.

### 10.5. Incompatible materials

Peroxides, permanganates, e.g. potassium permanganate, Amines, Alcohols. Oxidizing agents, Soluble carbonates and phosphates, Hydroxides, Metals.

### 10.6. Hazardous decomposition products

Hazardous decomposition products. - Carbon oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

#### ACETIC ACID-D4 (D, 99.5%) (64-19-7)

LD50 oral rat	3310 mg/kg Source: ECHA Registered substances
LD50 dermal rabbit	1060 mg/kg Source: HSDB, NITE
LC50 Inhalation - Rat	11.4 mg/l/4h
LC50 Inhalation - Rat [ppm]	16000 ppm Source: ChemIDPlus
ATE US (oral)	3310 mg/kg body weight
ATE US (dermal)	1112 mg/kg body weight
ATE US (vapors)	11.4 mg/l/4h
ATE US (dust, mist)	11.4 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns.  
pH: 2.4 Source: ECHA  
Serious eye damage/irritation : Causes serious eye damage.  
pH: 2.4 Source: ECHA  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified  
STOT-repeated exposure : Not classified

#### ACETIC ACID-D4 (D, 99.5%) (64-19-7)

NOAEL (oral,rat,90 days)	290 mg/kg body weight Animal: rat, Animal sex: male
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Aspiration hazard : Not classified  
Viscosity, kinematic : 1.015 mm<sup>2</sup>/s  
Symptoms/effects after inhalation : May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
Symptoms/effects after skin contact : Causes severe skin burns and eye damage.  
Symptoms/effects after eye contact : Causes serious eye damage.  
Symptoms/effects after ingestion : May be harmful if swallowed and enters airways.

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### SECTION 12: Ecological information

#### 12.1. Toxicity

ACETIC ACID-D4 (D, 99.5%) (64-19-7)	
LC50 - Fish [1]	31.3 – 67.6 mg/l Source: ECHA
EC50 - Crustacea [1]	18.9 mg/l Source: ECHA
LC50 - Fish [2]	> 300.82 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [2]	> 300.82 mg/l Test organisms (species): Daphnia magna

#### 12.2. Persistence and degradability

ACETIC ACID-D4 (D, 99.5%) (64-19-7)	
Biochemical oxygen demand (BOD)	80 g O <sub>2</sub> /g substance

#### 12.3. Bioaccumulative potential

ACETIC ACID-D4 (D, 99.5%) (64-19-7)	
Partition coefficient n-octanol/water (Log Pow)	-0.17 Source: ECHA

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

### SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

#### 14.1. UN number

DOT NA No : UN2789  
UN-No. (TDG) : UN2789  
UN-No. (IMDG) : 2789  
UN-No. (IATA) : 2789

#### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Acetic acid, glacial  
Proper Shipping Name (TDG) : ACETIC ACID, GLACIAL  
Proper Shipping Name (IMDG) : ACETIC ACID, GLACIAL  
Proper Shipping Name (IATA) : Acetic acid, glacial

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### 14.3. Transport hazard class(es)

#### DOT

Transport hazard class(es) (DOT) : 8 (3)  
Hazard labels (DOT) : 8, 3



#### TDG

Transport hazard class(es) (TDG) : 8 (3)  
Hazard labels (TDG) : 8, 3



#### IMDG

Transport hazard class(es) (IMDG) : 8 (3)  
Hazard labels (IMDG) : 8, 3



#### IATA

Transport hazard class(es) (IATA) : 8 (3)  
Hazard labels (IATA) : 8, 3



### 14.4. Packing group

Packing group (DOT) : II  
Packing group (TDG) : II  
Packing group (IMDG) : II  
Packing group (IATA) : II

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

#### DOT

UN-No.(DOT) : UN2789



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DOT Special Provisions (49 CFR 172.102)	: A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging. A7 - Steel packaging must be corrosion-resistant or have protection against corrosion. A10 - When aluminum or aluminum alloy construction materials are used, they must be resistant to corrosion. B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 154
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 243
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 53 - Stow "separated from" alkaline compounds,58 - Stow "separated from" cyanides
<b>TDG</b>	
UN-No. (TDG)	: UN2789
ERAP Index	: 3000
Explosive Limit and Limited Quantity Index	: 1 L
Excepted quantities (TDG)	: E2
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: 1 L
Emergency Response Guide (ERG) Number	: 132
<b>IMDG</b>	
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP2
EmS-No. (Fire)	: F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
EmS-No. (Spillage)	: S-C - SPILLAGE SCHEDULE Charlie - FLAMMABLE CORROSIVE LIQUIDS
Stowage category (IMDG)	: A
Segregation (IMDG)	: SGG1, SG36, SG49
Flash point (IMDG)	: '
Properties and observations (IMDG)	: Colourless flammable liquid with a pungent odour. When pure, crystallizes below 16°C. Flashpoint: 40°C c.c. (pure product) 60°C c.c. (80% solution) Explosive limits: 4% to 17% Miscible with water. Corrosive to lead and most other metals. Corrosive to skin, eyes and mucous membranes.
MFAG-No	: 132

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### IATA

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y840
PCA limited quantity max net quantity (IATA)	: 0.5L
PCA packing instructions (IATA)	: 851
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 855
CAO max net quantity (IATA)	: 30L
ERG code (IATA)	: 8F

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### ACETIC ACID-D4 (D, 99.5%) (64-19-7)

Not subject to reporting requirements of the United States SARA Section 313

CERCLA RQ	5000 lb
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
ACETIC ACID-D4 (D, 99.5%)	64-19-7	Present	Active	

### 15.2. International regulations

#### CANADA

#### ACETIC ACID-D4 (D, 99.5%) (64-19-7)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

No additional information available

#### National regulations

#### ACETIC ACID-D4 (D, 99.5%) (64-19-7)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

### 15.3. US State regulations

#### ACETIC ACID-D4 (D, 99.5%) (64-19-7)

State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
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### SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 11/15/2022

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of H-phrases	
H226	Flammable liquid and vapor
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.