

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Citric Acid
Catalog Number: 2106269

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00072

Chemical Name: 2-Hydroxy-1,2,3-Propanetricarboxylic Acid

CAS No.: 77-92-9

Chemical Formula: C₆H₈O₇

Chemical Family: Organic Acid

Hazard: Causes severe eye irritation.

Date of MSDS Preparation:

Day: 15

Month: October

Year: 2009

2. COMPOSITION / INFORMATION ON INGREDIENTS

Citric Acid

CAS No.: 77-92-9

TSCA CAS Number: 77-92-9

Percent Range: 100.0

Percent Range Units: weight / weight

LD50: Oral rat LD50 = 6730 mg/Kg

LC50: None reported

TLV: Not established

PEL: Not established

Hazard: Causes severe eye irritation.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: White crystals

Odor: None

CAUSES EYE IRRITATION MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION

HMIS:

Health: 1

Flammability: 1

Reactivity: 0

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 1

Flammability: 1

Reactivity: 0

Symbol: Not applicable

Potential Health Effects:

Eye Contact: Causes severe irritation
Skin Contact: Causes moderate irritation
Skin Absorption: No effects anticipated
Target Organs: Not applicable
Ingestion: None reported
Target Organs: Not applicable
Inhalation: May cause: respiratory tract irritation
Target Organs: Not applicable
Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions
Chronic Effects: Citric acid chronic overexposure may cause effects due to the ability of citric acid to chelate metals, which could impair the body's ability to absorb calcium and iron.
Cancer / Reproductive Toxicity Information:
O.S.H.A. Listed: No

IARC Listed: No

NTP Listed: No

Additional Cancer / Reproductive Toxicity Information: Not applicable
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water. Call physician if irritation develops.
Ingestion (First Aid): Give large quantities of water.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Can burn in fire, releasing toxic vapors.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Hazardous Combustion Products: Toxic fumes of: carbon monoxide, carbon dioxide.
Fire / Explosion Hazards: Contact with metal nitrates may cause explosion.
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Carbon dioxide Dry chemical. Water.
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment. Cover spilled solid material with sand or other inert material.
Clean-up Technique: Scoop up spilled material into a large beaker and dissolve with water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

Special Instructions (for accidental release): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: None

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep container tightly closed when not in use.

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves lab coat

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin Do not breathe: dust Wash thoroughly after handling.

TLV: Not established

PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White crystals

Physical State: Solid

Molecular Weight: 192

Odor: None

pH: 0.1 N solution = 2.2

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: 153°C

Specific Gravity (water = 1): 1.54

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not applicable

Partition Coefficient (n-octanol / water): Not available

Solubility:

Water: 60% soluble @ 20 °C

Acid: Not determined

Other: Soluble in alcohol, ether.

Metal Corrosivity:

Steel: Not applicable

Aluminum: Not applicable

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Excess moisture

Reactivity / Incompatibility: May explode in contact with: metal nitrates

Hazardous Decomposition: None reported

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral rat LD50 = 6730 mg/Kg
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: Skin; rabbit; 500 mg/24 hour: MODERATE. Eye; rabbit; 750 µg/24 hour: SEVERE.
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: --
Not applicable

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable
Special Instructions (Disposal): Work in an approved fume hood. Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Not Currently Regulated
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DOT Hazard Class: NA
DOT Subsidiary Risk: NA
DOT ID Number: NA
DOT Packing Group: NA
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
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ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
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I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: NA
I.M.O. Packing Group: NA

Additional Information: There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): Not applicable

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302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): Not applicable

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains no RCRA regulated substances.

C.P.S.C.: Not applicable

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): None

California Perchlorate Rule CCR Title 22 Chap 33:

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: TSCA Listed: Yes

TSCA CAS Number: 77-92-9

16. OTHER INFORMATION

Intended Use: Laboratory Reagent

References: Technical Judgment. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Sax, N. Irving and Richard J. Lewis, Sr., revised by. Hawley's Condensed Chemical Dictionary, Eleventh Ed. New York: Van Nostrand Reinhold Co., 1987. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981. NIOSH Registry of Toxic Effects of Chemical Substances, 1985-86. Cincinnati: U.S. Department of Health and Human Services, April, 1987. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. In-house information. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983.

Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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