

SAFETY DATA SHEET

SAFETY DATA SHEET CITRIC ACID 50% SOLUTION

Citric Acid 50% Solution
Distributed by Tilley Chemical Co. Inc.

SECTION 1: IDENTIFICATION

Product Trade Name: Citric Acid 50% Solution
Chemical Family: Acids

Distributed By

Tilley Chemical Co. Inc.
501 Chesapeake Park Plaza
Baltimore, MD 21220
410-574-4500
24 Hour Emergency Contact
CHEMTREC 800 424-9300

SECTION 2: HAZARD IDENTIFICATION

Emergency Overview

Warning: Irritating to eyes. Corrosive to metals. May cause irritation of respiratory tract.

Appearance


Clear Light yellow to Brown

Physical

Liquid

State Odor

Odorless

Classification according to 29 CFR 1910, amended to conform to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS):	
Serious Eye Damage / Eye Irritation	Category 2
Corrosive to Metals	Category 1
GHS Label Elements	
Signal Word	WARNING!
GHS Hazard Pictogram(s):	
Hazard Statement(s):	H319 Causes serious eye irritation H290 May be corrosive to metals
Precautionary Statement(s):	Prevention Precautionary Statement(s): Wash hands and exposed skin thoroughly after handling. Wear eye protection. Keep only in original container. Response Precautionary Statement(s): If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice. Absorb spillage to prevent material damage. Storage Precautionary Statement(s): Store in corrosive resistant container with a resistant inner liner.



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SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS

Component Name	CAS #	OSHA Hazardous	% OPTIONAL
Citric Acid	64-17-5	Yes	~ 50%
Water	7732-18-5		~ 50%

SECTION 4: FIRST AID MEASURES

Eye

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician.

Skin

Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. If irritation persists, get medical attention.

Inhalation

If symptoms are experienced, move victim to fresh air. Obtain medical attention if breathing difficulty persists.

Ingestion

If swallowed, give plenty of water. Obtain emergency room treatment immediately.

Main Symptoms

Itching, Redness, Burning sensation.

Note to Physician

Treat symptomatically

Protection of First-aiders

Use personal protective equipment.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties

Will burn if dried and heated with a flame.

Extinguishing Media

Suitable: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂)

Explosion Data

Sensitivity to mechanical impact	No
Sensitivity to static discharge	No

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters



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As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

NFPA



Health = 2, Flammability = 1, Reactivity = 0

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions

Avoid contact with the skin and the eyes. Ensure adequate ventilation

Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains.

Methods of Clean-up

Dam up. Neutralize. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. After cleaning, flush away traces with water.

SECTION 7: HANDLING AND STORAGE

Handling

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Remove and wash contaminated clothing before re-use.

Storage

Keep in properly labeled containers. Keep container tightly closed in a dry and well-ventilated place.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Ensure adequate ventilation, especially in confined areas. Ensure that eye wash stations and safety showers are close to the work station location.

Personal Protection

Inhalation: A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use.

Skin: Wear chemical resistant gloves such as rubber, neoprene or vinyl. When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn.

Eye: Use splash goggles when eye contact due to splashing or spraying liquid is possible.

Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of



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use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse.

Occupational Exposure Limits

This product is not known to contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid. White/pale yellow
Odor:	None
pH:	0.5
Boiling Point/Boiling Range:	105 °C (221 °F)
Flammability:	No flammable limits
Vapor Pressure:	No information available
Evaporation Rate:	No information available
Specific Gravity:	1.24 – 1.26
Relative Vapor Density:	No information available
Viscosity:	10 – 12 cps
Solubility (Water):	Complete

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability

The product is stable.

Conditions to Avoid

Incompatible products

Incompatible Materials

Strong acids Alkali Strong base Strong oxidizing agents Metal nitrates.

Decomposition Products

Not expected to decompose under normal conditions.

Hazardous Reaction

Gives off hydrogen by reaction with metals

Reactions with Air and Water

Does not react with air, water or other common materials

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: Based on available data, the classification criteria are not met.

Chemical Name	Weight %	LD50 Oral	LD50 Dermal	LC50 Inhalation
Citric Acid	50%	5400 mg/kg Mouse 11700 mg/kg Rat	>2000 mg/kg bw Rat	



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Skin corrosion/irritation	Based on available data, not, or only slightly irritating.
Serious eye damage/eye irritation	Irritant causes serious eye irritation.
Method Species Results	OECD Guideline 405 (Acute Eye Irritation / Corrosion) Rabbit (New Zealand White) Test data is not provided for 50% solution, but results for 30% solution indicate significant irritation score. [Overall irritation score for 30% solution: 16 of max. 110 (mean (of 3 animals)) (Time point: at 1, 24, 48 or 72 h) (not fully reversible within: 14 days) (fully reversible in 14-21 days) (expert opinion) (score achieved at 1 h)]
Respiratory or skin sensitization	Based on available data, not expected to be a skin or respiratory sensitiser.
Germ cell mutagenicity	Based on available data, negative to test/non-mutagenic.
Carcinogenicity	Based on available data, no evidence of carcinogenicity. There are no known carcinogenic chemicals in this product
Reproductive toxicity	Based on available data, no evidence of reproductive toxicity.
STOT - single exposure	Based on available data, no toxicity identified at highest exposure levels.
STOT - repeated exposure	Based on available data, no toxicity identified at highest exposure levels [NOAEL(rats) 4000mg/kg bw/d].
Aspiration hazard	Based on available data, no known aspiration hazard.

Potential health effects

Eyes

Avoid contact with eyes. Irritating to eyes.

Skin

According to GHS hazard classification criteria, the product is not considered as being a skin irritant. Based on available data, not, or only slightly irritating.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Not classified for aquatic toxicity. Contains no substances known to be hazardous to the environment. Contains no substances known to be not degradable in waste water treatment plants.

Chemical Name	Aqua Fresh Water Algae	Acute Fish Toxicity	Daphnia (Water flea)	Effects on Micro organisms	Other
Citric Acid	NOEC(8d): 425mg/l (nominal)*	LC50:440mg/L (Leuciscus idus)	EC50: 1535mg/L (Daphnia magna)		

*Determined by extrapolation (testing of intrinsic toxicity to algae impractical due to nutrient complexing behavior of citric acid)

Predicted No Effect Concentrations (PNEC) - Determined by extrapolation

Chemical Name	Aqua (Fresh Water)	Aqua (marine)	Sewage Treatment Plant	Sediment (fresh water)	Sediment (marine)	Soil
Citric Acid	0.44mg/l	0.044mg/l	>1000 mg/l	34.6mg/kg sediment dw	3.46mg/kg sediment dw	33.1mg/kg

Bioaccumulative Potential Bioaccumulation is unlikely. [Logkow < 0].

Chemical Name	log Kow	BCF
Citric Acid	-0.2 to -1.8	BCF ~ 3.2 (estimated)



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Persistence/Degradability: Readily biodegradable. Inherently biodegradable. 97% and 100% biodegradability in 28d and 19d, respectively (protocols OECD 301E and OECD 301A, respectively).

Mobility: Soluble in water.

PBT and vPvB assessment The components of this product are not considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 13: DISPOSAL CONSIDERATIONS

Hazardous waste Dispose of in compliance with the laws and regulations pertaining to this product in your jurisdiction. Taking into account local regulations the product may be disposed of as waste water after neutralization.

SECTION 14: TRANSPORT INFORMATION

Domestic transport regulations (USA)

DOT

Proper Shipping Name: Corrosive liquid, n.o.s. (Citric acid)
DOT Shipping Description UN1760 Corrosive liquid, n.o.s (Citric acid), 8, PG III
UN-No UN1760
Hazard Class 8
Packing Group III
Special Provisions IB3, T7, TP1, TP28



Transport Symbol

SECTION 15: REGULATORY INFORMATION

Federal Regulations

SARA 302/304

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Immediate (Acute) Health Hazard.	Yes
Delayed (Chronic) Health Hazard.	No
Fire Hazard	No
Sudden Release of Pressure	No
Reactive Hazard	No

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the De Minimis reporting levels established by SARA Title III, Section 313 and 40 CFR 372.



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SECTION 16: OTHER INFORMATION

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